4.5.3 The historical rates in power exchanges are as below:

Month/Year	Y- 2017	Y- 2018	Y- 2019	Y-2020	Y-2021	Y-2022
March	2.46	4.12	3.06	2.45	4.02	8.23
April	2.71	3.97	3.19	2.42	3.7	10.01
May	2.9	4.57	3.33	2.54	2.84	6.76
October	4.08	5.74	2.71	2.73	8.01	

4.5.4 In the year 2020 and 2021, the rates were on lower side due to lower demand on account of the lockdown imposed by GoM in view of the spread of COVID-19, however in year 2022, the demand got restored and the rates were on higher side due to coal shortage scenario and increase in the rates of imported coal which is expected to be on higher side in year 2023 also.

4.5.5 Considering prevalent market trends, the rates discovered in Short Term Tender is most competitive rates.

4.6. **Ceiling rate for additional power purchase:**

4.6.1 The Commission in its MYT Order in Case No. 322 of 2019 has approved a ceiling rate of Rs. 4.50 per unit for power procurement from short term sources and subject to the conditions that all short-term power is to be procured additionally as the need arises, through competitive bidding in accordance with the MoP Guidelines, except in case of power procured from the Power Exchanges or under the Banking mechanism.

4.6.2 MSEDCL in exercise of power procurement on short term basis through recent competitive bidding in accordance with the MoP Guidelines, has discovered a price of Rs. 7.44 per unit to Rs 7.85 per unit which is much more than the ceiling rate of Rs.4.50 per unit determined by the Commission in its MYT Order.

4.6.3 Further, considering the expected demand and supply scenario, MSEDCL may require to procure the additional power by floating such short-term power purchase tender on DEEP portal and looking to the present price trend on short term power, the probability of rates that will be discovered may be more than the ceiling of Rs. 4.50 per unit.

4.7. **Regulatory Provisions regarding approval and adoption of tariff through short term power procurement tender:**

4.7.1 The 'Guidelines for short term Procurement of Power by Distribution Licensees through Tariff based bidding process' notified by the Ministry of Power (MoP), Government of India dated 30 March 2016, specifies the following:

"

11.4

If the quantum of power procured and tariff determined are within the blanket approval granted by the Appropriate Commission in Annual Revenue Requirement (ARR) of the respective year, then the same will be considered to have been adopted by the Appropriate Commission.

In all other cases, the Procurer(s) shall submit a petition to the Appropriate Commission for adoption of tariff within 2 days from the date of signing of PPA. Appropriate Commission should communicate the decision within 7 days from the date of submission of petition."

4.7.2 As per Section 63 of Electricity Act 2003, the Commission shall adopt the tariff if such tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government.

4.7.3 MSEDCL has floated the tender as per the guidelines issued by MoP and tariff is discovered through competitive bidding process hence the instant petition is filed for adoption of tariff.

4.8. **Powers to remove difficulties:**

4.8.1 MSEDCL has urged that the Commission has sufficient powers to deal with the matter and issue orders under Regulation 106 of the MERC (MYT) Regulations 2019 which provides for removal of difficulties.

4.8.2 MSEDCL is facing reduced power supply availability from its long term contracted generators due to coal shortage and other reasons. MSEDCL has anticipated that this situation is likely to be continuing for this year also. Further, in the wake of less generation availability and increase in imported coal price, the short-term prices on the exchanges have already increased. Hence, MSEDCL prayed to accord in principle approval for procurement of power on DEEP portal/ exchanges above ceiling rate of Rs. 4.50 per unit.

5. Advocate of MSEDCL summarized the submissions in the Petition. However, the Commission pointed out that the Petition lacked necessary data to justify quantum of short term power procurement. Further, adequate justification for assumptions considered in the Petition has also not been provided. Therefore, to enable the Commission to decide the

Petition, the Commission directed MSEDCL to file additional submission with rationale for procurement.

