



**MAHARASHTRA ELECTRICITY REGULATORY COMMISSION**

**EXPLANATORY MEMORANDUM**

**ON**

**Draft Maharashtra Electricity Regulatory Commission (Renewable Purchase  
Obligation, its Compliance and Implementation of Renewable Energy  
Certificate Framework) (First Amendment) Regulations, 2023**

**August, 2023**

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# 1 Introduction

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## 1.1 Background & Regulatory Framework

India is gifted with abundant potential of Renewable Energy, which includes solar energy, wind energy, biomass, hydro, etc. Over the last few years India has experienced significant development in the Renewable Energy (RE) Sector. Progressive National and State level policies have contributed significantly to this development, and to further accelerate the same, the Government of India (GoI) has set a target of Renewable Energy (RE) capacity of 500 GW by the year 2030.

As per Section 86 (1) (a) of the Electricity Act, 2003 (“EA 2003” or “the Act”), the State Electricity Regulatory Commissions (SERCs or Commissions) have been assigned the function of promoting generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person. In order to promote generation from Renewable Energy (RE) sources in the State of Maharashtra, the Maharashtra Electricity Regulatory Commission (“MERC” or “the Commission”) has notified the MERC (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2019 (“MERC RE Tariff Regulations”) in December, 2019, the MERC (Renewable Purchase Obligation, its Compliance and Implementation of Renewable Energy Certificate Framework) Regulations, 2019 (“MERC RPO Regulations, 2019”) in December, 2019, and the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 in December 2019.

In order to promote and facilitate installation of RE, Ministry of Power (MoP), GoI, has recently issued few Rules and Orders, to act as a catalyst in achieving the envisaged target. MoP has notified the ‘Renewable Purchase Obligation (RPO) and Energy Storage Obligation Trajectory till 2029-30’ Order on 22<sup>nd</sup> July, 2022 and its Corrigendum on 19<sup>th</sup> September 2022. Also, MoP has notified the ‘The Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022’ on 06<sup>th</sup> June, 2022. MoP has further sent a letter dated 13<sup>th</sup> September, 2022 to all Electricity Regulatory Commissions (ERCs), advising the ERCs to make their Regulations consistent and in alignment with the above-said Rules and Orders. Hence, the Commission proposes to incorporate the relevant amendment clauses at the appropriate places in the MERC (Renewable Purchase Obligation, its Compliance and Implementation of Renewable Energy Certificate Framework) Regulations, 2019 in accordance with the Rules and Orders notified by the MoP.

**The rationale for the changes proposed in the MERC (Renewable Purchase Obligation, its Compliance and Implementation of Renewable Energy Certificate Framework) Regulations, 2019, have been elaborated in this Explanatory Memorandum. In cases where no change is proposed, the same has not been explicitly mentioned. Generally, only the clauses where any addition/modification is proposed in the MERC (Renewable Purchase Obligation, its Compliance and Implementation of Renewable Energy Certificate Framework) (First Amendment) Regulations, 2023 have been discussed in this Explanatory Memorandum.**

The Commission while formulating the MERC (Renewable Purchase Obligation, its Compliance and Implementation of Renewable Energy Certificate Framework) (First Amendment) Regulations, 2023, has endeavoured to balance the interest of consumers and Distribution Licensees.

The Explanatory Memorandum is organised in the following Chapters:

**Chapter 1:** Introduction

**Chapter 2:** Status of RPO achievement by Discoms during the period from FY 2019-20 to FY 2021-22

**Chapter 3:** MoP Order on RPO and Energy Storage Obligation Trajectory till 2029-30 issued in July 2022, and Corrigendum in September 2022.

**Chapter 4:** The Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022, issued by MoP in June 2022.

## 2 Status of RPO Achieved by Distribution Licensees from FY 2019-20 to FY 2021-22

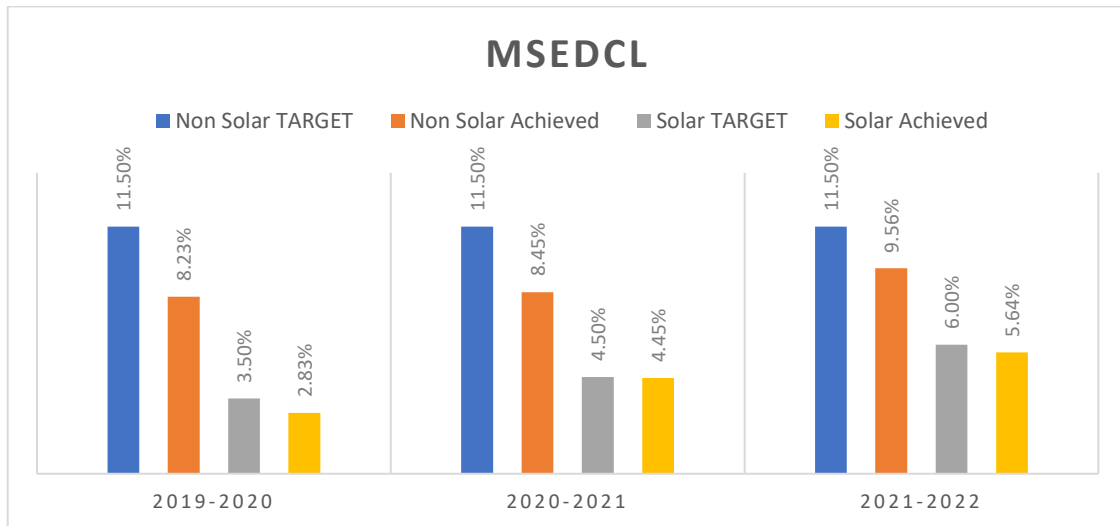
This Chapter of the Explanatory Memorandum elaborates the present status of Renewable Purchase Obligation (RPO) achieved by the Distribution Licensees in the State of Maharashtra. As part of RPO compliance verification process, the Commission has completed verification of RPO target achievement by Distribution Licensees from FY 2019-20 to FY 2021-22. The State of Maharashtra has the following operational Distribution Licensees:

1. Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL),
2. Brihanmumbai Electric Supply and Transport Undertaking (BEST),
3. The Tata Power Co. Ltd. – Distribution Business (TPC-D),
4. Adani Electricity Mumbai Ltd. – Distribution Business (AEML-D),
5. Mindspace Business Parks Pvt. Ltd. (MBPPL),
6. Gigaplex Estate Pvt. Ltd. (GEPL),
7. KRC Infrastructure and Power Pvt. Ltd. (KRCIPPL),
8. EON SEZ Phase I,
9. EON SEZ Phase II,
10. Laxmipati Balaji Supply Chain Management Ltd. (LBSCML),
11. JNPT SEZ,
12. Nidar Utilities Panvel LLP (NUPLLP)

The RPO compliance status of the Distribution Licensees in the State of Maharashtra is shown below:

### 1. Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL)

Financial Year	Non-Solar RPO Target	Non-Solar RPO Achieved	Solar RPO Target	Solar RPO Achieved
2019-20	11.50%	8.23%	3.50%	2.83%
2020-21	11.50%	8.45%	4.50%	4.45%
2021-22	11.50%	9.56%	6.00%	5.64%

