

Before the
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION
World Trade Centre, Centre No.1, 13th Floor, Cuffe Parade, Mumbai 400005
Tel. 022 22163964/65/69
Email: mercindia@merc.gov.in
Website: www.merc.gov.in

Case No. 2 of 2024

Petition of Maharashtra State Electricity Distribution Company Limited seeking approval to execute PPA for a period of three years to procure firm power of 378.67 MW from NPCIL's Kakrapar Unit 3 & 4 (2 X 700 MW) and to execute extension of existing PPAs dated 4 June 2005 and 12 February 2008 with NPCIL for a further period of 15 years.

Coram

Sanjay Kumar, Chairperson
Anand M. Limaye, Member
Surendra J. Biyani, Member

Maharashtra State Electricity Distribution Company Limited : Petitioner

Appearance

For the Petitioner: : Adv. Deepa Chawan

ORDER

Date: 11 November, 2024

1. Petitioner, Maharashtra State Electricity Distribution Company Limited (MSEDCL) has filed this Petition being Case No. 2 of 2024 on 29 December 2023 seeking approval to execute PPA for a period of three years to procure firm power of 378.67 MW from NPCIL's Kakrapar Unit 3 & 4 (2 X 700 MW) as allocated by Ministry of Power vide Letter dated 29 May 2023, to meet the expected increase in demand in future years as estimated by CEA and to execute extension of existing PPAs dated 4 June 2005 and 12 February 2008 with NPCIL for a further period of 15 years. The present petition has been filed under Section 86 (1)(b) of the Electricity Act, 2003, 21 and 22 of MERC (Multi Year Tariff) Regulations, 2019.
2. **Petitioner's main prayers are as under:**
 - a) *Admit the present Petition;*
 - b) *Allow MSEDCL to execute Power Purchase Agreement (PPA) for a period of three years to tie-up firm power of 378.67 MW capacity from NPCIL's Kakrapar Unit 3&4 as allocated*

in terms of MoP Letter dated 29.05.2023 (Annexure – I) and thereby as proposed in this Petition in order to meet the expected increase in demand in future years as estimated by CEA;

c) Allow MSEDCL to execute extension of Power Purchase Agreements (PPAs) dated 04.06.2005 and 12.02.2008 with NPCIL for a further period of 15 years as proposed in this Petition.

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3. Facts of the Petition are summarized as under:

3.1. As per 20th EPS (Electric Power Survey) data published by CEA on November 2022, the peak demand projection of MSEDCL is as below:

FY	Peak Demand in MW	FY	Peak Demand in MW
2022-23	26,558	2023-24	27,732
2024-25	29,115	2025-26	30,582
2026-27	32,271	2027-28	33,897
2028-29	35,573	2029-30	37,601
2030-31	38,781	2031-32	39,884

3.2. Projected peak demand of MSEDCL is 26,558 MW (actual peak demand was 25144 MW on 14 April 2022) in FY 2022-23, which is expected to gradually increase up to 39,884 MW till FY 2031-32.

3.3. In order to meet the demand, MSEDCL has following tied-up capacities of total 38730 MW under various Long Term PPA as on 31 March 2023:

Generator name	Type	Installed Capacity (MW)	Contracted Capacity (MW)
Bhusawal Unit - 3	Thermal	210	210
Bhusawal Unit - 4 & 5	Thermal	1000	1000
Chandrapur Unit - 3 to 7	Thermal	1920	1920
Khaperkheda Unit - 1 to 4	Thermal	840	840
Khaperkheda Unit - 5	Thermal	500	500
Koradi Unit - 6	Thermal	210	210
Nasik Unit - 3 to 5	Thermal	630	630
Parali Unit - 6 & 7	Thermal	500	500
Paras Unit - 3 & 4	Thermal	500	500
Uran GTPS	Gas	672	672
Koradi Unit - 8 to 10	Thermal	1980	1980
Chandrapur Unit – 8&9	Thermal	1000	1000
Parali Unit -8	Thermal	250	250
KSTPS I & II	Thermal	2100	610
KSTPS-III	Thermal	500	108
VSTP-I	Thermal	1260	410
VSTP-II	Thermal	1000	319
VSTP-III	Thermal	1000	258

