

Before the
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION
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Case No. 49 of 2021

Case for Verification of compliance of Renewable Purchase Obligation targets by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for FY 2018-19 and FY 2019-20

Coram

Sanjay Kumar, Chairperson
I.M. Bohari, Member
Mukesh Khullar, Member

Parties

1. Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL)
2. Maharashtra Energy Development Agency (MEDA)
3. Maharashtra State Load Despatch Centre (MSLDC)

Appearance For

- | | |
|-----------|-----------------------|
| 1. MSEDCL | : Smt. Kavita Gharat |
| 2. MEDA | : Shri. Manoj Pise |
| 3. MSLDC | : Smt. Juelee M. Wagh |

ORDER

Date: 7 September 2021

1. The MERC (Renewable Purchase Obligation, its Compliance and Implementation of Renewable Energy Certificate Framework) Regulations, 2016 ('RPO-REC Regulations 2016') specify the Renewable Purchase Obligation (RPO) targets for Obligated Entities, including MSEDCL as Distribution Licensee, for FY 2018-19 and FY 2019-20. The RPO targets specified in Regulation 7.1 are as below:

Year	Quantum of purchase (in %) from Renewable Energy sources (in terms of energy equivalent in kWh)		
	Solar	Non-Solar (other RE)	Total
	(a)	(b)	(c)
2016-17	1.00%	10.00%	11.00%
2017-18	2.00%	10.50%	12.50%
2018-19	2.75%	11.00%	13.75%
2019-20	3.50%	11.50%	15.00%

Provided that each Distribution Licensee shall meet 0.2% per year of its Non-Solar (other RE) RPO target percentage for the period from FY 2016-17 to FY 2019-20 by way of purchase from Mini Hydro or Micro Hydro Power Projects;

2. Regulation 12 of the RPO-REC Regulations, 2016 empowers the Commission to deal with shortfalls in compliance of RPO targets by Obligated Entities as follows:

“

12. RPO Regulatory Charges

12.1 If the Obligated Entity fails to comply with the RPO target as provided in these Regulations during any year and fails to purchase the required quantum of RECs, the State Commission may direct the Obligated Entity to deposit into a separate fund, to be created and maintained by such Obligated Entity, such amount as the Commission may determine on the basis of the shortfall in units of RPO, RPO Regulatory Charges and the Forbearance Price decided by the Central Commission; separately in respect of Solar and Non-Solar RPO:

Provided that RPO Regulatory Charges shall be equivalent to the highest applicable preferential tariff during the year for Solar or Non-Solar RE generating sources, as the case may be, or any other rate as may be stipulated by the State Commission:

Provided further that the fund so created shall be utilised, as may be directed by the State Commission."

3. Through its Order dated 1 July 2010 in Case No. 21 of 2010, the Commission designated MEDA, Pune as the State Agency to undertake the functions envisaged under the Regulations.
4. As per Regulation 10.4 of the RPO-REC Regulations 2016, a Distribution Licensee is required to submit, at the end of each financial year, a detailed statement of energy procured from Renewable Energy (**RE**) sources, certified by its auditors.
5. Vide its Order dated 27 March 2019 in Case No. 36 of 2019 regarding compliance of RPO targets by MSEDCL for FY 2017-18, the Commission had stated as follows:
 - a. MSEDCL has standalone Solar RPO shortfall of 1476.368 MU for FY 2017-18 and Cumulative Solar RPO shortfall till FY 2017-18 is 2147.016 MU.
 - b. MSEDCL has standalone Non-Solar RPO surplus of 89.566 MU for FY 2017-18 and Cumulative non-Solar RPO surplus till FY 2017-18 is 55.151 MU.
 - c. MSEDCL has met standalone Mini-Micro Hydro RPO target for FY 2017-18 and Cumulative surplus/shortfall in Mini-Micro Hydro RPO is Nil.
 - d. The Commission directed MSEDCL to purchase the Solar Energy and/or RECs so as to fully meet its cumulative shortfall till FY 2017-18 by the end of March,2020.
6. In accordance with Regulation 9.5, MEDA, vide its letter dated 30 January 2020 and 30 December 2020, submitted the RPO settlement data for FY 2018-19 and FY 2019-20 in respect of MSEDCL which is summarized below:

RPO settlement data for MSEDCL as furnished by MEDA				
Item	FY 2018-19		FY 2019-20	
	%	MU	%	MU
Gross Energy consumption (GEC)	100%	130932.65	100%	127674.75
Solar RPO				
Target	2.75%	3600.65	3.50%	4468.62
Achievement	1.74%	2279.17	2.83%	3616.45
Shortfall /(Surplus)	1.01%	1321.48	0.67%	852.17
Non-Solar RPO				
Target	11.00%	14402.59	11.50%	14682.60
Achievement	9.52%	12468.74	8.18%	10446.04
Shortfall /(Surplus)	1.48%	1933.85	3.32%	4236.56
Mini-Micro RPO (Within Non-Solar)				
Target	0.20%	28.81	0.20%	29.37
Achievement	0.002%	0.36	0.05%	6.92
Shortfall /(Surplus)	0.20%	28.45	0.20%	22.45
Total RE to be procured as per the Target				
	13.75%	18003.24	15.00%	19151.21
Total Actual RE Procured				
	11.26%	14748.26	11.02%	14069.41
Total Shortfall/(Surplus)				
	2.49%	3283.79	3.98%	5111.16