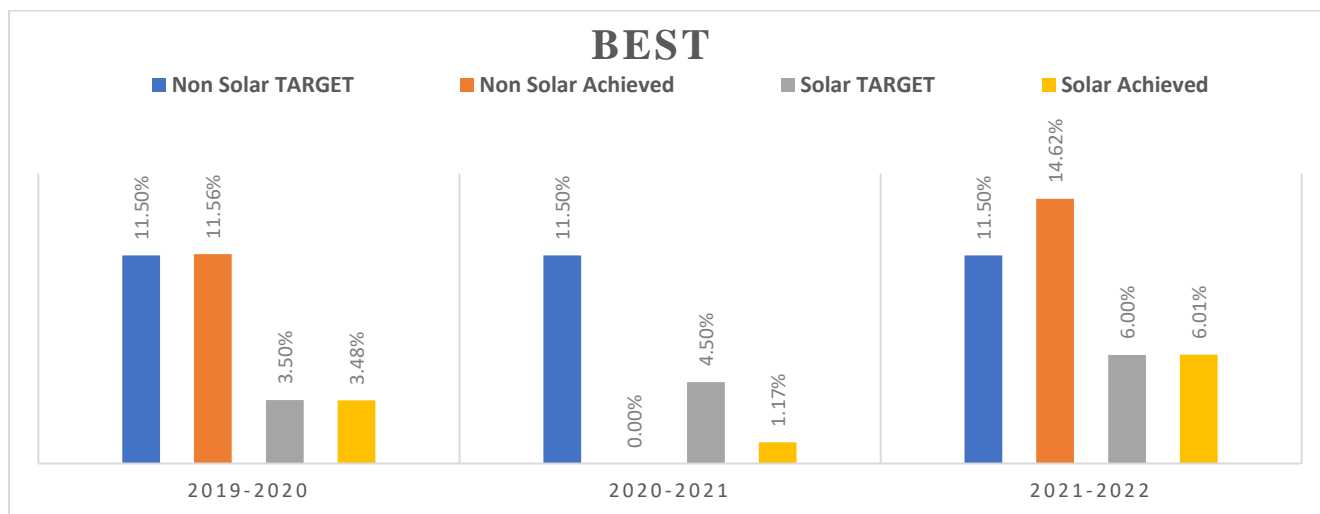


Financial Year	2019-20 (MU)	2020-21 (MU)	2021-22 (MU)
<b>Gross Energy Consumption</b>	127674.75	127408.79	139342.89
<b>Non-Solar RPO Target</b>	14711.97	14652.01	16024.43
<b>Non-Solar RPO Achieved</b>	10452.96	10769	12186
<b>Non-Solar RPO Shortfall</b>	4259.01	3883.01	3838.43
<b>Solar RPO Target</b>	4468.62	5733	8360.57
<b>Solar RPO Achieved</b>	3616.45	5673	7184
<b>Solar RPO Shortfall</b>	852.17	60	1176.57
<b>Total RPO Target</b>	19180.59	20385.01	24385
<b>Total RPO Achieved</b>	14069.41	16442	19370
<b>Total RPO Shortfall</b>	5111.18	3943.01	5015
<b>Cumulative RPO Shortfall</b>	10435.92	14378.93	<b>19393.93</b>

Thus, there is a shortfall in RPO achievement by MSEDCL during FY 2019-20, FY 2020-21 and FY 2021-22. A total shortfall of 19393.93 MU is to be achieved by FY 2024-25.

## 2. Brihanmumbai Electric Supply and Transport Undertaking (BEST)

Financial Year	Non-Solar RPO Target	Non-Solar RPO Achieved	Solar RPO Target	Solar RPO Achieved
2019-20	11.50%	11.56%	3.50%	3.48%
2020-21	11.50%	0.00%	4.50%	1.17%
2021-22	11.50%	14.62%	6.00%	6.01%

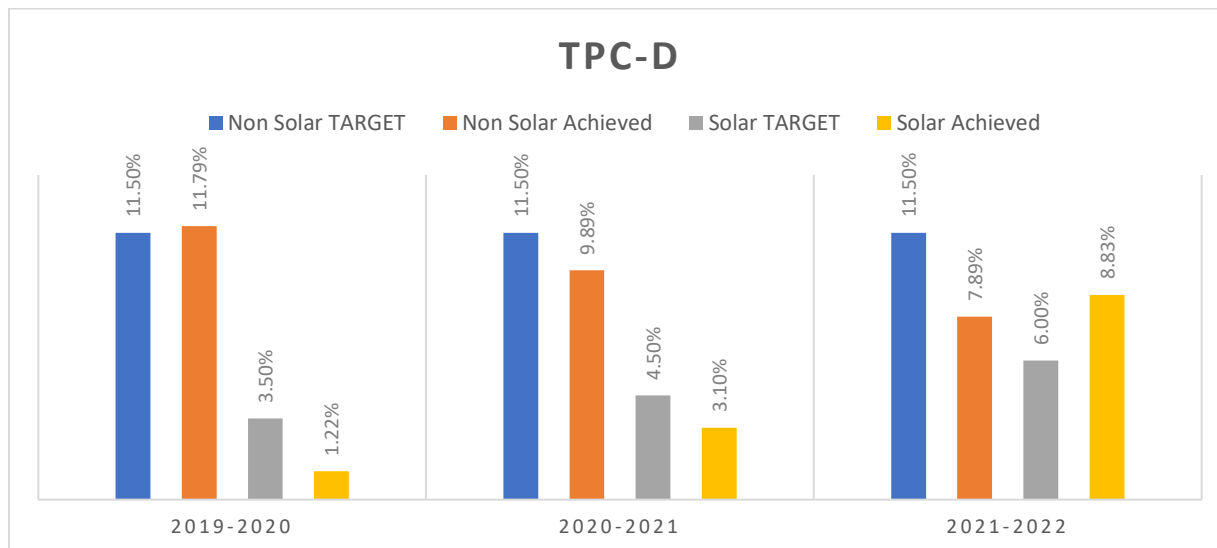


Financial Year	2019-20 (MU)	2020-21 (MU)	2021-22 (MU)
<b>Gross Energy Consumption</b>	4948.94	3283.55	3622.49
<b>Non-Solar RPO Target</b>	570.27	377.61	416.59
<b>Non-Solar RPO Achieved</b>	571.95	0	529.77
<b>Non-Solar RPO Shortfall/Surplus</b>	(1.68)	377.61	(113.18)
<b>Solar RPO Target</b>	173.21	147.76	217.35
<b>Solar RPO Achieved</b>	172.36	38.46	217.61
<b>Solar RPO Shortfall /Surplus</b>	0.85	109.3	(0.26)
<b>Total RPO Target</b>	743.48	525.37	633.94
<b>Total RPO Achieved</b>	744.31	38.46	747.38
<b>Total RPO Shortfall/Surplus</b>	(0.83)	486.91	(113.44)
<b>Cumulative RPO Shortfall/(Surplus)</b>	(10.35)	476.56	<b>363.12</b>

There was a minor surplus in RPO achievement by BEST during FY 2019-20, while there is a shortfall in RPO achievement during FY 2020-21 and FY 2021-22. The cumulative shortfall of 363.12 MU needs to be achieved by BEST by FY 2024-25.

### 3. The Tata Power Co. Ltd. – Distribution Business (TPC-D)

Financial Year	Non-Solar RPO Target	Non-Solar RPO Achieved	Solar RPO Target	Solar RPO Achieved
2019-20	11.50%	11.79%	3.50%	1.22%
2020-21	11.50%	9.89%	4.50%	3.10%
2021-22	11.50%	7.89%	6.00%	8.83%



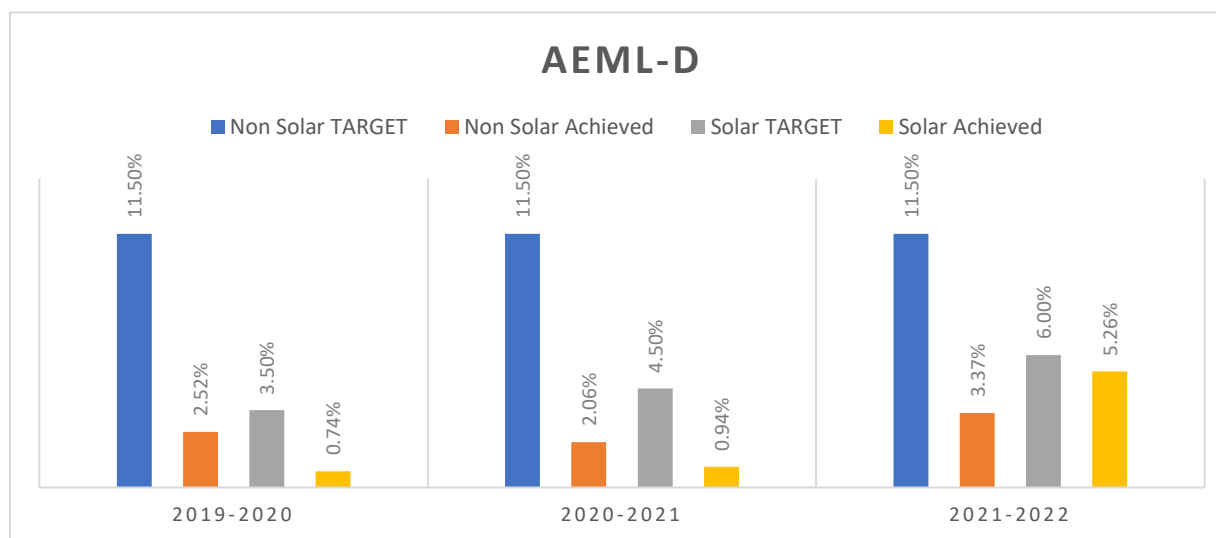
Financial Year	2019-20 (MU)	2020-21 (MU)	2021-22 (MU)
<b>Gross Energy Consumption</b>	4725.23	4346.91	4872.35
<b>Non-Solar RPO Target</b>	542.46	499.89	560.32
<b>Non-Solar RPO Achieved</b>	554.98	360.89	325.68
<b>Non-Solar RPO Shortfall</b>	-12.52	139.45	234.64
<b>Solar RPO Target</b>	165.38	195.61	292.34
<b>Solar RPO Achieved</b>	49.52	113.57	365.14
<b>Solar RPO Shortfall/(Surplus)</b>	115.86	82.04	(72.8)
<b>Total RPO Target</b>	707.84	695.5	852.66
<b>Total RPO Achieved</b>	604.50	474.01	690.82
<b>Total RPO Shortfall</b>	103.34	221.49	161.84
<b>Cumulative RPO Shortfall</b>	70.00	361.5	<b>814.84</b>

Thus, there is a shortfall in RPO achievement by TPC-D during FY 2019-20, FY 2020-21 and FY 2021-22. A total shortfall of 814.84 MU is to be achieved by FY 2024-25.