Generator name	Type	Installed Capacity (MW)	Contracted Capacity (MW)
VSTP-IV	Thermal	1000	270
VSTPS-V	Thermal	500	149
Kawas	Gas	656	201
Gandhar	Gas	657	200
SSTPS- I	Thermal	1980	510
SSTPS- II	Thermal	1000	258
MSTPS-I	Thermal	1000	370
MSTPS-II	Thermal	1320	500
KHTPS-II	Thermal	1500	148
Solapur STPS	Thermal	1320	616
Gadarwara	Thermal	1600	50
Lara Stage – I	Thermal	1600	231
Lara Stage – II	Thermal	1600	228
Khargone	Thermal	1320	50
JSW U1, Jaigad	Thermal	300	300
CGPL, Mundra	Thermal	760	760
RattanIndia Power Ltd. 450 MW	Thermal	450	450
RattanIndia Power Ltd. 750 MW	Thermal	750	750
APML, Tiroda 1320 MW	Thermal	1320	1320
APML, Tiroda 1200 MW	Thermal	1200	1200
APML, Tiroda 125 MW	Thermal	125	125
APML, Tiroda 440 MW	Thermal	440	440
EMCO, Warora	Thermal	200	200
Sai Wardh Power Generation Ltd.	Thermal	240	240
KAPP	Nuclear	440	152
TAPP 1&2	Nuclear	320	160
TAPP 3&4	Nuclear	1080	393
SSP	Hydro	1450	391
Pench	Hydro	160	54
Dodson II	Hydro	34	34
Subhansari Hydro	Hydro	2000	183
Hydro (including Ghatghar)	Hydro	3072	3072
Renewable - Non-Solar			6820
Renewable - Solar			5988
Total			38730

3.4. Although around 21,255 MW of thermal capacity has been contracted, the actual annual availability for the last 3 years of these thermal stations has been much below the contracted capacity, as indicated below:

Generators name	Contracted Capacity (MW)	2020-21 (MW)	2021-22 (MW)	2022-23 (MW)
Bhusawal Unit 03	210	204	139	120
Bhusawal Unit 04 & 05	1000	920	780	760
Khaperkheda Unit 1 to 4	840	630	512	538
Khaperkheda Unit 05	500	370	415	425
Nashik TPS	630	586	529	416
Chandrapur Unit 03 to 07	1920	1229	1018	998
Paras Unit 03 and 04	500	410	375	360

Generators name	Contracted Capacity (MW)	2020-21 (MW)	2021-22 (MW)	2022-23 (MW)
Parli Unit 06 and 07	500	475	385	375
Koradi Unit 06	210	160*	147	149
GTPS Uran	672	235	235	188
Parli Unit 08	250	235	198	138
Chandrapur Unit 08,09	1000	850	750	820
Koradi Unit 08,09,10	1980	1267	1247	1267
KSTPS	610	500	537	549
KSTPS III	108	103	103	91
VSTP I	410	346	347	336
VSTP II	319	255	260	282
VSTP III	258	238	220	222
VSTP IV	270	225	239	260
VSTP V	149	135	126	136
Kawas	201	166	69	182
Gandhar	200	186	98	164
KhSTPS-II	148	105	119	128
SIPAT TPS 2	258	235	241	231
SIPAT TPS 1	510	480	383	418
Mauda I	370	342	320	296
Mauda II	500	472	425	463
NTPC Solapur	616	577	537	450
Lara	231	182	191	195
Gadarwara	50	43	39	35
Khargone	50	33	39	41
JSW	300	231	99	207
CGPL	760	600	137	486
APML 125 MW	125	121	103	103
APML 1320 MW	1320	1069	1135	1175
APML 1200 MW	1200	1164	1104	1176
APML 440 MW	440	422	317	290
GMR	200	182	162	174
RPL 450 MW	450	437	383	365
RPL 750 MW	750	728	638	608
SWPGL	240	238	194	192
TOTAL	21255	12402	15295	15809

*- Koradi Unit-7 is decommissioned on 03.08.2021.

3.5. Apparently, most of MSPGCL's stations were operating at an annual availability varying from 52% to 75% and maximum thermal availability till date was of 8232 MW on 20 April 2023.

3.6. MSEDCL has conducted various meetings and issued numerous letters to MSPGCL requesting them to increase its availability to cater MSEDCL's demand. In the last three years, due to deficit in supply as against the contracted quantum, MSEDCL had to cater demand by additional power procurement from Power exchanges at the higher rates. Annual Fixed Charges (AFC) disallowed to MSPGCL due to less availability from their generating stations are as mentioned below:

Sr. No.	Financial Year	Approved AFC for Normative availability	AFC paid as per actual availability	AFC disallowed Rs Crs
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		Rs Crs	Rs Crs	
1	FY 2020-21	9156	8026	1130
2	FY 2021-22	8984	7359	1625
3	FY 2022-23	8629	7050	1579
4	FY 2023-24 (upto Oct-23)	5350	4437	913

3.7. The actual availability from MSPGCL stations never attained even the normative availability as determined by the Commission. Therefore, MSEDCL has been deprived of significant capacity with respect to the contracted capacity with MSPGCL.