7. According to MEDA, the RPO status of MSEDCL for FY 2018-19 and 2019-20 is as follows:

- a. In Solar RPO, for FY 2018-19 and FY 2019-20; MSEDCL has a shortfall of 1321.48 MU and 852.16 MU respectively. Further, MSEDCL has cumulative shortfall of 3525.982 MU till FY 2017-18.
- b. In Non-Solar RPO, for FY 2018-19 and FY 2019-20; MSEDCL has a shortfall of 1933.86 MU and 4236.55 MU respectively. Further, MSEDCL has cumulative surplus of 55.151 MU till FY 2017-18.
- c. In Mini/Micro Hydro RPO (within Non-Solar RPO), for FY 2018-19 and FY 2019-20; MSEDCL has a shortfall of 28.45 MU and 22.45 MU respectively. Further, MSEDCL has met Mini/Micro Hydro RPO target till FY 2017-18

8. The Commission asked MSEDCL to submit its response to the data furnished by MEDA. Further, the Commission sought replies from MSEDCL on the following points:

- a. Reconciliation statement along with rationale with regards to Gross Energy Consumption (GEC) data reported by MEDA and audited data of MSEDCL.
- b. Status of Solar, Non-Solar RPO compliance including Mini/Micro Hydro RPO compliance, as per the directives given in earlier Orders of the Commission along with detailed statement for project wise energy procurement in MU from all Solar & Non-

Solar generating projects including Mini/Micro Hydro projects and project wise contracted Solar and Non-Solar power capacity in MW during FY 2010-11 to FY 2019- 20.

c. Detailed list of action and efforts undertaken by it prior to and during FY 2018-19 and FY 2019-20 to ensure compliance of RPO targets in respect of Solar RPO, Non-Solar RPO and Mini/Micro Hydro RPO.

d. Details of long term RE procurement plan (in MUs and corresponding MW) for meeting the future RPO targets.

9. MSEDCL submitted its responses vide affidavit dated 28 May 2021 and additional submission dated 15 July 2021. MSEDCL submission covers following:

A. Reconciliation statement along with rationale with regards to GEC data reported by MEDA and audited data of MSEDCL

9.1. As per MSLDC, GEC of MSEDCL is inclusive of the energy consumption by Open Access consumers of MSEDCL. Also, MSEDCL RE procurement and Open Access consumption are considered by grossing up the losses at Transmission periphery i.e., G<>T Interface in line with Commission’s Order dated 14 September 2016 in Case No. 16 of 2016. Details submitted by MSEDCL for FY 2018-19 and FY 2019-20 are as under:

(In MU)

	GEC as per MSLDC	OA consumption + RE Procurement	GEC of MSEDCL
FY 2018-19	136145.56	5215.91	130932.65
FY 2019-20	132117.10	4442.35	127674.75

9.2. Further, MSEDCL vide its additional submission dated 15 July 2021 mentioned about typographical error in MSEDCL’s submission dated 28 May 2021. For FY 2018-19 GEC, as per MSLDC is 136148.56 MU. Further, MSEDCL submitted that the MSLDC, vide its e-mail dated 14 July 2021, provided the revised MSEDCL’s drawl at T<>D interface for FY 2019-20. The revised GEC of MSEDCL, as per SLDC is 132093.04 MU as against 132117.103 MU. Accordingly, MSEDCL requested to consider following GEC for RPO verification exercise:

(In MU)

	GEC as per MSLDC	OA consumption + RE Procurement	GEC of MSEDCL
FY 2018-19	136148.56	5215.91	130932.65
FY 2019-20	132093.04	4442.35	127650.69

9.3. Based on above rationale for GEC considerations, following revised RPO settlement data for FY 2018-19 and FY 2019-20 has been provided:

FY 2018-19

9.4. As per Commission's Order in Case No. 36 of 2019, MSEDCL has fulfilled its Non-Solar RPO target up to FY 2017-18 with surplus of 55.151 MU, which is only 0.43% in excess of FY 2017-18 Non-Solar target. MSEDCL has considered the se 55.151 MU for RPO compliance of FY 2018-19. Therefore, the MSEDCL's revised RPO compliance for FY 2018-19 is as below:

Gross Energy Consumption (MU)		Solar RPO		Non-Solar RPO (Including Mini-Micro)		Mini / Micro Hydro RPO (within Non-Solar RPO)		Total	
		Mus	%	Mus	%	Mus	%	Mus	%
130932.65	Target	3601	2.75	14403	11.00	28.81	0.022	18003	13.75
	Procurement	2279	1.74	12523	9.56	0.36	0.0002	14803	11.31
	Shortfall/ (-) Surplus (MU)	1321		1880		28.45		3200	

FY 2019-20

9.5. There is difference between the compliance report submitted to MEDA and the recently reconciled report of MSEDCL on account of following:

Impact Factor	Additional MU considered in revised submission
Revision in GEC after MSLDC report (Downward revision)	(-) 24.06 MU
Due to late agreements finalized for procurement of RE power and its consideration after booking into the system.	39.548 MU
Revision in Off Grid Solar Generation	11.07 MU