6. **MSEDCL in its Additional submission dated 5 August 2022 submitted as below:**

6.1. MSEDCL has floated tender for procurement of short-term power of 500 to 1000 MW RTC on DEEP E-bidding portal for the period from October-2022 and March-2023 to May-2023. In response to the requisitioned quantum of 500 to 1000 MW, only 100 MW in Oct-22, 300 MW in Mar-23 and 400 MW in April-23 and May-23 was received with the rates in the range of Rs. 7.44 to Rs. 7.85 per unit.

6.2. Hence, the approval sought in this Petition is for procuring power up to 400 MW only. The reference of 1000 MW in the Petition's body and the Prayer clause of the Petition is with respect to the quantum of power for which tender was floated on DEEP Portal and not for the approval of power of quantum.

6.3. **Demand Projections in the Petition vis-à-vis MYT Order in Case No.322 of 2019**

6.3.1 MSEDCL in the present Petition has projected its demand based on the CAGR of each hour from the hourly average demand of each month based on the hourly average demand data of period 2017 to 2022.

6.3.2 For capturing unexpected rise in demand/maximum expected demand of each hour for the months of September-22, October-22 and March-23, April-23 and May-23, in addition to the CAGR correction factor has been applied. Correction factor is the ratio of each hour's Peak demand to each hour's Average demand of respective months of last years.

6.3.3 As per historic trend, in the month of September and October, dry spell is observed in intermittent years, and this increases the demand unexpectedly. Hence, to capture such eventuality, the demand in October-22 and September-22 month is further escalated by Safety factor which is calculated based on the last 5 years' respective month wise hourly average demand and peak demand data for each month.

6.3.4 Further, in the month of March-22 to May-22, abnormal ratio of peak demand to average demand of each hour was observed due to the abnormal rise of demand in year 2022 and the same was corrected by applying the correction factor by calculating the average deviation of Peak demand to Average demand.

6.3.5 For comparison of actual demand and projected by MSEDCL with respect to the demand projection in MYT Order, MSEDCL has considered approved monthly energy

requirement (i.e.MUs) as per MoD stack of MYT for the period from FY 2020-21 to FY 2024-25 and converted the same in average MW. The power requirement (worked out in MW) is compared with the actual average demand for April 2020 to July 2022 and projected by MSEDCL for Aug 2022 to May 2023.

The Y-o-Y % increase in requirement considered in MYT Order and actual/projected demand of each month is calculated as below:

Approved Energy requirements (MUs) and converted Average Demand (in MW) as per MYT														
		Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Avg**
FY 2020-21	**MUs**	12426	12848	11659	11541	11394	10717	12271	11317	10862	11463	10696	12392	139586
	MW	17,258	17,268	16,193	15,512	15,315	14,885	16,493	15,718	14,599	15,408	15,916	16,656	15,934
FY 2021-22	**MUs**	12,642	13,076	11,864	11,739	11,591	10,908	12,478	11,499	11,033	11,863	10,874	12,605	1,42,171
	MW	17,558	17,575	16,478	15,778	15,579	15,150	16,771	15,971	14,829	15,944	16,181	16,942	16,230
% Y-O-Y		**1.74%**	**1.77%**	**1.76%**	**1.71%**	**1.72%**	**1.78%**	**1.69%**	**1.61%**	**1.58%**	**3.48%**	**1.67%**	**1.72%**	**1.85%**
FY 2022-23	**MUs**	12,879	13,324	12,086	11,945	11,796	11,113	12,699	11,695	11,228	11,839	11,041	12,837	1,44,484
	MW	17,887	17,909	16,786	16,055	15,855	15,435	17,069	16,244	15,092	15,913	16,430	17,254	16,494
% Y-O-Y		**1.87%**	**1.90%**	**1.87%**	**1.76%**	**1.78%**	**1.88%**	**1.77%**	**1.70%**	**1.77%**	**-0.19%**	**1.54%**	**1.84%**	**1.63%**