3.8. Out of 9540 MW of coal based commissioned plants, MSPGCL has only on few occasions has exceeded the availability of 7000 MW and for most of time availability from MSPGCL's coal-based plants is found to be in the range of 5000 MW to 6000 MW. This has resulted into a deficit of power for MSEDCL from MSPGCL's total contracted thermal capacity.

3.9. Further, the PLF for last 3 years of the Generating Station's whose power has been tied up with MSEDCL are as below:

GENERATOR'S NAME	2020-21	2021-22	2022-23
Bhusawal Unit 03	12%	29%	39%
Bhusawal Unit 04 & 05	54%	64%	71%
Khaperkheda Unit 01 to 04	67%	50%	59%
Khaperkheda Unit 05	70%	79%	79%
Nashik TPS	15%	41%	47%
Chandrapur Unit 03 to 07	54%	50%	48%
Paras Unit 03 and 04	77%	58%	70%
Parli Unit 06 and 07	33%	40%	62%
Koradi Unit 06 & 07	13%	46%	71%
GTPS Uran	34%	35%	26%
Parli Unit 08	45%	49%	49%
Chandrapur Unit 08,09	81%	73%	76%
Koradi Unit 08,09,10	46%	62%	63%
KSTPS	92%	93%	94%
KSTPS III	94%	97%	85%
VSTP I	86%	87%	86%
VSTP II	88%	84%	92%
VSTP III	94%	86%	88%
VSTP IV	84%	89%	98%
VSTP V	90%	85%	94%
Kawas	18%	2%	0%
Gandhar	14%	5%	0%
KhSTPS-II	63%	79%	80%
SIPAT TPS 2	87%	95%	88%
SIPAT TPS 1	91%	76%	81%
Mauda I	40%	74%	80%
Mauda II	34%	61%	79%
NTPC Solapur	34%	47%	54%
Lara	62%	83%	86%
Gadarwara	52%	56%	68%
Khargone	36%	55%	50%
JSW	73%	32%	25%
CGPL	81%	12%	22%
APML 125 MW	54%	63%	59%

GENERATOR'S NAME	2020-21	2021-22	2022-23
APML 1320 MW	80%	84%	83%
APML 1200 MW	62%	79%	91%
APML 440 MW	28%	47%	41%
GMR	87%	80%	86%
RPL 450 MW	26%	78%	80%
RPL 750 MW	26%	78%	80%
SWPGL	58%	60%	78%

3.10. The lower availability of the aforesaid thermal generating stations is primarily on account of following reasons:

- a) Lack of availability of sufficient coal;
- b) Poor coal quality
- c) Inability to achieve performance parameters due to vintage units;
- d) Non-availability of part of contracted power from MSPGCL, due to trippings/forced shutdowns of their stations.

3.11. Since last two years, due to non-availability of APM & N-APM gas and high rate of RLNG gas, MSEDCL could hardly schedule any power from NTPC Kawas and Gandhar stations (i.e. 404 MW). Also, due to lower supply of APM gas to GTPS Uran, MSEDCL is getting only 200 MW power against contracted 672 MW from GTPS Uran. Thus, MSEDCL is deprived of around 876 MW (404 MW + 472 MW) from its contracted sources due to non-availability of APM and N-APM gas.

3.12. The availability of APM gas for ensuing years is also very uncertain and MSEDCL is not expecting any respite in terms of availability of APM and N-APM gas or any reduction in the prevailing rates of RLNG gas in the near future. Therefore, it is expected that MSEDCL may be deprived of this quantum (gas-based stations) of power in the near-term period.

3.13. The time interval wise demand and availability along with shortfall/ surplus of MSEDCL during the last three FYs is as below:

Morning Peak (05:00 to 08:00 Hrs)		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
FY-2021-22	Demand	22183	20257	18393	20590	20757	18458	19238	19961	19811	19726	21446	22498
	Availability	20816	20919	21741	21052	18515	15877	18541	18963	19876	20038	20491	20756
	Shortfall (+)/ Surplus (-)	1367	-662	-3348	-462	2242	2581	697	998	-65	-312	955	1742
FY-2022-23	Demand	23050	22467	21545	18177	20049	18913	19022	21048	21616	22074	22899	23000
	Availability	21104	22039	21404	17173	18047	18295	17686	21703	20517	21050	21551	23422
	Shortfall (+)/ Surplus (-)	1946	428	141	1004	2002	618	1336	-655	1099	1024	1348	-422
FY-2023-24	Demand	24140	23199	23700	20817	23283	23993	24175	24441				
	Availability	23700	24464	22601	21769	22256	22783	22554	23823				
	Shortfall (+)/ Surplus (-)	440	-1265	1099	-952	1027	1210	1621	618	0	0	0	0