#### 4. Adani Electricity Mumbai Ltd. – Distribution Business (AEML-D)

Financial Year	Non-Solar RPO Target	Non-Solar RPO Achieved	Solar RPO Target	Solar RPO Achieved
2019-2020	11.50%	2.52%	3.50%	0.74%
2020-2021	11.50%	2.06%	4.50%	0.94%
2021-2022	11.50%	3.37%	6.00%	5.26%

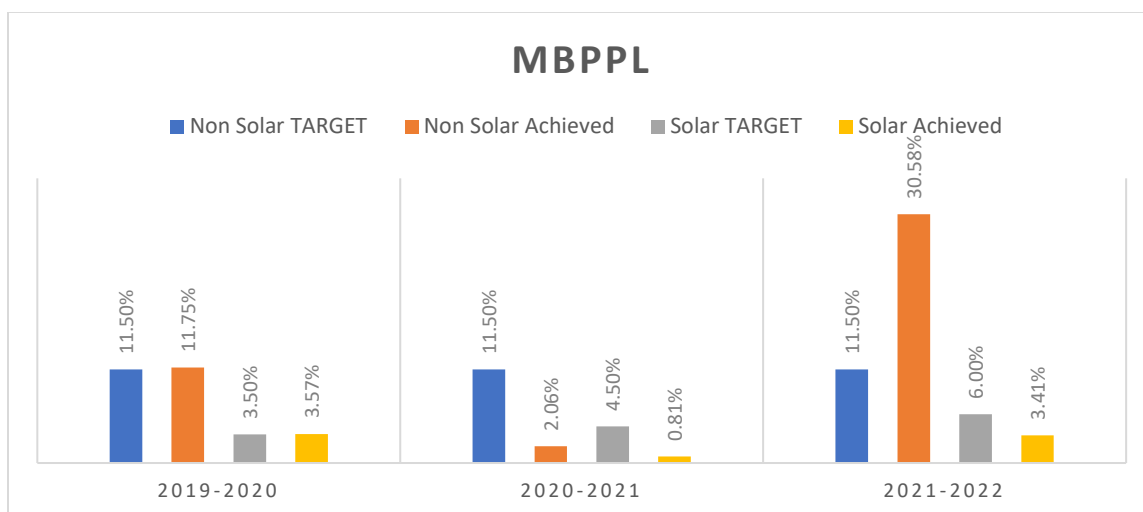


<b>AMEL-D</b>			
Financial Year	2019-20	2020-21	2021-22
	(MU)	(MU)	(MU)
<b>Gross Energy Consumption</b>	9423.89	8063.09	8824.05
<b>Non-Solar RPO Target</b>	1083.75	927.26	1014.77
<b>Non-Solar RPO Achieved</b>	237.79	186.7	296.64
<b>Non-Solar RPO Shortfall</b>	845.96	740.56	718.13
<b>Solar RPO Target</b>	329.84	362.84	529.44
<b>Solar RPO Achieved</b>	57.24	76.29	463.69
<b>Solar RPO Shortfall/(Surplus)</b>	272.6	286.55	65.75
<b>Total RPO Target</b>	1413.39	1290.1	1544.21
<b>Total RPO Achieved</b>	295.03	262.99	760.33
<b>Total RPO Shortfall</b>	1118.56	1027.11	783.88
<b>Cumulative RPO Shortfall</b>	3185.96	4213.07	<b>4996.96</b>

Thus, there is a shortfall in RPO achievement by AEML-D during FY 2019-20, FY 2020-21 and FY 2021-22. A total shortfall of 4996.96 MU is to be achieved by FY 2024-25.

## 5. Mindspace Business Parks Private Limited (MBPPL)

Fiscal Year	Non-Solar TARGET	Non-Solar Achieved	Solar TARGET	Solar Achieved
2019-2020	11.50%	11.75%	3.50%	3.57%
2020-2021	11.50%	2.06%	4.50%	0.81%
2021-2022	11.50%	30.58%	6.00%	3.41%

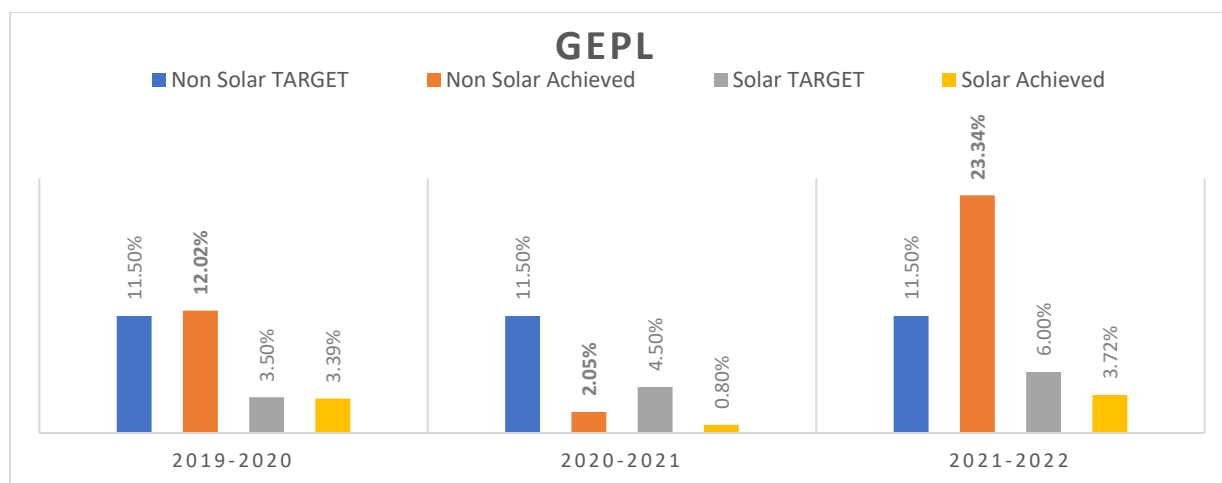


Financial Year	2019-20 (MU)	2020-21 (MU)	2021-22 (MU)
<b>Gross Energy Consumption</b>	82.85	44.67	42.81
<b>Non-Solar RPO Target</b>	9.53	5.14	4.92
<b>Non-Solar RPO Achieved</b>	9.74	0.89	12.67
<b>Non-Solar RPO Shortfall/(Surplus)</b>	(0.21)	4.25	(7.75)
<b>Solar RPO Target</b>	2.90	2.01	2.57
<b>Solar RPO Achieved</b>	2.96	0.35	1.41
<b>Solar RPO Shortfall/(Surplus)</b>	(0.06)	1.66	1.16
<b>Total RPO Target</b>	12.43	7.15	7.49
<b>Total RPO Achieved</b>	12.70	1.24	14.08
<b>Total RPO Shortfall/(Surplus)</b>	(0.27)	5.91	(6.59)
<b>Cumulative RPO Shortfall/(Surplus)</b>	(0.27)	5.64	(0.95)

There was a minor surplus in RPO achievement by MBPPL during FY 2019-20 and FY 2021-22, while there is a small shortfall in RPO achievement during FY 2020-21. There is a cumulative surplus of 0.95 MU at the end of FY 2021-22.