Actual average Demand/Projected Demand – MSEDCL (In MW)													
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
FY 2020-21	14,403	15,776	13,466	13,510	13,086	14,453	15,118	16,089	16,986	17,448	17,882	18,966	15,599
FY 2021-22	19,975	17,656	16,087	15,946	17,565	15,859	16,656	17,838	17,124	17,977	19,644	21,150	17,790
% Y-O-Y	**38.69%**	**11.92%**	**19.46%**	**18.03%**	**34.23%**	**9.73%**	**10.17%**	**10.87%**	**0.81%**	**3.03%**	**9.85%**	**11.52%**	**14.05%**
FY 2022-23	22,199	21,761	19,087	15,767	*18,082*	*17,986*	*19,802*	*19,069*	*18,154*	*19,001*	*20,855*	*23,294*	*19,588*
% Y-O-Y	**11.13%**	**23.25%**	**18.65%**	**-1.12%**	**2.94%**	**13.41%**	**18.89%**	**6.90%**	**6.01%**	**5.69%**	**6.17%**	**10.14%**	**10.11%**
FY 2023-24	*23,809*	*23,287*											
% Y-O-Y	**7.25%**	**7.01%**											

6.3.6 From the above table it is observed that due to the Covid-19 effect the actual demand in FY 2020-21 was on lower side, hence the abnormal rise is observed in actual demand from April-21 to Dec-21. However, after the normalization of situation post Covid, rise of around 9% to 23% is observed in the actual average demand with respect to last year's same month's average demand which is higher than the rise considered in MYT Order. Further, the rise in average demand worked out from the projected hourly demand by MSEDCL is also in line with the actual rise in average demand of current year.

6.4. **Generation availability:**

6.4.1 MSEDCL also projected the generation availability considering the factors such as historical trend of generation availability, proposed planned thermal generators unit outages, expected RE generation capacity addition, etc.

6.4.2 Following are the factors considered for projection of generation availability.

- The planned thermal unit outages as proposed in CEA's Load Generation Balance Report (LGBR) 2022-23 have been considered.

- MSPGCL Plants:

  MSEDCL sought the unit outages plan from MSPGCL and according to the peak demand months, MSPGCL has been requested to revise the outage plan. Considering all these proposed planned outages, available capacity for generation of respective month is projected.

  Generally, MSPGCL's generation availability varies on month-to-month basis/seasonal basis due to the issues of coal quality and quantity mainly during the monsoon season, unit outages, etc.

  Thus, to access the generation availability from the MSPGCL plants the average of actual generation availability of last three years is considered. Further, as per MoP directives, the effect of coal blending is also considered. Based on the actual coal blended in the month of June-22, the rise in overall generation is worked out @3%. Hence, while accessing the generation availability for Oct-22 and Mar-23 to May-23, the effect of blending of coal @ 4% rise in overall generation has been considered.

  The actual generation availability of MSPGCL's plant, effect of coal blending and overall % availability considered for accessing MSPGCL's plant during the said month is as below:

Year/Month	Oct	Mar	Apr	May
2019	68%			
2020	74%	84%	89%	88%
2021	56%	74%	67%	71%
2022		71%	72%	74%
Average	66%	76%	76%	78%
Coal Blending 4%	**68.6%**	**78.6%**	**78.6%**	**78.6%**

- NTPC Plants:

  For projecting the NTPC's generation availability, in addition to the planned outages, 5% less generation availability is considered in view of the unexpected forced outages.

- IPP:

The generation availability from IPPs is considered as 100%, as there is no any planned outages proposed in the said months, however in the power planning the generation availability from contracted generators CGPL (760 MW) and JSW (300 MW) is not considered, as presently they are not supplying power to MSEDCL as per the PPA with MSEDCL.

- Co-gen/Bagasse power plant:

The generation availability from Co-gen/Bagasse power plants is considered based on the historical trend of their generation of FY 2021-22.

- Wind & Solar:

The wind generation availability is considered as average of wind generation based on last year's respective month's actual wind data. In similar line, the generation availability of Solar power plant is also considered from the last year's solar generation data. Further, the expected solar generation addition of @450 MW is also considered while assessing the solar generation availability for FY 2022-23.