Day Peak (08:00 to 18:00 Hrs)		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
FY-2021-22	Demand	22832	20948	18520	21092	21521	18759	20125	22098	21764	22734	23286	24400
	Availability	21005	22102	21563	21835	20227	16494	20374	20489	21820	23103	22781	22488
	Shortfall (+)/ Surplus (-)	1827	-1154	-3043	-743	1294	2265	-249	1609	-56	-369	505	1912
FY-	Demand	25144	24008	22830	19157	20586	18917	18851	22536	24067	24750	24855	24893

Day Peak (08:00 to 18:00 Hrs)		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
2022-23	Availability	22668	23212	23439	18500	19504	19882	19177	23990	24124	23591	24477	25389
	Shortfall (+)/ Surplus (-)	2476	796	-609	657	1082	-965	-326	-1454	-57	1159	378	-496
FY- 2023-24	Demand	24326	24047	24232	20203	22525	23496	24058	23598				
	Availability	23548	24377	22129	22214	21699	22632	21932	24179				
	Shortfall (+)/ Surplus (-)	778	-330	2103	-2011	826	864	2126	-581	0	0	0	0

Evening Peak (18:00 to 22:00 Hrs)		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
FY- 2021-22	Demand	19787	18573	17078	18423	19330	18151	18674	19402	18890	18927	20260	21533
	Availability	20131	20591	20996	19977	18662	17955	18507	19464	19493	19372	20416	21208
	Shortfall (+)/ Surplus (-)	-344	-2018	-3918	-1554	668	196	167	-62	-603	-445	-156	325
FY- 2022-23	Demand	22370	21605	20642	17804	19310	19076	18671	20444	20595	20606	21709	21838
	Availability	21920	21615	21429	17542	18117	18819	18492	21215	20967	20737	21874	22153
	Shortfall (+)/ Surplus (-)	450	-10	-787	262	1193	257	179	-771	-372	-131	-165	-315
FY- 2023-24	Demand	22592	22347	22390	19550	20805	21496	23105	22702				
	Availability	22034	22598	19688	20184	19811	20919	21133	20919				
	Shortfall (+)/ Surplus (-)	558	-251	2702	-634	994	577	1972	1783	0	0	0	0

Night Peak (22:00 to 05:00 Hrs)		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
FY- 2021-22	Demand	21012	19142	16615	18354	18821	15899	17251	18104	16747	16965	19559	22238
	Availability	20356	20543	20145	21024	17623	16119	17235	17899	16269	17116	18572	-16
	Shortfall (+)/ Surplus (-)	656	-1401	-3530	-2670	1198	-220	16	205	478	-151	987	22254
FY- 2022-23	Demand	23190	22810	21450	17127	17936	17697	17220	18566	18915	19259	20902	21272
	Availability	22856	22628	21611	17547	16393	17905	17421	18889	18061	18617	20911	21329
	Shortfall (+)/ Surplus (-)	334	182	-161	-420	1543	-208	-201	-323	854	642	-9	-57
FY- 2023-24	Demand	22631	23536	22976	18877	21613	22032	22220	21714				
	Availability	22297	22564	20777	19033	19764	20586	19490	19987				
	Shortfall (+)/ Surplus (-)	334	972	2199	-156	1849	1446	2730	1727	0	0	0	0

Maximum shortfall is during morning peak hours, when the availability of power from renewable energy sources is less.

3.14. The demand for MSEDCL in daytime is being catered by Conventional as well as Renewable Energy sources. However, during the evening peak and night hours the availability of solar power is 'Nil'. Thus, the demand at evening/night is majorly catered by thermal power plants.

3.15. Further, availability of power from renewable energy sources is unpredictable due to atmospheric conditions and seasonal variations. Owing to this, MSEDCL cannot rely upon the renewable contracted capacity to meet the demand in peak hours/night hours. Under such unavoidable deficit circumstances, MSEDCL is forced to procure power from power exchanges which cost around Rs. 8 to 10/kWh during peak hours/ months to cater to the increasing demand.

3.16. Thus, in view of the above, at any given point of time, the total maximum available capacity which is currently contracted by MSEDCL during evening and night hours varies around 20,500 MW to 21,500 MW out of the total 38,775 MW capacity.