9.6. The MSDECL's revised RPO compliance for FY 2019-20 is as under:

Gross Energy Consumption (MUs)		Solar RPO		Non-Solar RPO (Including Mini-Micro)		Mini / Micro Hydro RPO (within Non-Solar RPO)		Total	
		Mus	%	Mus	%	Mus	%	Mus	%
127650.690	Target	4468	3.50	14680	11.50	29.36	0.023	19148	15.00
	Procurement	3631	2.84	10485	8.21	6.92	0.047	14116	11.06
	Shortfall/ (-) Surplus (MU)	837		4195		22.44		5032	

B. Status of Solar, Non-Solar RPO compliance including Mini/Micro Hydro RPO compliance, as per the directives given in earlier Orders of the Commission along with detailed statement for project wise energy procurement in MUs from all Solar & Non-Solar generating projects including Mini/Micro Hydro projects and project wise contracted Solar and Non-Solar power capacity in MW during FY 2010-11 to FY 2019-20.

Status of Solar RPO compliance:

- 9.7. MSEDCL has met its Solar RPO target up to FY 2015-16 by way of purchase of Solar RECs during September-18, October-18 (1378.966 MU) and shortfall of Solar RPO till FY 2017-18 is 2147.016 MU (670.648 of FY 2016-17 + 1476.37 of FY 2017-18). As per directives of the Commission in its Order dated 27 March 2019; MSEDCL was required to purchase Solar power and/or RECs so as to fully meet its standalone and cumulative shortfall of 2147.016 MU, by the end of March 2020.
- 9.8. MSEDCL tried to purchase Solar RECs from exchanges at floor price rate. However, the bids were not successful and the Solar RPO target could not be fulfilled through procurement of RECs. The financial condition of MSEDCL has further deteriorated due to COVID-19 pandemic and its restriction, hence it could not purchase RECs and from July 2020 onwards the trading is on hold as per directives from Hon'ble Appellate Tribunal for Electricity (APTEL). Cumulative shortfall upto FY 2019-20 is 4313.336 MU.

Status of Non-Solar RPO compliance:

- 9.9. MSEDCL fulfilled standalone Non-Solar RPO Target of FY 2017-18 and has surplus of 55.151 MU. MSEDCL requested the Commission, to consider the surplus 55.151 MU towards fulfillment of Non-Solar RPO target for FY 2018-19 in lieu of shortfall in meeting non-solar RPO target in FY 2018-19.
- 9.10. MSEDCL is in standalone shortfall of 1879 MU and 4197 MU for mitigating Non-Solar RPO Target of FY 2018-19 and FY 2019-20, respectively. The cumulative shortfall up to FY 2019-20 is 6076.603 MU.

Status of Mini-Micro Hydro RPO compliance:

- 9.11. MSEDCL purchased Non-Solar RECs in December -2017 and March- 2018 to meet cumulative Mini-Micro Hydro target up to FY 2017-18.
- 9.12. MSEDCL is in standalone shortfall of 28.45 MU and 22.45 MU for mitigating Mini-Micro Hydro Target of FY 2018-19 and FY 2019-20, respectively. The cumulative shortfall up to FY 2019-20 is 50.90 MU.

C. Detailed list of action and efforts undertaken by it prior to and during FY 2018-19 and FY 2019-20 to ensure compliance of RPO targets in respect of Solar RPO, Non-Solar RPO and Mini/Micro Hydro RPO.

Efforts taken for meeting Non-Solar RPO target:

- 9.13. After December 2017, MSEDCL has switched to procurement of RE Power (Wind and Baggasse) through competitive bidding process as per MNRE guidelines so as to purchase the same at competitive rates. The bidding process has its own timeframe/milestones and after floating of the bids it takes approximately 18 Months for commissioning of RE Power project and injection of power into the grid. MSEDCL has floated sufficient tenders for procurement of RE Power so as to meet the current RE shortfall and future RPO targets.

9.14. MSEDCL floated more than 4100 MW of Non-Solar based tenders during last two years but received very poor response which has resulted in contracting only about 1000 MW in Non-Solar. Despite multiple efforts in floating RE tenders and giving enormous publicity over newspapers, response has been poor over past two years.

Technology	No. of Tenders (Nos)	Total Tendered Capacity (MW)	Rate discovered (Rs/unit)	Bid received	Contracted Capacity (MW)
Wind	8	2830	2.52-2.87	595	589
Bagasse	8	1179	4.75-4.99	472	412
Others (Wind-Solar Hybrid)	2	180	-	0	0
Total	18	4189	0	1067	1001

9.15. Apart from this, MSEDCL has executed Power Sale Agreement with SECI for procurement of 500 MW wind power. The Scheduled commissioning date for these projects were February- 2020. The projects are yet to be commissioned and are delayed due to impact of COVID-19 Pandemic.

9.16. MSEDCL has procured 200 MW and 400 MW Wind Power in FY 2018-19 & FY 2019-20, respectively from Wind Generators on short term basis for a period of minimum 3 months to maximum 12 months with due approval of the Commission vide Order dated 15 November 2017 in Case No. 155 of 2017 and the energy generated from these generators has also been considered for fulfillment of Non-Solar RPO.