6.5. **Mapping of demand and supply position:**

6.5.1 Considering the projected demand and accessed generation availability, the expected shortfall is calculated for the month of Oct-22, Mar-23 to May-23**.**

6.5.2 The expected demand, availability and shortfall during Morning Peak (MP), Day Peak (DP), Evening peak (EP) and Night Peak (NP) of ensuing period is as below**:**

Months	Night Peak (22 to 6 hrs)			Morning Peak (6 to 10 hrs)			Day Peak (10 to 18 hrs)			Evening Peak (18 to 22 hrs)		
	Demand	Availability	Shortfall	Demand	Availability	Shortfall	Demand	Availability	Shortfall	Demand	Availability	Shortfall
Oct-22	19996	18883	-1112	21233	20889	-343	21977	20585	-1392	20028	19043	-985
Mar-23	23246	21074	-1882	24238	23071	-1167	25338	23589	-1749	22522	21050	-1472
Apr-23	24009	21368	-2351	23936	22468	-1468	25850	23423	-2427	22878	21312	-1565
May-23	23780	21417	-2073	23109	21409	-1700	24799	22580	-2220	22436	21222	-1214

6.6. **Issues in Agricultural demand mapping:**

6.6.1 The major factor for variations on MSEDCL's demand is agricultural load which varies from season to season. During the rainy season due to less pumping requirement, the agricultural load is less. In the month of October (being post monsoon), the Ag pumping requirement increases. This increase coupled with the effect of October heat which increases overall demand of MSEDCL.

6.6.2 The agricultural demand in March to May depends on the previous year's rainfall. In the current year monsoon season, above normal rainfall is predicted by IMD and hence it is expected that demand scenario may be the same as experienced during the March-22 to May-22.

6.6.3 The overall energy requirement, the energy requirement of Agricultural consumers is around 22%. Hence, the overall demand of MSEDCL, which includes agricultural demand, is projected based on CAGR and actual demand trend which captures the seasonal variation of Agricultural demand, temperature and effect of post Covid increase in overall activity.

6.7. **Planned outage details:**

6.7.1 The abstract of organization/Generating Utility wise planned outages is as given below:

Organization	Contracted Capacity (MW)	Oct-22		Mar-23		Apr-23		May-23	
		Capacity Under Outage (MW)	Capacity available for Generation (MW)	Capacity Under Outage (MW)	Capacity available for Generation (MW)	Capacity Under Outage (MW)	Capacity available for Generation (MW)	Capacity Under Outage (MW)	Capacity available for Generation (MW)
MSPGCL*	9540	0	9540	0	9540	0	9540	0	9540
NTPC (State Periphery)	4841	48	4793	253	4588	0	4841	0	4841
NPCIL (State Periphery)	651	131	520	131	520	131	520	131	520
IPP's#	5511	1033	4478	1033	4478	1033	4478	1033	4478
Total	20544	1212	19331	1418	19126	1164	19379	1164	19379

*On Gross Basis # Availability from JSW and CGPL is not considered while assessing the generation availability projections.

6.8. **Summary of maximum capacity under various type of outages in the last three years:**

6.8.1 In the power planning, while accessing the generation availability from the contracted thermal generators, MSEDCL has considered the outages proposed in Load Generation Balance Report (LGBR) 2022-23 as published by WRPC/CEA.

6.8.2 The monthly summary of maximum capacity under various type of outages in the last three years is as below:

Month	Year	MSPGCL				IPP				NTPC			
		Planned	Forced	Zero	Coal Shortage	Planned	Forced	Zero	Coal Shortage	Planned	Forced	RSD	Coal Shortage
OCT	2019	1660	1268	4140	460	80	1010	1080	1980	0	600	1699	151
	2020	210	2970	1800	0	160	740	1510	0	456	784	1300	0
	2021	920	1556	0	2040	0	1790	0	1130	404	768	321	0
March	2020	710	1466	6060	0	0	2340	1450	0	179	1072	2123	0
	2021	210	3020	840	0	160	1860	0	100	914	560	50	0
	2022	210	2548	0	670	0	1440	0	750	800	1213	0	0
April	2019	250	2242	670	870	80	1560	1350	0	82	740	0	0