## 6. Gigaplex Estate Private Limited (GEPL)

Fiscal Year	Non-Solar TARGET	Non-Solar Achieved	Solar TARGET	Solar Achieved
2019-2020	11.50%	12.02%	3.50%	3.39%
2020-2021	11.50%	2.05%	4.50%	0.80%
2021-2022	11.50%	23.34%	6.00%	3.72%

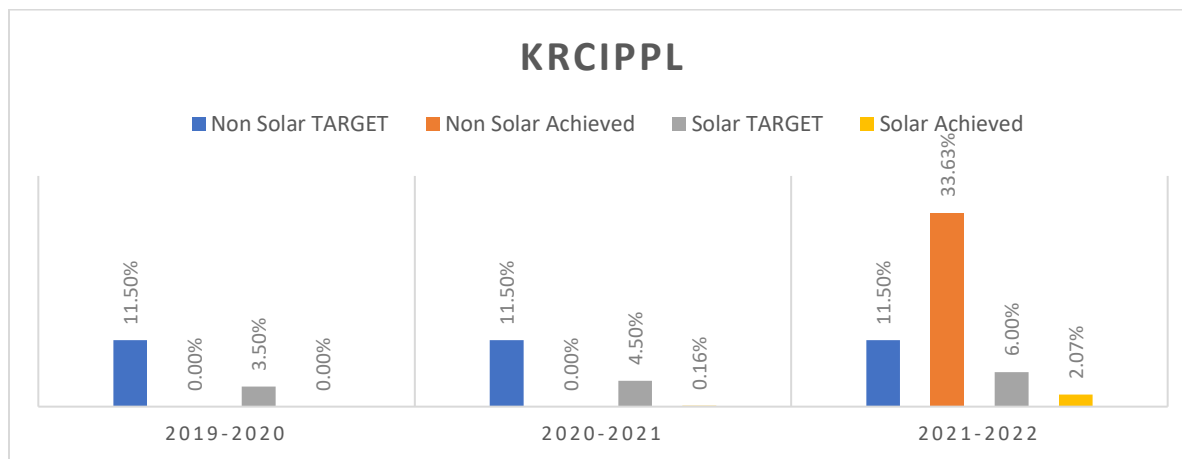


Financial Year	2019-20 (MU)	2020-21 (MU)	2021-22 (MU)
Gross Energy Consumption	34.04	18.20	19.74
Non-Solar RPO Target	3.92	2.09	2.27
Non-Solar RPO Achieved	3.99	0.36	4.46
Non-Solar RPO Shortfall/(Surplus)	(0.07)	1.73	(2.19)
Solar RPO Target	1.19	0.82	1.18
Solar RPO Achieved	1.21	0.14	0.73
Solar RPO Shortfall/(Surplus)	(0.02)	0.677	0.45
Total RPO Target	5.11	2.91	3.45
Total RPO Achieved	5.20	0.50	5.19
Total RPO Shortfall/(Surplus)	(0.093)	2.407	(1.74)
Cumulative RPO Shortfall/(Surplus)	(0.09)	2.31	0.57

There was a minor surplus in RPO achievement by GEPL during FY 2019-20, while there is a shortfall in RPO achievement during FY 2020-21 and FY 2021-22. The cumulative shortfall of 0.57 MU needs to be achieved by GEPL by FY 2024-25.

## 7. KRC Infrastructure and Projects Private Limited (KRCIPPL)

Fiscal Year	Non-Solar TARGET	Non-Solar Achieved	Solar TARGET	Solar Achieved
2019-2020	11.50%	0.00%	3.50%	0.00%
2020-2021	11.50%	0.00%	4.50%	0.16%
2021-2022	11.50%	33.63%	6.00%	2.07%

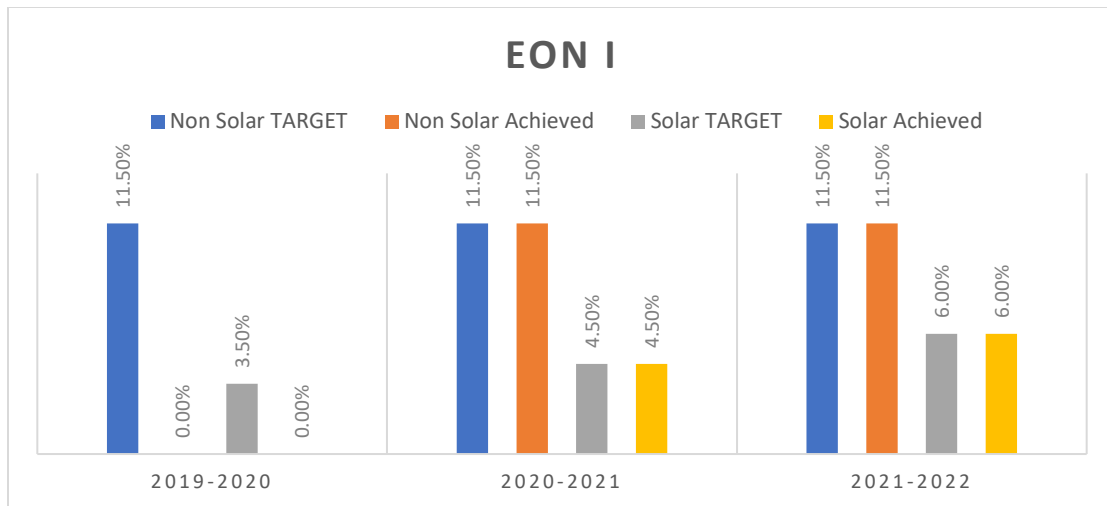


Financial Year	2019-20 (MU)	2020-21 (MU)	2021-22 (MU)
Gross Energy Consumption	5.45	10.13	14.94
Non-Solar RPO Target	0.63	1.16	1.72
Non-Solar RPO Achieved	0.00	0.00	4.87
Non-Solar RPO Shortfall/(Surplus)	0.63	1.16	(3.15)
Solar RPO Target	0.19	0.46	0.90
Solar RPO Achieved	0.00	0.02	0.30
Solar RPO Shortfall/(Surplus)	0.19	0.44	0.60
Total RPO Target	0.82	1.62	2.62
Total RPO Achieved	0.00	0.02	5.17
Total RPO Shortfall/(Surplus)	0.82	1.60	(2.55)
Cumulative RPO Shortfall/(Surplus)	0.82	2.42	(0.13)

There was a minor shortfall in RPO achievement by KRCIPPL during FY 2019-20 and FY 2020-21, while there is a small surplus in RPO achievement during FY 2021-22. There is a cumulative surplus of 0.13 MU at the end of FY 2021-22.

## 8. EON Kharadi Infrastructure Private Limited (EON SEZ Phase I)

Financial Year	Non-Solar Target	Non-Solar Achieved	Solar Target	Solar Achieved
2019-20	11.50%	0.00%	3.50%	0.00%
2020-21	11.50%	11.50%	4.50%	4.50%
2021-22	11.50%	11.50%	6.00%	6.00%

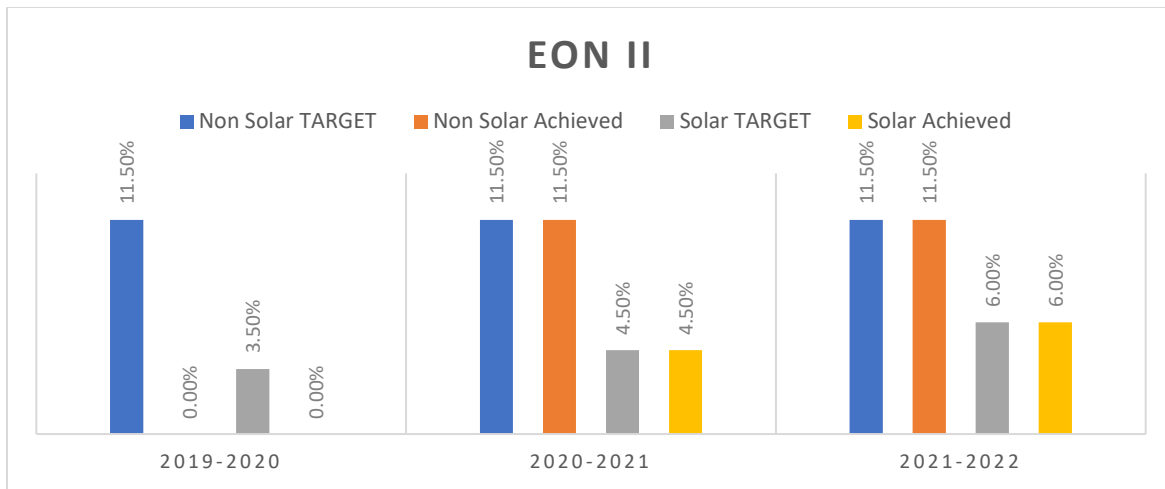


Financial Year	2019-20 (MU)	2020-21 (MU)	2021-22 (MU)
<b>Gross Energy Consumption</b>	-	15.78	39.22
<b>Non-Solar RPO Target</b>	-	1.81	4.51
<b>Non-Solar RPO Achieved</b>	-	1.81	4.51
<b>Non-Solar RPO Shortfall/(Surplus)</b>	-	0	0
<b>Solar RPO Target</b>	-	0.71	2.35
<b>Solar RPO Achieved</b>	-	0.71	2.35
<b>Solar RPO Shortfall/(Surplus)</b>	-	0	0
<b>Total RPO Target</b>	-	2.52	6.86
<b>Total RPO Achieved</b>	-	2.52	6.86
<b>Total RPO Shortfall/(Surplus)</b>	-	0	0
<b>Cumulative RPO Shortfall/(Surplus)</b>	-	-	-

There was no shortfall/surplus observed in FY 2020-21 and FY 2021-22 and EON I has achieved its RPO target for each year.