3.17. As availability of power from renewable energy sources is unpredictable due to atmospheric

and seasonal variations, sufficient resources with firm power needs to be contracted by MSEDCL to cater the demand as projected vide 20th EPS during peak hours, night hours and during peak seasons.

- 3.18. The Central Government on 28th June 2023 has issued guidelines for Resource Adequacy Planning Framework for India with key objectives to ensure that adequate generation capacities are available, round-the-clock, to reliably serve demand under various scenarios.
- 3.19. Further, to meet distribution licensee’s Resource Adequacy Requirement (RAR), the share of long-term contracts is suggested to be in the range of 75-80% of total supply side RAR, medium-term contracts in the range of 10-20% and rest can be met through short –term contracts. This Commission has also in line with the above-mentioned MoP’s Guidelines and has also initiated steps to formulate a new Resource Adequacy (RA) Regulations and ancillary services framework in the State.
- 3.20. Thus, in reference to the aforesaid guidelines issued by Ministry of Power, MSEDCL owing to anticipated rise in demand, inadequate supply from MSPGCL contracted units and due to non-availability of APM & N-APM gas and high rate of RLNG gas, has filed the present petition for procurement of additional power to meet the peak demand.

MSEDCL’S PROPOSAL FOR POWER PROCUREMENT TO MEET THE FUTURE DEMAND.

A) KAPS Unit- 3 & 4 (2 x 700 MW)

- 3.21. NPCIL had come up with the extension of Kakrapar Station to establish additional two units Kakrapar Unit 3 & 4 (2x700 MW). The Ministry of Power vide its Letter dated 9 August 2010 had allocated the power from the NPCIL’s Atomic Power Project Kakrapar Unit 3 & 4 (2x700 MW) as under:

Sr. No.	Name of state/UT	Allocation of power (MW)
1	Gujarat	475.88
2	Madhya Pradesh	218.98
3	Chhattisgarh	87.57
4	Maharashtra	378.67
5	Goa	15.68
6	Daman & Diu	5.44
7	Dadra & Nagar Haveli	7.78
8	Unallocated power	210.00
	Total	1400

- 3.22. The tentative estimated Tariff communicated by NPCIL vide its letter dated 6 June 2019 was about Rs. 5.3115/kWh and clarified that the actual tariff will be notified by Department of Atomic Energy (DAE) as per powers vested in it under Atomic Energy Act, 1962 and the same shall be applicable to sale of power from these units.
- 3.23. At Maharashtra periphery, considering transmission loss (Injection loss: 0.8% and Drawal

loss:1.8%) and Point of Connection (PoC) Charges (Rs. 0.80/kWh) for Kakrapar 3&4 units worked out to Rs. 6.25/kWh which was considerably higher as compared to approved power purchase cost in MTR Order dated 12 September 2018 in Case No. 195 of 2017. Therefore, MSEDCL on 18 July 2019 surrendered the said allocated share of 378.67 MW.

- 3.24. Later, NPCIL on 22 April 2021 informed that nuclear power has turned out to be comparable or cheaper in long run and the tariff of KAPS Unit 1 & 2 has escalated at less than 2.0% p.a. over past 25 years. NPCIL has single part tariff which is approximately similar to variable cost of base thermal plants for older NPCIL plants till date, however, KAPS 3 and 4 is costlier due to technology development. Further, NPCIL had proposed that PPA can be initially signed for three years for the apportioned share and renewed thereafter at Rs. 4.85/kWh, Rs. 4.95/kWh and Rs. 5.05/kWh for the first year, second year and third year of commercial operation of these units respectively.
- 3.25. The estimated tariff at Maharashtra periphery (including transmission charges) would have been @ Rs. 5.3609/kWh, Rs. 5.4609/kWh and Rs. 5.5609/kWh, respectively for the first, second and third year. As the rates proposed were still on higher side, MSEDCL on 18 August 2021 informed its non-acceptance of NPCIL's proposal.
- 3.26. Recently, WRPC had requested MSEDCL to submit comments on willingness to avail the allocated power from Kakrapar Unit 3&4.
- 3.27. Further, NPCIL offered a new proposal vide letter dated 28 March 2023 of a Tariff of Rs. 4.40/kWh, Rs. 4.50/kWh and Rs. 4.60/kWh for the first year, second year and third year of commercial operation of these units respectively.
- 3.28. The proposed Tariff at Maharashtra periphery will be @ Rs. 5.0695/kWh, Rs. 5.1734/kWh and Rs. 5.2772/kWh, respectively. NPCIL also informed that beyond period of 3 years of commercial operations the Tariff as determined by Department of Atomic Energy will be applicable, since the provisions of Electricity Act, 2003 is not applicable to NPCIL.
- 3.29. In view of the new reasonable rates offered by NPCIL and owing to less availability of some of the generating stations and unpredictable nature of RE power, to cater present as well as future demand, MSEDCL proposed to avail their allocated share of 378.67 MW power from KAPS Unit 3&4 for the period of 3 years at the rate proposed by NPCIL and accordingly requested the Commission to approve PPA initially for the period of 3 years.
- 3.30. The Ministry of Power vide letter dated 29 May 2023 again re-confirmed the allocation of 378.67 MW to MSEDCL from Kakrapar Unit 3 & 4 (2x700 MW).
- 3.31. WRPC vide letter dated 8 February 2023 and 15 February 2023 had informed that Government of Gujarat has asked to allocate entire 1400 MW capacity to Gujarat from Kakrapar Unit No. 3 & 4.
- 3.32. Considering the reasonable rates from the most reliable source, as an ad-hoc arrangement,