9.17. MSEDCL has executed Long Term EPA to the tune of 6783 MW capacity with Non-Solar RE Generators Details as below:

Sr.No.	Non-Solar RE Sources	Contracted capacity (as on 31.03.2018)	Capacity Addition during FY 18-19	Capacity Addition during FY 19-20	Contracted capacity (as on 31.03.2020)
1	Wind	3765	692	-643	3814
2	Small Hydro	305.1	-	12	307
3	Bagasse (Co-gen)	1997.75	308.25	112	2418
4	Biomass	236	-	-8	228
5	MSW	4	12	0	16
	Total	6307.85	1012.25		6783

(-) sign indicates expiry of long-term EPA.

9.18. From the above table, it is clear that the current contracted capacity (as on 31 March 2019 and 31 March 2020) was sufficient for fulfilment of Non-Solar RPO Compliance. However, due to natural factors beyond the control of MSEDCL viz. Changes in climate and inefficiency of Generators, the actual resulting CUF / PLF is not at par with the

normative CUF / PLF, which eventually affects the actual generation from non-solar RE-sources and leads towards shortfall in meeting RPO target.

9.19. The main reason observed for shortfall in meeting non-solar RPO target for FY 2019-20 is due to less generation from the bagasse-based co-generation projects. There was drought situation in the districts such as Ahmednagar, Solapur and Marathwada region due to which crushing was less and also generation was less by around 50% as compared to previous year i.e. FY 2018-19. Whereas some of the districts such as Kolhapur, Sangli and Satara were flooded. Due to water logging in this area for very long period, the crop was damaged and hence there was less crushing and eventually less generation.

Efforts taken for meeting Solar RPO target:

9.20. MSEDCL has executed long term power purchase agreements for the total capacity of 2717 MW as on 31 March 2019 to meet the solar target under various schemes of MNRE, GoI and with MSPGCL.

Generation Source	Contracted capacity (as on 31.03.2018)	Capacity Addition during FY 18-19	Capacity Addition during FY 19-20	Commissioned Capacity as on 31.03.2020
Solar	1527	1190	1155	2272

9.21. The expected generation from the Commissioned capacity is as below:

Generation Source	MERC Normative CUF /PLF	Expected Generation for FY 18-19	Actual Generation for FY 18-19	Expected Generation for FY 19-20	Actual Generation for FY 19-20
Solar	%	MU	MU	MU	MU
	19%	1622	962	2820	3624

9.22. As per MERC (Net Metering for Roof-top Solar Photo Voltaic Systems) Regulations, 2015) Regulations, solar energy purchased by MSEDCL through the net metering is eligible towards meeting its solar RPO. The details of the rooftop solar installed capacity in MW are as below:

Category	FY 2018-19		FY 2019-20	
	No. of Solar Generator (Cumulative)	Solar Capacity in MW (Cumulative)	No. of Solar Generator (Cumulative)	Solar Capacity in MW (Cumulative)
HT	700	155.56	1176	270.11
LT	13692	133.24	25355	241.28
Total	14392	288.80	26531	511.39

9.23. As per MERC order dated 19 March 2019 in Case No. 33 of 2019, the Commission allowed MSEDCL to consider solar generation from the Off-Grid Solar pumps for fulfillment of its solar RPO targets. The off-grid generation from Solar pump (around 50000 no.) of 12.16 MU (From FY 2016-17 to FY 2018-19) and 4.08 MU for FY 2019-20 has been considered for meeting Solar RPO target.

9.24. MSEDCL in its additional submission revised generation considered from Off-Grid Solar AG Pump for FY 2019-20. The revised generation from Off-Grid Solar AG Pump is 11.07 Mus (at G<>T interface). The reasons for the revision in Off-Grid Solar AG Pump solar unit generation are as below:

- The earlier submitted off-grid solar generation from Off-Grid Solar AG Pump was based on data as collected through Automatic Meter Reading (AMR) instruments.
- However, now it is observed that some of the AMR instruments are not continuously reflecting in system due to following reasons –
 - a. Communication Network issue such as Poor Network/No Network.
 - b. Remote Monitoring Unit (RMU) Communication Module Failure.
 - c. Configuration with Server is failed.
 - d. AMR instruments having abnormal reading.
 - e. AMR instruments having negative reading.

9.25. In view of above, off grid solar generation data was revised by reassessing the data of faulty/abnormal/not reachable/ negative AMR. Accordingly, after removing the abnormalities, the total solar units generated during FY 2019-20 is as under –

Particulars	Pump Count (Nos.)	Solar Units Generated in Mus (at T<>D interface)
Normal AMR Reading Received (as per revised report received from IT Section)	19256	6.46
AMR Reading Not Received (Calculated as per Monthly Solar Index)	14884	3.72
AMR reporting Abnormal Reading (Calculated as per Monthly Solar Index)	161	0.01
AMR reporting Negative Reading (Calculated as per Monthly Solar Index)	6249	0.54
Total for FY 2019-20	40550	10.72 (@G<>T interface =11.07)

The Monthly Solar Index is calculated by considering the ratio of solar units generated in a particular month for respective total capacity of pump and total count of pump for respective capacity, those normal AMR is received for that month.

9.26. To achieve the RPO targets set by the Commission, MSEDCL has been aggressively calling for tenders through transparent competitive bidding from December 2017, under Solar category. MSEDCL floated following inter/intra state Solar tenders during last two years. The details are as follows.