**9. EON Kharadi Infrastructure Private Limited (EON SEZ Phase II)**

Fiscal Year	Non-Solar TARGET	Non-Solar Achieved	Solar TARGET	Solar Achieved
2019-2020	11.50%	0.00%	3.50%	0.00%
2020-2021	11.50%	11.50%	4.50%	4.50%
2021-2022	11.50%	11.50%	6.00%	6.00%

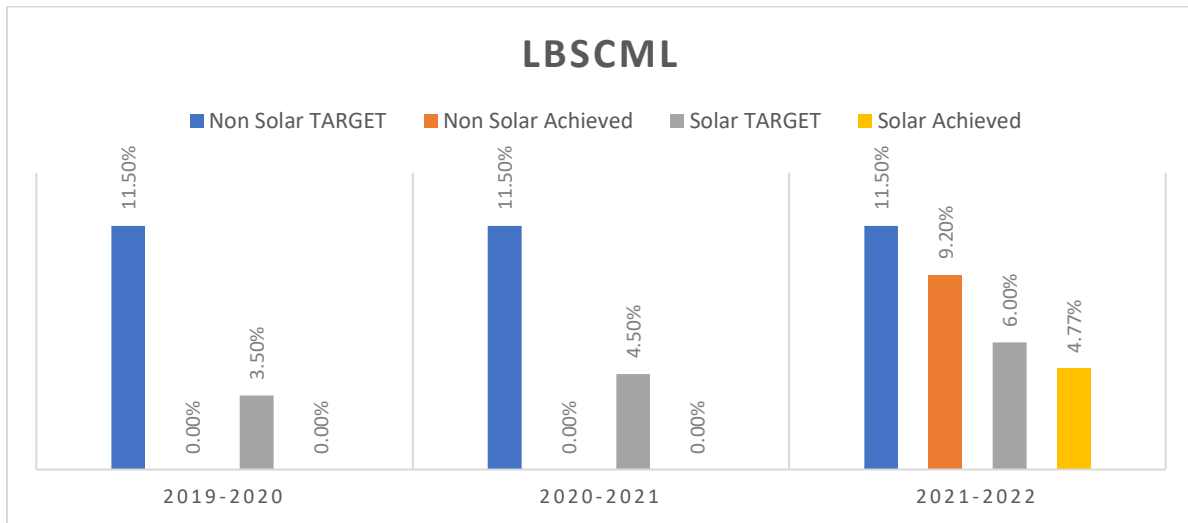


Financial Year	2019-20 (MU)	2020-21 (MU)	2021-22 (MU)
Gross Energy Consumption	-	0.960	13.46
Non-Solar RPO Target	-	0.11	1.547
Non-Solar RPO Achieved	-	0.11	1.579
Non-Solar RPO Shortfall/(Surplus)	-	(0.0006)	(0.0313)
Solar RPO Target	-	0.043	0.80
Solar RPO Achieved	-	0.044	0.80
Solar RPO Shortfall/(Surplus)	-	(0.0008)	0.00
Total RPO Target	-	0.15	2.347
Total RPO Achieved	-	0.155	2.379
Total RPO Shortfall/(Surplus)	-	(0.0014)	(0.0313)
Cumulative RPO Shortfall/(Surplus)	-	(0.0014)	(0.0327)

RPO targets have been achieved by EON II for FY 2020-21 and FY 2021-22 and there is a minor surplus of 0.0327 MU at the end of FY 2021-22.

### 10. Laxmipati Balaji Supply Chain Management Limited (LBSCML)

Financial Year	Non-Solar Target	Non-Solar Achieved	Solar Target	Solar Achieved
2019-20	11.50%	0.00%	3.50%	0.00%
2020-21 & 2021-22	11.50%	9.20%	4.50%	4.77%
	11.50%		6.00%	

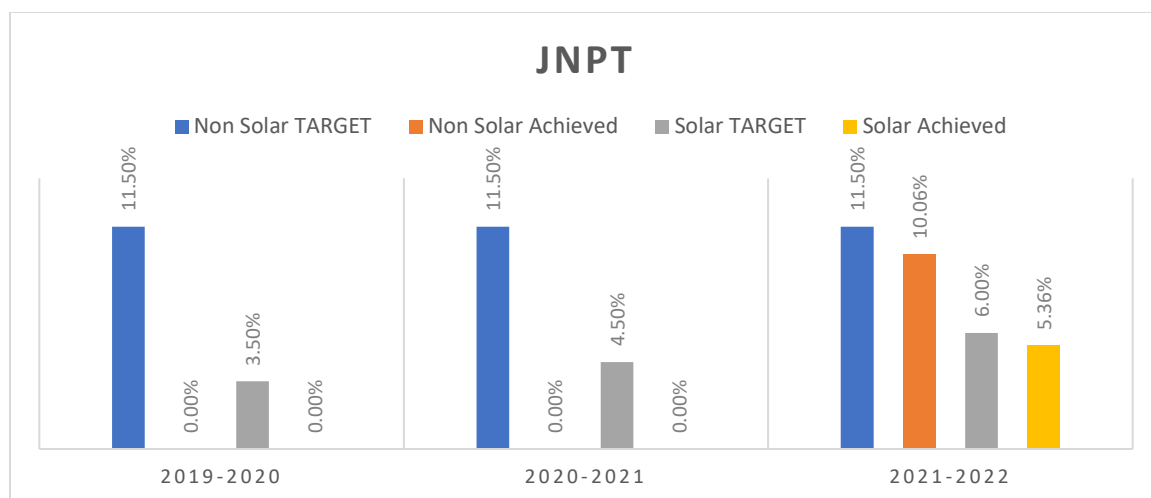


Financial Year	2019-20	2020-21 & 2021-22 (MU)
Gross Energy Consumption	-	3.26
Non-Solar RPO Target	-	0.37
Non-Solar RPO Achieved	-	0.30
Non-Solar RPO Shortfall/(Surplus)	-	0.07
Solar RPO Target	-	0.19
Solar RPO Achieved	-	0.16
Solar RPO Shortfall/(Surplus)	-	0.03
Total RPO Target	-	0.56
Total RPO Achieved	-	0.46
Total RPO Shortfall/(Surplus)	-	0.10
Cumulative RPO Shortfall/(Surplus)	-	<b>0.10</b>

There is a minor RPO surplus of 0.1 MU at the end of FY 2021-22.

## 11. Jawaharlal Nehru Port Trust (JNPT)

Financial Year	Non-Solar Target	Non-Solar Achieved	Solar Target	Solar Achieved
2019-20	11.50%	0.00%	3.50%	0.00%
2020-21	11.50%	0.00%	4.50%	0.00%
2021-22	11.50%	10.06%	6.00%	5.36%



Financial Year	2019-20 (MU)	2020-21 (MU)	2021-22 (MU)
Gross Energy Consumption	-	-	1.46
Non-Solar RPO Target	-	-	0.17
Non-Solar RPO Achieved	-	-	0.15
Non-Solar RPO Shortfall/(Surplus)	-	-	0.02
Solar RPO Target	-	-	0.09
Solar RPO Achieved	-	-	0.08
Solar RPO Shortfall/(Surplus)	-	-	0.01
Total RPO Target	-	-	0.26
Total RPO Achieved	-	-	0.23
Total RPO Shortfall/(Surplus)	-	-	0.03
Cumulative RPO Shortfall/(Surplus)	-	-	0.03

There is a minor RPO surplus of 0.03 MU at the end of FY 2021-22.



## **12. Nidar Utilities Panvel LLP (NUPLLP)**

The Cumulative provisional RPO shortfall till March 2023 is 0.8523 MU for Solar, 1.62 MU for Non-Solar and 0.0014 for Mini/Micro hydel.

<b>Financial Year</b>	<b>Solar Shortfall (MU)</b>	<b>Non-Solar Shortfall (MU)</b>	<b>Mini Hydro Shortfall (MU)</b>	<b>Total Shortfall (MU)</b>
2018-19	0.036	0.145	0.0003	0.181
2019-20	0.043	0.53	0.0011	0.578
2020-21	0.044	0.92	0.0	0.966
2021-22	0.5498	1.91	0.0	2.46
2022-23	0.179	-1.89	0.0	-1.71
<b>Total Cumulative Shortfall from FY 2019-20 till March 23</b>	<b>0.85</b>	<b>1.62</b>	<b>0.0014</b>	<b>2.4736</b>

## 3 MoP Order on RPO and Energy Storage Obligation Trajectory till 2029-30

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This Chapter of the Explanatory Memorandum elaborates the reasoning for incorporating the changes related to provisions of Renewable Purchase Obligation (RPO) and Energy Storage Obligation (ESO), in order to align the MERC (Renewable Purchase Obligation, its Compliance and Implementation of Renewable Energy Certificate Framework) Regulations, 2019 with the MoP Order on ‘Renewable Purchase Obligation (RPO) and Energy Storage Obligation Trajectory till 2029-30’ issued on 22<sup>nd</sup> July 2022 and Corrigendum issued on 19<sup>th</sup> September 2022.