MSEDCL is presently availing power from 30 June 2023 after commissioning Unit No. 3, subject to approval of the Commission. MSEDCL is yet to receive power from Unit No. 4.

- 3.33. MSEDCL proposes to sign PPA initially only for a period of three years with NPCIL for KAPS Unit 3 & 4. The decision to extend the same after the period of three years, may be taken after the end of expiry of the said period of three years, as MSEDCL thereafter would have better clarity on the tariff for subsequent period and demand and availability scenario at that time with respect to the extension of the said PPA.
- 3.34. In view of the above, MSEDCL request to accord approval for entering PPA with NPCIL for procurement of 378.67 MW power from Kakrapar Unit 3&4, for the period of 3 years.

PROPOSAL FOR EXTENSION OF EXPIRED POWER PURCHASE AGREEMENT (PPA)

- 3.35. MSEDCL signed PPA dated 4 June 2005 with NPCIL, for procurement of 393 MW power from TAPS Unit 3 & 4 & 152 MW power from KAPS Unit 1 & 2, for a period of 15 years from the date of commercial operation. Unit 3 of TAPS 3 & 4 attained commercial operation on 18 August 2006, thus the said PPA has expired on 17 August 2021.
- 3.36. Similarly, the PPA for 160 MW power from TAPS Unit 1 & 2 was executed on 12 February 2008 which expires a tenure of 15 years on 11 February 2023.
- 3.37. The Clause 9 of PPA regarding renewal or extension of PPA states as under:

“9.0 Period of Agreement

The Agreement shall come into effect from the date of signing of the Agreement and shall continue to remain in force for a period of 15 years from the date of commercial operation of unit 3 of TAPS 3&4. In case MSEDCL continues to get power from the Power Stations after expiry of this agreement without further renewal or formal extension thereof, all the provisions of the Agreement shall continue to operate till this Agreement is formally renewed, extended or replaced.”

Presently, MSEDCL is still getting the power from said NPCIL power stations.

- 3.38. NPCIL Tariff for following existing plants is single part Tariff and lesser than the thermal Tariff approved by the Commission:

TAPS 1 & 2: Rs. 2.3693/kWh

TAPS 3 & 4: Rs. 3.4354/kWh

KAPS 1 & 2: Rs. 3.6481/kWh

- 3.39. As Nuclear power is generally preferred due to the low-carbon emission and economic rates of NPCIL plants, MSEDCL requests the Commission to grant approval for extension of the aforesaid PPAs with NPCIL for a further period of 15 years.

- 3.40. The availability of power from renewable energy sources is unpredictable due to atmospheric conditions and seasonal variations. Owing to this, MSEDCL cannot rely upon the renewable contracted capacity to meet the demand in peak hours/night hours.
- 3.41. Generation planning is set to become more complex as large amounts of weather-based, variable renewable generation are added to the system because resources such as wind and solar PV are intermittent, and their generation may not coincide with periods of peak demand.
- 3.42. Under deficit circumstances, MSEDCL is forced to procure power from power exchanges which cost around Rs. 8 to 10 /kWh during peaking hours/ months to cater to the increasing demand. However, even at such an exorbitantly high rate, most of the time, power was not available in market as per our requirement.
4. **At the e-hearing held on 23 August 2024**, the Petitioner reiterated its submission as made in its petition along with the IA. The Commission reserved the matter for final Orders.