Sr. No.	Tender Type	Capacity (MW)	Tender Date/ Month	Ceiling Tariff (Rs./kWh)	Capacity of bids received (MW)	Discovered Tariff (Rs./kWh)
1	Inter/Intra state	1000	09.04.2018	3.00	1000	2.71 to 2.72
2	Inter/Intra state	1000	05.12.2018	2.90	1000	2.74 to 2.75
3	Inter/Intra state	1000	04.06.2019	2.80	0	NA
4	Inter/Intra state	500	23.08.2019	2.80	0	NA
5	Intrastate	500	22.11.2019	2.90	500	2.89 to 2.90
6	Intrastate	500	27.12.2019	2.90	350	2.90
	Total	4500 MW			2850	

9.27. The details of tenders floated by MSEDCL under 'Mukhyamantri Saur Krishi Vahini Yojana' through competitive bidding is as shown below:

Sr. No.	Date of Tender	Capacity of Tender (MW)	Bids received (MW)	Tariff discovered (Rs/kWh)	PPAs signed (MW)
1	27.04.2018	1000	235	3.09 to 3.15	235
2	15.09.2018	1400	180	3.29 to 3.30	Nil
3	07.01.2019	1400	1170	3.16 to 3.30	10
4	20.09.2019	1350	5	3.14	5
5	31.12.2019	1350	283	3.28 to 3.30	277
		6500	1873		527

9.28. MSEDCL has also contracted 200 MW Solar power with M/s Energy Efficiency Service limited (EESL) on 20 January 2018 to meet the solar RPO targets set out by MERC. Further, additional 300 MW PPA was contracted with M/s EESL on 30 October 2019.

Efforts taken to meet Mini-Micro Hydro RPO Target:

9.29. MSEDCL has signed PPA with Mini/Micro Hydro Generators, whoever had approached for signing of EPA. Moreover, it is to be submitted that till March 2019, only three generators had executed EPA. The projects are Shahanoor (0.75 MW), Yeoteshwar (0.075 MW) and Terwanmedhe, MSPGCL (0.2 MW). The details are as below:

Generation Source	Contracted capacity (as on 31.03.2019)	Capacity Addition during FY 19-20	Contracted capacity (as on 31.03.2020)
Mini / Micro Hydro	1.025	-	1.025

9.30. The expected generation from the Mini-Micro hydro was as below:

(In MU)

Generation Source	FY 18-19		FY 19-20	
	Expected Generation	Actual Generation	Expected Generation	Actual Generation
Mini / Micro Hydro	2.69	0.356	2.69	6.918

Efforts for purchase of RECs

9.31. MSEDCL is trying to fulfill the above said shortfall in RPO target by purchase of RECs and energy. But for years under consideration, MSEDCL faced difficulties in purchasing RECs due to non-availability of sufficient quantities of RECs during these periods and increased rates of RECs in the market.

D. Details of long term RE procurement plan (in MU and corresponding MW) for meeting the future RPO targets.

9.32. MSEDCL has planned to procure the RE Power considering the present shortfall and future RE Power requirement till FY 2024-25. The details of long term RE procurement plan (in MUs and corresponding MW) are as follows:

NON-SOLAR:

Parameter	Unit	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Energy purchase excluding OA and Hydro	MU	134826	137181	139726	143996	148445
RPO Target as per Regulation	%	11.50%	11.50%	11.50%	11.50%	11.50%
Annual Standalone target	MU	15505	15776	16068	16560	17071
Required Total Capacity for RPO	MW	7690	7199	7332	7556	7790

9.33. The present contracted Non-solar RE capacity is 11151 MW (as on 31 March 2021). Hence, no additional Non-Solar RE Power is required to be contracted. However, considering the expiry of existing contracts, earlier shortfall and low CUF due to climatic conditions. MSEDCL has planned to procure additional 2000MW Non-solar RE Power.

SOLAR:

9.34. RPO-REC Regulations 2019 has set up a stiff target of 13.50 % for Solar RPO to be achieved till FY 2024-25. Accordingly, MSEDCL plans to procure around 5500 MW solar capacity through centralised and de-centralised solar power projects.

E. Impact of COVID-19:

9.35. The prevailing COVID-19 Pandemic situation has adversely impacted the commissioning of new RE projects. The SCOD/COD of the earlier contracted projects has been extended from time to time considering the force majeure event of COVID-19. Despite MSEDCL's all-out effort, the RE Power could not be procured due to delay/non-commissioning/no or poor response to the bid floated by MSEDCL as COVID-19 has impacted all these activities.

9.36. With these difficulties, MSEDCL had approached the Commission with Case No. 21 of 2020 with the main prayer to allow to pass the RE procurement shortfall till FY 2022-23 and not to levy penalty for such shortfall. The Commission vide Order dated 01

January 2021 opined that such prayer of MSEDCL was premature and MSEDCL shall take all efforts to fulfil its RPO including procurement of RECs at regular intervals.

9.37. In view of above MSEDCL has requested the Commission to roll over the present RE shortfall without levy of any penalty till FY 2024-25.