### 3.1 Background

In compliance with Section 3 of the Electricity Act, 2003, the Central Government notified the revised Tariff Policy on 28<sup>th</sup> January 2016.

Clause 6.4 of the Tariff Policy addresses various aspects associated with promotion and harnessing of renewable energy sources, as reproduced below:

*“Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the total consumption of electricity in the area of a distribution licensee for purchase of energy from renewable energy sources, taking into account availability of such resources and its impact on retail tariffs. Cost of purchase of renewable energy shall be taken into account while determining tariff by SERCs. **Long term growth trajectory of Renewable Purchase Obligations (RPOs) will be prescribed by the Ministry of Power in consultation with MNRE.***

*Provided that cogeneration from sources other than renewable sources shall not be excluded from the applicability of RPOs.” (emphasis added)*

The MoP notified the ‘Renewable Purchase Obligation (RPO) and Energy Storage Obligation Trajectory till 2029-30’ Order on 22<sup>nd</sup> July 2022, wherein MoP has revised and introduced few RPO categories with its long-term trajectory till FY 2029-30. Further, in order to promote the development of energy storage systems, MoP has introduced the concept of ‘Energy Storage Obligation’ as a separate category along with its trajectory till FY 2029-30.

On 13<sup>th</sup> September 2022, MoP has sent a letter to all the ERCs, wherein it is stated as under:

“... ”

2. ...Any Regulations framed by the Central Electricity Authority or the Appropriate Commission have to be in accordance with the Electricity Act and the Rules made thereunder. In case of any conflict between the Rules and the Regulations, the Rules shall prevail – and to the extent that the Regulations are violative of the Rules they shall be non-est.

...

6. All the concerned may take appropriate action for compliance of Order ‘Renewable Purchase Obligation (RPO) and Energy Storage Obligation Trajectory till 2029-30’. Wherever required, the Appropriate Commission shall align their regulation with respect to these Rules.”

The Commission notes that the Order ‘Renewable Purchase Obligation (RPO) and Energy Storage Obligation Trajectory till 2029-30’ has introduced new RPO categories, viz., ‘Wind RPO’, Hydro Power Obligation (‘HPO’), and ‘Other RPO’ along with ‘Energy Storage Obligation’ category with trajectory up to FY 2029-30. Also, in the Corrigendum, the eligibility criteria of ‘Wind RPO’ has been modified.

In the existing MERC RPO Regulations, 2019, there are only two RPO categories, viz., Solar and Non-solar with the trajectory specified till FY 2024-25. The Central Electricity Regulatory Commission (CERC) has also removed the distinction between Solar and Non-Solar RPO. Also, large Hydro has been included under the HPO. Hence, in order to be consistent with the approach being followed in the country, the MERC RPO Regulations, 2019 need to be amended to modify the RPO baskets. The necessary amendments are proposed to be incorporated in the MERC RPO Regulations, 2019, by making the necessary amendments.

The various aspects on which amendments are required in the MERC RPO Regulations, 2019, are summarised below:

- a) The RPO categories are proposed to be modified in accordance with the Rules.
- b) The Order stipulates the provisions related to ‘HPO’, i.e., the hydro power plants eligible for HPO. Hence, provisions related to HPO are proposed in the First Amendment to the MERC RPO Regulations, 2019.
- c) The Order provides for eligibility criteria to be fulfilled to qualify under ‘Energy Storage Obligation’. It is proposed to amend the MERC RPO Regulations, 2019 to incorporate these clauses.
- d) The Order provides for crossover of RPO target for each category in case of shortfall in achievement of RPO target for particular category. It is proposed to amend the MERC RPO Regulations, 2019 to incorporate these provisions.

**3.2 Introduction of Regulation 2.1(f)(a) after Regulation 2.1(f) of the Principal Regulations:**

"2.1(f)(a) **“HPO”** means Hydro Purchase Obligation;”

**3.3 Introduction of Regulation 2.1(j)(a) after Regulation 2.1(j) of the Principal Regulations:—**

“2.1(j)(a) **“Other RPO”** means Renewable Purchase Obligation that may be met by energy produced from any Renewable Energy project not covered under Regulation 2.1(f)(a) and 2.1(n)(a);

**3.4 Introduction of Regulation 2.1(n)(a) after Regulation 2.1(n) of the Principal Regulations:—**

“2.1(n)(a) **“Wind RPO”** means Renewable Purchase Obligation that shall be met by energy produced from Wind Power Projects (WPPs) commissioned after 31<sup>st</sup> March 2022 and the wind energy consumed over and above 7% from WPPs commissioned till 31<sup>st</sup> March 2022;”

**3.5 Substitution of Regulation 4.2 of the Principal Regulations:**

The Regulation 4.2 of the existing MERC (Renewable Purchase Obligation, its Compliance and Implementation of Renewable Energy Certificate Framework) Regulations, 2019 specifies as under:

*“4.2 The eligible RE sources shall include without limitation the following:*

*(a) Non-fossil fuel (including bagasse) based Co-generation (both qualifying and non-qualifying Co-generation)*

*(b) Wind Energy*

*(c) Biomass Power based on Rankine Cycle technology*

*(d) Small Hydro, Mini Hydro, Micro Hydro Power*

*(e) Waste to Energy based on technologies approved by MNRE*

*(f) Solar Power*

*(g) Hybrid RE based on RE technologies and sources approved by MNRE and the State Commission*

*(h) Power generated from co-firing of biomass in the thermal power plants*

*(i) Any other source recognised or approved by MNRE and the State Commission.”*

The MoP has recognized Large Hydro Power Projects (LHPs) including Pumped Storage Projects (PSPs), having capacity of more than 25 MW, as part of RE.

Hence, it is proposed to include the Large Hydro Power Projects (LHPs) as a source of RE along with Small Hydro, Mini Hydro and Micro Hydro in the above existing Regulation 4.2(d)

“4.2 ...

**(d) All Hydro Power Projects (HPPs) including Large Hydro Power Projects (LHPs), Pumped Storage Projects, Small Hydro, Mini Hydro and Micro Hydro Power**

....”

### **3.6 Introduction of Regulation 4.3 (A) after Regulation 4.3 of the Principal Regulations:**

MoP has stipulated in the Order that the energy from all Hydro Power Projects (including PSPs and Small Hydro Projects (SHPs)) commissioned after 8<sup>th</sup> March 2019, will be considered as part of Renewable Purchase Obligation (RPO) through a separate obligation, i.e., Hydro power Purchase Obligation (HPO). Accordingly, the various ways in which the HPO target can be achieved are proposed as under:

#### **“4.3 (A) HPO Target:**

- a) HPO shall be met only by energy produced from all Hydro Projects (including Pumped Storage Projects (PSPs) and Small Hydro Projects (SHPs)) commissioned on and after 8<sup>th</sup> March 2019 to 31<sup>st</sup> March 2030;
- b) Energy from all other Hydro Power Projects (HPPs) including free power from HPPs commissioned before 8<sup>th</sup> March 2019 will be considered under category of ‘Other RPO’;
- c) HPO of the Distribution Licensee may be met out of the free power being provided to the State from Large Hydro Projects (including PSPs and Small Hydro Projects (SHPs)), commissioned after 8<sup>th</sup> March, 2019 as per agreement at that point of time excluding the contribution towards Local Area Development, if consumed within the Distribution Licensee area;

- d) In case, the free power mentioned above is insufficient to meet the HPO target, then the Distribution Licensee would have to buy the additional hydro power to meet its HPO target or may have to buy the corresponding amount of Renewable Energy Certificates corresponding to Hydro Power;
- e) Hydro Power imported from outside India shall not be considered for meeting HPO.”