Commission's Analysis and Ruling:

5. In present Petition MSEDCL is seeking approval for procurement of 378.67 MW Nuclear power from NPCIL's Kakrapar Unit 3&4 and to extend the existing PPAs dated 4 June 2005 (TAPS 3 & 4), PPA dated 4 June 2005 (KAPS 1 & 2) and PPA dated 12 February 2008 (TAPS 1 & 2) with NPCIL.
6. The Commission notes that NPCIL is establishing additional two units i.e. Kakrapar Unit 3 & 4 having 700 MW capacity of each unit and the Ministry of Power has allocated power from these Units to various Discoms. MSEDCL got a share of 378.67 MW in these Units. Initially, MSEDCL had surrendered the allocation due to higher Tariff proposed by NPCIL, but subsequently as NPCIL has offered lower tariff for first 3 years, MSEDCL has agreed to procure such power for three years.
7. The Commission also notes that Nuclear Power plants are not governed by the Electricity Act. Their tariff is determined by the Department of Atomic Energy. The role of this Commission is limited to verify whether quantum of power proposed by MSEDCL is as per their demand-supply projection and whether proposed tariff is comparable to prevailing tariff of other power sources. The Commission is also aware that nuclear power, being clean source of energy needs to be promoted. Considering the above background and submissions on record, the Commission frames following issues for its consideration:
 - a. Quantum of power procurement to be allowed.
 - b. Whether proposed Tariff is in accordance with market condition.

The Commission's ruling on the above issues is provided in the subsequent paragraphs.

8. Issue A: Quantum of Power Procurement to be allowed

8.1. The Commission notes that MSEDCL has filed the present Petitions under regulation 21 and 22 of MERC (Multi Year Tariff) Regulations, 2019 with the objective to meet future demand by accommodating reliable nuclear sources in power basket, due to lesser availability of the power from existing thermal sources.

8.2. Regulation 21.1 of MERC (Multi Year Tariff) Regulations, 2019 states as below:

“Every long-term/medium-term agreement or arrangement for power procurement, including on a Standby basis, by a Distribution Licensee from a Generating Company or Licensee or from another source of supply, and any change to an existing agreement or arrangement shall come into effect only with the prior approval of the Commission”

8.3. Regulation 22 of MERC (Multi Year Tariff) Regulations, 2019

“ ...
22 Additional Power Procurement

22.1 The Distribution Licensee may undertake additional power procurement during the year, over and above the power procurement plan for the Control Period approved by the Commission, in accordance with this Regulation.

22.2 Where there has been an unanticipated increase in the demand for electricity or a shortfall or failure in the supply of electricity from any approved source of supply during the Year or when the sourcing of power from existing tied-up sources becomes costlier than other available alternative sources, the Distribution Licensee may enter into additional agreement or arrangement for procurement of power.

22.3 Any variation, during the first or second block of six months of a Year, in the quantum or cost of power procured, including from a source other than a previously approved source, that is expected to be in excess of five per cent of that approved by the Commission, shall require its prior approval....”

8.4. In Petition, MSEDCL has referred to the year wise contracted capacity projections (in MW), as mentioned in CEA’s Resource Adequacy Study. The above projections are given by MSEDCL to the Central Electricity Authority (CEA). For chalking out inferences, the Commission finds it appropriate to refer to the MSEDCL’s submission on CEA’s Resource Adequacy study as made and dealt in the Commission’s Order dated 26 September 2024 in Case No. 155 of 2024. The relevant paras read as under:

“
5.7 CEA has conducted the Resource Adequacy study for MSEDCL and the capacity projected by CEA considering ‘Loss of Load Probability’ and ‘Expected Energy Not Served’ is as under:

Year	Coal	Gas	Nuclear	Bagasse + Biomass	Hydro	Wind	Solar	Hybrid (wind + Solar)	STOA/OA	Storage (4 Hours) + PSP	Total
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CEA	2033-34	27562	1076	1186	3439	3949	15905	30285	0	1457	2668	87528
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The present contracted and consented capacity of MSEDCL is as below:

	Coal	Gas	Nuclear	Bagasse + Biomass	Hydro	Wind	Solar	Hybrid (wind + Solar)	FDRE	Storage (4 Hours) + PSP	Total
MSEDCL	22733	1077	1191	3439	4273	3905	24785	2880	1468	574	66325

Thus, capacity addition required by MSEDCL by FY2033-34 is as under:

	Coal	Gas	Nuclear	Bagasse + Biomass	Hydro	Wind	Solar	Hybrid (wind + Solar)	DRE	Storage (4 Hours) + PSP	Total
MSEDCL	4829	0	0	0	0	12000	5500	0	12693	2094	37116

...”