10. Regulatory Process

10.1. Through a Public Notice dated 16 June 2021 published in the Loksatta and Maharashtra Times (Marathi) and Times of India and Indian Express (English) daily newspapers, the Commission invited suggestions and objections considering the submissions of MEDA and MSEDCL. The Commission also impleaded MEDA and MSLDC as Parties. An online Public e-Hearing was held on 9 July 2021.

10.2. The summary of RPO compliance of MSEDCL for FY 2018-19 & FY 2019-20, based on details provided by MEDA and MSEDCL, is at Annexure-1 of this Order. The list of persons who gave their comments in writing or made oral submissions during the Public Hearing is at Annexure-2 (A). The list of persons present at the Public Hearing is at Annexure-2(B).

10.3. At the Public e-Hearing, MSEDCL reiterated the points regarding its compliance of RPO targets made in its written submissions.

11. Suggestions/Objections received

Shri Kiran Chaudhari vide email dated 30 June 2021 shared paper cuttings and objected levying of Green Tariff for supply of green energy by Distribution Licensee.

Commission's Analysis and Ruling

12. The Commission by its earlier Order dated 27 March 2019 in Case No. 36 of 2019 has verified the compliance of RPO targets of MSEDCL for FY 2017-18. Cumulative RPO surplus/shortfall till FY 2017-18 is depicted in following table:

(In MU)

	GEC	Solar RPO	Non-Solar RPO	Mini-Micro RPO
FY 2017-18	121918.42	2147.016	(55.151)	0.00

'-' or () indicates surplus

The Commission in aforementioned Order directed MSEDCL to fulfil cumulative solar RPO shortfall till FY 2017-18 by the end of March-2020.

GEC Considerations:

13. MSEDCL has submitted that for FY 2019-20, the GEC submitted by MEDA has been revised after considering revision in GEC by MSLDC. MSLDC, vide its e-mail dated 14 July 2021, provided the revised drawl for MSEDCL at T<>D interface for FY 2019-20. The

revised GEC of MSEDCL as per SLDC is 132093.04 MU. MSEDCL requested to consider the actual GEC of MSEDCL (excluding OA consumption) at G< >T interface. MSEDCL requested to consider following GEC for RPO verification exercise:

(In MU)

	GEC as per MSLDC	OA consumption + RE Procurement	GEC of MSEDCL
FY 2018-19	136148.56	5215.91	130932.65
FY 2019-20	132093.04	4442.35	127650.69

It is pertinent to note that GEC for FY 2018-19 matches with the MEDA report. For FY 2019-20, MEDA reported GEC of 127674.75 MU, which is based on audited data of MSEDCL. Difference in GEC considerations is depicted in table below:

(In MU)

	GEC as per MEDA Report (a)	GEC of MSEDCL (b)	Difference (a)-(b)
FY 2018-19	130932.65	130932.65	0
FY 2019-20	127674.75	127650.69	24.06

14. The Commission observes that MSEDCL in its additional submission has neither elaborated rationale for change in GEC nor furnished a copy of MSLDC email for further scrutiny. Further, GEC for FY 2019-20 may undergo further change post receiving data from all the open access consumers for all the months of FY 2019-20 and settlement of FBSM bills. Therefore, in the mean time, the Commission has considered GEC submitted by MEDA for arriving at RPO targets for FY 2019-20. After receipt of completed data during Mid Term Review proceedings, impact of any variation in GEC will be factored in.
15. The Commission notes that details of Renewable Energy / REC procurement of MSEDCL for FY 2018-19 matches with data reported by MEDA. However, for FY 2019-20, MSEDCL vide its submission dated 28 May 2021 in present matter has reported higher procurement of RE/REC than that reported by MEDA. The Commission has scrutinized the same as under:

15.1. Solar RPO:

- a. For FY 2019-20, MSEDCL considered Solar power procurement of 3624 MU and shortfall in achieving the Solar RPO target for FY 2019-20 is 845 MU. Whereas, MEDA has reported Solar procurement of 3616.45 MU and shortfall of 852.17 MU.
- b. MSEDCL in its submission has revised generation considered from Off-Grid Solar AG Pump for FY 2019-20. MSEDCL has pointed out various metering issues for less measurement of generated energy. The Commission notes that MSEDCL is having serious issues in metering of Off Grid Solar installations. Normal readings available through AMR is less than 50%. Following table depicts the same:

Particulars	Pump Count	% Count
Normal AMR Reading	19256	47.48%

AMR Reading Not Received	14884	36.70%
AMR reporting Abnormal Reading	161	0.39%
AMR reporting Negative Reading	6249	15.41%
Total for FY 2019-20	40550	100%

- c. In view of such non-availability of correct meter reading through AMR enabled meters, MSEDCL revised the off grid solar generation data by reassessing the data of meter showing faulty/abnormal/not reachable/ negative reading through AMR system by using Monthly Solar Index. However, such approach of estimation of solar energy generation would be contrary to the premise based on which the Commission in its Order dated 19 March 2019 has allowed MSEDCL to use such off-grid solar energy generation for meeting solar RPO. Relevant part of Order dated 19 March 2019 is reproduced below:

“11. Although ‘Solar’ is the eligible RE source for fulfilling RPO, above Regulations also mandate grid connectivity of such eligible RE source. Such mandatory requirement of Grid connectivity is for exact accounting of energy generated from such RE sources which can be used for verification of RPO compliance or issuance of RECs. In the present case, off-grid Solar pumps are not connected to the grid but the pumps are having provision for online monitoring mechanism whereby details of electricity generated and water utilisation by solar pump are automatically made available to MSEDCL. Therefore, correct accounting of energy generated by off-grid Ag Solar pumps can be maintained which can be used later for verification of RPO compliance. For maintaining transparent energy accounting of energy generated from such off-grid Solar AG pumps, MSEDCL shall provide access of online monitoring System to Maharashtra Energy Development Agency (MEDA), which is State Agency for monitoring of RPO of obligated entities.” [emphasis added]

Thus, the Commission has allowed deviation from the RPO Regulations (which mandates only grid connected RE sources) on the ground that these off-grid solar pumps have online monitoring system through which solar generation can be monitored and verified by MEDA for RPO compliance purpose.