**3.7 Substitution of Regulation 6 of the Principal Regulations:**

Regulation 6 of the existing MERC RPO Regulations, 2019 specifies as under:

*“The Operating Period of the RPO framework specified under these Regulations shall commence from 1 April, 2020 and shall be valid until 31 March, 2025.”*

In the First Amendment to the MERC RPO Regulations, 2019, it is proposed to specify the RPO targets till 31<sup>st</sup> March 2030, in accordance with the MoP Rules. Accordingly, it is proposed to substitute Regulation 6 as under:

*“The Operating Period of the RPO framework specified under these Regulations shall commence from 1 April, 2020 and shall be valid until **31 March, 2030**”*

**3.8 Deletion of RPO Targets for FY 2024-25 under Regulation 7.1 and Introduction of RPO Targets for FY 2024-25 to FY 2029-30 under Regulation 7.5(A) of the Principal Regulations:**

Regulation 7.1 of the existing MERC RPO Regulations, 2019 specifies as under:

*“7.1 Every Obligated Entity shall procure electricity generated from eligible RE sources to the extent of the percentages, out of its total procurement of electricity from all sources excluding energy from Hydro power in a year, set out in the following Table*

<i>Year</i>	<i>Quantum of purchase (in %) from Renewable Energy sources (in terms of energy equivalent in kWh)</i>		
	<i>Solar</i>	<i>Non-Solar (other RE)</i>	<i>Total</i>
	<i>(a)</i>	<i>(b)</i>	<i>(c)</i>
<i>2020-21</i>	<i>4.50%</i>	<i>11.50%</i>	<i>16.00%</i>

<b>Year</b>	<b>Quantum of purchase (in %) from Renewable Energy sources (in terms of energy equivalent in kWh)</b>		
	<b>Solar</b>	<b>Non-Solar (other RE)</b>	<b>Total</b>
	(a)	(b)	(c)
2021-22	6.00%	11.50%	17.50%
2022-23	8.00%	11.50%	19.50%
2023-24	10.50%	11.50%	22.00%
2024-25	13.50%	11.50%	25.00%

In the First Amendment to the MERC RPO Regulations, 2019, it is proposed to specify the RPO targets from FY 2024-25 to FY 2029-30, in accordance with the MoP Rules. Since, FY 2023-24 is underway, the RPO targets are proposed to be modified from FY 2024-25 onwards. Accordingly, it is proposed to delete the RPO target for FY 2024-25 as specified in the above Table under Regulation 7.1 and introduce RPO targets for FY 2024-25 to FY 2029-30 under a new Regulation 7.5 (A).

Hence, a Note is proposed to be added after the Table under Regulation 7.1, as under:

“Note: RPO targets for FY 2024-25 specified in the Table under Regulation 7.1 of the Principal Regulations stands deleted”.

Further, the existing Regulations specify the RPO targets for only two categories, viz., Solar and Non-Solar, whereas the MoP Order has defined new categories viz., ‘Wind RPO’, ‘HPO’ and ‘Other RPO’ with trajectory till FY 2029-30. Hence, in order to align with the MoP Order, the revised RPO categories with trajectory is proposed under Regulation 7.5(A) as follows:

“7.5(A) Every Obligated Entity shall procure electricity generated from eligible RE sources to the extent of the percentages, out of its total procurement of electricity from all sources in a year, set out in the following Table :—

<b>Year</b>	<b>Quantum of purchase (in %) from Renewable Energy sources (in terms of energy equivalent in kWh)</b>			
	<b>Wind RPO</b>	<b>HPO</b>	<b>Other RPO</b>	<b>Total RPO</b>
	(a)	(b)	(c)	(d)
2024-25	2.46%	1.08%	26.37%	29.91%
2025-26	3.36%	1.48%	28.17%	33.01%
2026-27	4.29%	1.80%	29.86%	35.95%

Year	Quantum of purchase (in %) from Renewable Energy sources (in terms of energy equivalent in kWh)			
	Wind RPO	HPO	Other RPO	Total RPO
	(a)	(b)	(c)	(d)
2027-28	5.23%	2.15%	31.43%	38.81%
2028-29	6.16%	2.51%	32.69%	41.36%
2029-30	6.94%	2.82%	33.57%	43.33%

Provided that any shortfall in achievement of ‘Other RPO’ category in a particular year can be met with either the excess energy consumed from Wind Power Projects (WPPs) commissioned after 31<sup>st</sup> March 2022 beyond ‘Wind RPO’ for that year or with excess energy consumed from eligible Large Hydro Projects (including PSPs and Small Hydro Projects (SHPs)), commissioned after 8<sup>th</sup> March 2019 beyond ‘HPO’ for that year or partly from both:

Provided further that any shortfall in achievement of ‘Wind RPO’ in a particular year can be met with excess energy consumed from Hydro Power Plants, which is in excess of ‘HPO’ for that year and vice versa:

Provided also that Distribution Licensee with peak demand less than 10 MW, a Captive User of a Captive Generating Plant with installed capacity of 1 MW and above, and Open Access Consumers with Contract Demand of 1 MW and above, shall be required to meet only their composite RPO target set out in **column (d)** of the Table above annually:”


### 3.9 Introduction of Regulation 7.7 after Regulation 7.6 of the Principal Regulations:

MoP has introduced a separate provision for ‘Energy Storage Obligation’ and prescribed the long-term RPO trajectory for it in the ‘Renewable Purchase Obligation (RPO) and Energy Storage Obligation Trajectory till FY 2029-30’.

In order to align with the MoP Order and to encourage the development of energy storage technologies, the following Regulations are proposed:

#### “7.7 Energy Storage Obligation



(a) The Energy Storage Obligation shall be calculated in energy terms as a percentage of total consumption of electricity and shall be treated as fulfilled only when at least 85% of the total energy stored in the Energy Storage System (ESS), on an annual basis, is procured from renewable energy sources.

(b) The following percentage of total energy consumed shall be solar/wind energy along with/through storage:

<b>Year</b>	<b>Storage (on Energy basis)</b>
2024-25	1.5%
2025-26	2.0%
2026-27	2.5%
2027-28	3.0%
2028-29	3.5%
2029-30	4.0%

(c) The Energy Storage Obligation to the extent of energy stored from renewable energy sources shall be considered as a part of fulfilment of the total RPO as mentioned in Regulation 7.5 (A).

(d) The Energy Storage Obligation shall be reviewed periodically considering the commissioning/operation of PSP capacity, to accommodate any new promising commercially viable Energy Storage technologies and also reduction in cost of Battery Energy Storage Systems (BESS).”

### **3.10 Substitution of Proviso of Regulation 8 of the Principal Regulations:**

Regulation 8 of the existing MERC RPO Regulations, 2019 specifies as under:

“8 *Subject to the terms and conditions contained in these Regulations, the Certificates issued under the Central Commission’s REC Regulations shall be valid instruments for the discharge of the Obligations set out in these Regulations for the Obligated Entities to purchase electricity from RE sources:*

*Provided that, in the event of an Obligated Entity seeking to fulfil its RPO by purchase of Certificates, the obligation to purchase electricity from Solar generation may be fulfilled only by purchase of Solar Certificates, and the obligation to purchase electricity from generation based on RE other than Solar may be fulfilled only by purchase of non-Solar Certificates.*

The Order issued by MoP has introduced new RPO categories, hence, there is need to introduce the provision for Hydro Certificates and Wind Certificates. Hence, the following amendment is proposed to the Proviso:

“Provided that, in the event of an Obligated Entity seeking to fulfil its RPO by purchase of Certificates, the obligation to purchase electricity from various Renewable Energy Sources as stipulated in Regulation 7.1 and 7.5(A) may be fulfilled by purchase of appropriate Certificates as per Central Commission’s REC Regulations.”

### 3.11 Substitution of Regulation 12.1 and 12.2 of the Principal Regulations:

Regulations 12.1 and 12.2 of the existing MERC RPO Regulations, 2019 specify as under:

*“12.1 Regulation 7 provides minimum percentage of RE to be procured in each year by Obligated Entity.*

*12.2 Distribution Licensee shall endeavour to achieve total RPO target notified by the Central Government and for doing so it will get incentive of Rs 0.25 per kWh for RE procured above the minimum percentage specified in Regulation 7 upto the percentage notified by the Central Government as under or as may be notified from time to time:*

<i>Year</i>	<i>Solar</i>	<i>Non-Solar</i>	<i>Total</i>
<i>2020-2021</i>	<i>8.75%</i>	<i>10.25%</i>	<i>19.00%</i>
<i>2021-2022</i>	<i>10.50%</i>	<i>10.50%</i>	<i>21.00%</i>

*Provided such incentive will not be applicable if Distribution Licensee have not fulfilled Renewable Purchase Obligations on cumulative basis;*

*Provided further that RE procured during the year for meeting RPO of previous years shall be deducted while determining eligible RE quantum for incentives.”*

In the proposed First Amendment to the MERC RPO Regulations, 2019, for FY 2024-25 onwards the Commission has specified the RPO categories and targets at the same level as prescribed by the Central Government in the above-said Order. Hence, the clauses related to providing incentive to the Distribution Licensees for achieving RPO levels above the level stipulated in Regulations and up to level prescribed by the Central Government needs to be restricted to FY 2020-21 to FY 2023-24.