- 8.5. The Commission has referred to the report on Resource Adequacy Plan for the State of Maharashtra (MSEDCL) issued by CEA. Said report recorded existing contracted capacity with Nuclear Power plants as 740 MW. Further as per the Resource Adequacy studies undertaken in that Report, projected contracted Capacity for the year 2033-34 is 1,00,222 MW which includes 1186 MW from Nuclear sources i.e. addition of 446 MW.
- 8.6. The proposed quantum of 378.67 MW is within such additional capacity addition (446MW) envisaged in Resource Adequacy Study by CEA. Therefore, the Commission is considering such additional power procurement from nuclear sources. The Commission notes that MSEDCL has proposed such procurement for 3 years only and decision of extension of PPA will be taken based on prevailing conditions at that time.
- 8.7. Regarding the existing PPA with NPCIL which have expired in the period of June 2020 to February 2023 but still supplying power to MSEDCL, the Commission notes that these capacities are part of existing capacity and proposed to be continued in future under Resource Adequacy Study conducted by the CEA. Hence, the Commission is also considering the request for extension of PPAs with these units of NPCIL by 15 years.

9. Issue B: Whether proposed Tariff is in accordance with market condition

- 9.1. The Commission notes that proposed Tariff for new PPA and extensions of PPAs are as follows:

Sr. No.	Name of Nuclear Plant/Unit	Capacity (MW)	Single Part - Tariff rate (Rs/kWh)	
			Year	Proposed Tariff
1	KAPS (Unit 3 & 4) - New Capacity	378.67	First	4.40
			Second	4.50
			Third	4.60
2	TAPS (Unit 3 & 4) – extension	393	3.4354	
3	KAPS (Unit 1 & 2) - extension	152	3.6481	
4	TAPS (Unit 1 & 2) - extension	160	2.3693	
	TOTAL	1083.67		

9.2. In order to assess the competitiveness of the tariff proposed by MSEDCL for approval, the Commission has referred to recent discovered tariff on DEEP Portal by other buyers for Medium Term and same is tabulated below:

Utility Name	Period of Power Supply	Allotted Qty (MW)	Tariff discovered (Rs. kWh)	Reference
Haryana discom (500 MW)	01.08.2024 to 31.07.2029	110	5.78	114/HPPC/MTT/2024
		127	5.78	
		140	5.78	
Haryana discom (1000 MW)	01.05.2023 to 30.04.2028	100	5.79	104/HPPC/MTPP/2023
		300	5.79	
		100	5.79	
		150	5.79	
		110	5.79	
		160	7.97	
KSEBL (500 MW)	From 15.08.2023:00.00 to 14.08.2028:24.00	303	6.88	Medium/Coal from Linkage Coal/23-24/RA/56
		100	6.88	
Noida Power Company Limited (125 MW)	From 01.04.2020:00.00 to 31.03.2023:24.00	2.54	1.2	Medium/Supply from hydro-electric power station/19-20/RA/66
		47.46	5.46	
GRIDCO Ltd	From 01.07.2024:00.00 to 30.06.2028:24.00	25	6.50	Medium/Lumpsum Tariff/24-25/RA/39
		25	6.50	
		50	6.50	
		100	6.78	

9.3. Considering the recently discovered tariff summarised in the above Table and power exchange rates, the present proposed Tariff seems reasonable and reflective of the current market situation.

9.4. Even if it is compared to the long-term thermal sources, Single part Tariff under approval in the present Petition are very reasonable as against MSEDCL's Average Power Purchase Cost of Rs. 5.13/kWh approved for FY 2024-25 in MTR Order dated 31 March 2023 in Case No. 226 of 2022.

10. In view of above analysis, the Commission deems it fit to approve procurement of nuclear power as stated in the table of para 9.2 above (378.67 MW for three years and 705 MW on long term basis for the period of 15 years).

11. Hence, the following Order:

ORDER

1. Petition in Case No. 2 of 2024 is allowed.

2. The Commission accords its approval to MSEDCL's proposal for procurement of 378.67 MW nuclear Power from KAPS Unit 3 & 4 at tariff of Rs. 4.40 Rs/kWh, 4.50 Rs./kWh and 4.60 Rs. /kWh for the first year, second year and third year of commercial operation of these units, respectively.


3. The Commission accords its approval to MSEDCL's proposal for extension of PPA dated 4 June 2005 (TAPS 3 & 4), PPA dated 4 June 2005 (KAPS 1 & 2) and PPA dated 12 February 2008 (TAPS 1 & 2) for a further period of 15 years.

4. MSEDCL shall execute the Power Purchase Agreement and copy of the same shall be submitted for records of the Commission.

Sd/-
(Surendra J. Biyani)
Member

Sd/-
(Anand M. Limaye)
Member

Sd/-
(Sanjay Kumar)
Chairperson


(Dr. Rajendra G. Ambekar)
Secretary