- d. In view of such clear dispensation, the Commission cannot allow estimated solar energy generation be included in eligible energy for meeting Solar RPO. Hence, the Commission considers Solar RPO data reported by MEDA for settlement purpose. MSEDCL shall take immediate steps to operationalize the AMR and within 6 months of this Order, MSEDCL shall report the functional status of metering infrastructure in respect of Off-Grid Solar AG Pump. MEDA shall verify and certify the same. In case the same is not fully complied with by MSEDCL, the Commission may be constrained to disallow part/full estimated generation from the RPO.

15.2.Non-Solar RPO:

- a. For FY 2019-20, there is difference of 39.548 MU between the RE/REC reported by MEDA and the recently reconciled report submitted by MSEDCL. The additional

39.548 MU (at G< >T periphery) are due to late agreements finalized for procurement of RE power and their booking into the system thereon.

- b. The Commission has designated MEDA as a State Agency for collecting data of RPO compliances from Obligated Entity. Such entities have to update such details on RPO Portal maintained by MEDA. The Commission is not aware if the purchase of power has been informed by MSEDCL to MEDA. Neither MSEDCL nor MEDA have given any details in this regard. MSEDCL has not updated details of its RECs procurement in FY 2019-20 on MEDA's RPO Portal and hence MEDA has not reported the same. Further, in its submission in present matter, MSEDCL has not supported its claim of RE power procurement by copy of audited certificate. MEDA has reported the compliance based only on the basis of the audited reports of MSEDCL. Hence, at this stage, the Commission deems it appropriate to consider RPO data reported by MEDA for deciding on RPO compliance by MSEDCL.

15.3. It is clarified that MSEDCL's belated claims of procurement of additional Non-Solar and/or Solar Energy /RECs, if any, will be considered during next RPO verification at Mid-Term Review (MTR) proceedings subject to scrutiny by MEDA.

16. Based on the above, the status of achievement of RPO targets by MSEDCL at the end of Control Period of RPO Regulations 2016, as approved by the Commission, is as shown below:

RPO settlement data for MSEDCL as approved by the Commission						
Item	Cumulative RPO (Surplus)/ Short fall till end of FY 2017-18	FY 2018-19		FY 2019-20		Cumulative RPO (Surplus)/ Short fall till end of FY 2019-20
	MU	%	MU	%	MU	MU
Gross Energy consumption (GEC)		100%	130932.65	100%	127674.75	
Solar RPO						
Target		2.75%	3600.65	3.50%	4468.62	
Achievement		1.74%	2279.17	2.83%	3616.45	
Shortfall /(Surplus)	2147.02	1.01%	1321.48	0.67%	852.17	4320.66
Non-Solar RPO						
Target		11.00%	14402.59	11.50%	14682.60	
Achievement		9.52%	12468.74	8.18%	10446.04	
Shortfall /(Surplus)	(55.15)	1.48%	1933.85	3.32%	4236.56	6115.26
Mini-Micro RPO (Within Non-Solar)						
Target		0.20%	28.81	0.20%	29.37	
Achievement		0.002%	0.36	0.05%	6.92	
Shortfall /(Surplus)	0.000	0.198%	28.45	0.15%	22.45	50.89
Total RE to be procured as per the Target						
		13.75%	18003.24	15.00%	19151.21	37154.45
Total Actual RE Procured						
		11.26%	14747.91	11.01%	14062.49	28810.40
Total Shortfall/(Surplus)						
	2091.87	2.49%	3255.33	3.99%	5088.72	10435.92