Hence, following changes are proposed to Regulations 12.1 and 12.2 :

12.1 Regulation 7.1 provides minimum percentage of RE to be procured in each year by the Obligated Entity.

12.2 Distribution Licensee shall endeavour to achieve total RPO target notified by the Central Government and for doing so it will get incentive of Rs 0.25 per kWh for RE procured above the minimum percentage specified in Regulation 7.1 up to the percentage notified by the Central Government as under or as may be notified from time to time:

Year	Solar	Non-Solar	Total
2020-21	8.75%	10.25%	19.00%
2021-22	10.50%	10.50%	21.00%

Provided that such incentive will not be applicable if Distribution Licensee has not fulfilled Renewable Purchase Obligations on cumulative basis:

Provided further that RE procured during the year for meeting RPO of previous year shall be deducted while determining eligible RE quantum for incentive.

### **3.12 Substitution of Regulation 12.3 of the Principal Regulations:**

Regulation 12.3 of the existing MERC RPO Regulations, 2019 specifies as under:

*“12.3 Any shortfall in meeting the minimum percentage of RE as specified in Regulation 7 may be carried forward from FY 2020-21 and FY 2021-22 to FY 2022-23 and from FY 2023-24 to FY 2024-25 and Obligated Entity shall meet such shortfall on cumulative basis by 31 March 2023 and 31 March 2025, respectively;*

*Provided that Distribution Licensee shall be subjected to reduction in Annual Revenue Requirement at a rate of Rs 0.10 per kWh for cumulative shortfall in total RE procurement target for each year;*

*Provided further that other Obligated Entities shall be subjected to penalty of Rs. 0.10 per kWh for cumulative shortfall in total RE procurement target for each year;*

*Provided further that any cumulative shortfall in RE procurement as on 31 March 2023 and/or 31 March 2025 shall not be carried forward for next year and be*

*adjusted by imposing reduction in ARR for Distribution Licensees and imposing penalty for other Obligated Entities, at rate of floor price of respective REC as on that date;*

*Provided further that if Obligated Entity is able to demonstrate that even after taking all possible measures including procurement of RECs, it is not able to meet RPO then the Commission may reduce the penalty amount subject to conditions as may be stipulated in that Order.”*

As the RPO targets are now proposed to be specified for the period up to FY 2029-20, the corresponding changes are proposed in Regulation 12.3 as under:

“12.3 Any shortfall in meeting the minimum percentage of RE as specified in Regulation 7.1 or 7.5(A) may be carried forward from FY 2020-21 and FY 2021-22 to FY 2022-23, from FY 2023-24 to FY 2024-25, **from FY 2025-26 and FY 2026-27 to FY 2027-28 and from FY 2028-29 to FY 2029-30** and Obligated Entity shall meet such shortfall on cumulative basis by 31 March 2023, 31 March 2025, **31 March 2028 and 31 March 2030**, respectively:

Provided that Distribution Licensee shall be subjected to reduction in Aggregate Revenue Requirement at a rate of Rs 0.10 per kWh for cumulative shortfall in total RE procurement target for each year:

Provided further that other Obligated Entities shall be subjected to penalty of Rs. 0.10 per kWh for cumulative shortfall in total RE procurement target for each year:

Provided also that any cumulative shortfall in RE procurement as on 31<sup>st</sup> March 2023 and/or 31<sup>st</sup> March 2025 **and/or 31<sup>st</sup> March 2028 and/or 31<sup>st</sup> March 2030** shall not be carried forward for next year and be adjusted by imposing reduction in ARR for Distribution Licensees and imposing penalty for other Obligated Entities, at rate of floor price of respective REC as on that date:

Provided also that if Obligated Entity is able to demonstrate that even after taking all possible measures including procurement of RECs, it is not able to meet RPO target, then the Commission may reduce the penalty amount subject to conditions as may be stipulated in that Order.”

## 4 The Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022

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This Chapter of the Explanatory Memorandum elaborates the reasoning for incorporating the changes related to provisions of various methods of meeting the RPO requirement by the entities, in order to align the MERC RPO Regulations, 2019 with the Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022 notified by the MoP on 06<sup>th</sup> June 2022.

### 4.1 Background

The MoP notified the Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022 on 06<sup>th</sup> June 2022, wherein MoP has stipulated the framework for Green Energy Open Access.

The Commission notes that the Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022 stipulate the various methods for meeting the RPO requirement by the entities.

Hence, in the proposed First Amendment to the MERC RPO Regulations, 2019, the Commission has incorporated the various methods of meeting the RPO requirement by the entities as stipulated by MoP, which were missing in the existing MERC RPO Regulations, 2019.

### 4.2 Introduction of Regulation 4.2(h) (a) after Regulation 4.2(h) of the Principal Regulations:

MoP in the Rule has considered Green hydrogen and Green ammonia as a RE source.

Hence, the Commission has proposed to include Green hydrogen and Green ammonia as an eligible RE source, thus the following amendment is proposed to Regulation 4.2:

“4.2 (h)(a) Green Hydrogen and Green Ammonia.”

### 4.3 Substitution of Regulation 7.6 of the Principal Regulations:

Regulation 7.6 of the existing MERC RPO Regulations, 2019 specifies as under:

*“7.6 An Obligated Entity may meet its RPO target by way of its own generation or procurement of power from another RE Project or by purchase from a Licensee or by purchase of RECs or by a combination of these options:*

*Provided that procurement of RE power by a Distribution Licensee at a Generic Tariff rate approved by the State Commission or at a rate discovered through transparent process of competitive bidding and duly approved/adopted by the Commission shall be considered as eligible quantum for fulfilment of the RPO of such Distribution Licensee:*

*Provided further that RE power procurement as per agreement signed before notification of MERC (Renewable Purchase Obligation, its compliance and implementation of REC) Regulations, 2010 shall be considered as eligible quantum for fulfilment of the RPO of such Distribution Licensee.”*

The MoP Rule has stipulated various new methods of meeting the RPO requirement by an obligated entity, viz., may requisition renewable energy from Distribution Licensee, procure green hydrogen/ammonia, by consuming green energy from captive power plant and by any other sources, as may be, determined by the Central Government.

Hence, it is proposed to substitute Regulation 7.6 as under:

“7.6 An Obligated Entity may meet its RPO target by one or more of the following methods:

**(a) Own generation from Renewable energy sources**

**(b) By procuring Renewable Energy through Open Access** from any Developer either directly or through a Trading Licensee or through power markets.

**(c) By Requisition from Distribution Licensee:**

(i) Any entity may elect to purchase green energy either up to a certain percentage of the consumption or its entire consumption and they may place a requisition for this with their Distribution Licensee, which shall procure such quantity of green energy and supply it and the consumer shall have the flexibility to give separate requisition for Wind, Hydro and Other categories of RE power;

(ii) The consumer may purchase on a voluntary basis, more renewable energy, than he is obligated to do and for ease of implementation, this may be in steps of Twenty five per cent and going up to Hundred per cent;

(iii) The tariff for the green energy shall be determined separately by the Commission, which shall comprise of the Average Pooled Power Purchase Cost of the renewable energy, cross-subsidy charges if any, and service charges

covering the prudent cost of the Distribution Licensee for providing the green energy;

(iv) Any requisition for green energy from a Distribution Licensee shall be for a minimum period of one year;

(v) The quantum of green energy shall be pre-specified for at least one year

(vi) The green energy purchased from Distribution Licensee or from Renewable Energy sources other than Distribution Licensee in excess of Renewable Purchase Obligation of obligated entity shall be counted towards Renewable Purchase Obligation compliance of the Distribution Licensee;

(vii) The Accounting of renewable energy supplied at Distribution Licensee level shall be on a monthly basis;

**(d) By consuming renewable energy from captive power plant**

**(e) By purchasing of Renewable Energy Certificates (RECs).**

**(f) By Purchase of Green Hydrogen or Green Ammonia;**

The quantum of green hydrogen or green ammonia would be computed by considering the equivalence to the green hydrogen or green ammonia produced from one MWh of electricity from the renewable sources or its multiples based on norms notified by the Central Commission.

**(g) Any other sources, as may be, determined by the Central Government:**

Provided that procurement of RE power by a Distribution Licensee at a Generic Tariff rate approved by the Commission or at a rate discovered through transparent process of competitive bidding and duly approved/adopted by the Commission shall be considered as eligible quantum for fulfilment of the RPO of such Distribution Licensee:

Provided further that RE power procurement as per agreement signed before notification of MERC (Renewable Purchase Obligation, its compliance and implementation of REC) Regulations, 2010 shall be considered as eligible quantum for fulfilment of the RPO of such Distribution Licensee.”