‘-’ or () indicates surplus

17. Accordingly, the Commission notes that MSEDCL has:
- i. Shortfall of its stand-alone Solar RPO target by 1321.48 MU and 852.17 MU for FY 2018-19 and FY 2019-20, respectively. Further, the cumulative Solar RPO shortfall at the end of FY 2019-20 is 4320.66 MU.
 - ii. Shortfall of its stand-alone non-Solar RPO target by 1933.85 MU and 4236.56 MU for FY 2018-19 and FY 2019-20, respectively. Further, the cumulative non-Solar RPO shortfall at the end of FY 2019-20 is 6115.26 MU.
 - iii. Shortfall of its stand-alone Mini/Micro target by 28.45 MU and 22.45 MU for FY 2018-19 and FY 2019-20, respectively. Further, the cumulative Mini/Micro RPO shortfall at the end of FY 2019-20 is 50.89 MU.
18. MSEDCL in its submission has requested to allow carry forward of cumulative RPO shortfall till FY 2019-20 to the end of fourth MYT Control Period i.e. up to FY 2024-25.
19. The Commission notes that ongoing COVID-19 Pandemic situation has adversely impacted the commissioning of new RE projects. The SCOD/COD of the earlier contracted projects has been extended from time to time. Further, despite MSEDCL’s effort, the RE Power could not be procured due to delay/non-commissioning/no or poor response to the bid floated by MSEDCL. Considering ongoing situation and efforts taken by MSEDCL to fulfil RPO, the Commission thinks it appropriate not to take any action against MSEDCL for non fulfilment of RPO as envisaged in Regulation 12 of MERC RPO Regulations 2016.
20. Accordingly, the Commission allows MSEDCL to carry forward cumulative RPO shortfall till FY 2019-20 to future years. MSEDCL has requested to allow such carry forward till end of new Control Period i.e. FY 2024-25. In this regard, the Commission notes that next Control Period i.e. FY 2020-21 to FY 2024-25 is governed by the ‘MERC (Renewable Purchase Obligation, its Compliance and Implementation of Renewable Energy Certificate Framework) Regulations, 2019’ (RPO - REC Regulations 2019). Said Regulations allows carry forward of shortfall from FY 2020-21 and FY 2021-22 to FY 2022-23, subject to the provision of Penalty in form of reduction in the Annual Revenue Requirement (ARR). The relevant excerpts from the RPO-REC Regulations 2019 are reproduced below:

“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.”

Thus, as per above Regulations, RPO shortfall cannot be allowed to be carried forward beyond 31 March 2023. Hence, the Commission allows MSEDCL to meet its cumulative shortfall till FY 2019-20 by 31 March 2023, failing which it will be liable for penal action as per above stated Regulations.

21. Further, the Commission notes that the MoP by its Order dated 29 January 2021 has notified the RPO trajectory for the Hydro Energy Sources i.e. the Hydro Power Obligation (HPO). As per the Order, the large hydro power projects (above 25 MW) which have come into commercial operation after 8 March 2019 shall be the eligible sources for HPO:

“4. On 8th March 2019, the Government had issued an order detailing various policy measures to promote hydropower sector in India inter-alia declaring large hydropower projects including pumped storage projects having capacity of more than 25 MW (LHPs) which come into commercial operation after 8.3.2019 as renewable energy source and to specify Hydropower Purchase Obligation (HPO) within Non-Solar Renewable Purchase Obligation (RPO).

5 In compliance of the above decision and with the objective to add 30,000 MW of hydropower capacity by the year 2029-2030, Ministry of Power has prepared a revised trajectory of RPO including long term trajectory for HPO considering the LHPs commissioned after 8th March 2019.

6 In super-session of orders dated 22nd July 2016 and 14th June 2018, Ministry of Power hereby specifies the following RPO Trajectory-

Year	Solar RPO	Non-Solar RPO			Total RPO
		HPO	Other Non-Solar RPO	Total Non-Solar RPO	
2019-20	7.25%	-	10.25%	10.25%	17.50%
2020-21	8.75%	-	10.25%	10.25%	19%
2021-22	10.50%	0.18%	10.50%	10.68%	21.18%
2022-23	To be specified later	0.35%	To be specified later	To be specified later	To be specified later
2023-24		0.66%			
2024-25		1.08%			
2025-26		1.48%			
2026-27		1.80%			

2027-28		2.15%			
2028-29		2.51%			
2029-30		2.82%			

.....”

The Commission has not yet amended its RPO Regulations 2019 to include HPO. However, the Commission notes that its RPO Regulations 2019 is based on broad principle of specifying achievable RPO targets as mandatory target and target set by the Central Government as overall target. Non achievement of mandatory target is liable for penalty, whereas obligated entities are incentivized (Rs. 0.25/kWh) for achieving overall target set by the Central Government. Relevant part of MERC RPO Regulations 2019 is reproduced below:

“12.2 Distribution Licensee shall endeavor 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:

.....”

In view of above, HPO specified by the Ministry of Power vide order dated 29 January 2021 forms integral part of above provision of RPO Regulations 2019. Hence, Distribution Licensee would be eligible for above incentive of Rs. 0.25/kWh for meeting HPO targets specified by the Central Government. Accordingly, MSEDCL shall endeavor to achieve RPO and HPO targets specified by the Central Government.

22. The Commission notes that only objection received during the public process is from Shri. Kiran Chaudhari which was related to Green Tariff option approved by the Commission for consumer who voluntarily want to procure only green energy from Distribution Licensee. Shri. Chaudhari has objected to levying extra charge for such supply of Green Energy. However, this issue is not part of the present proceeding beside the fact that it is just an enabling option, the Commission is not addressing the same in this proceeding.
23. Next RPO verification process under RPO Regulations 2019 will be conducted for FY 2020-21 to FY 2021-22 as part of Mid Term Review process under MYT Regulations 2019.

Hence, the Following Order:

ORDER

1) The Case No. 49 of 2021 stands concluded with the following findings:

- a. MSEDCL has shortfall of its stand-alone Solar RPO of 1321.48 MU and 852.17 MU for FY 2018-19 and FY 2019-20, respectively. Further, the cumulative Solar RPO shortfall at the end of FY 2019-20 is 4320.66 MU.**
- b. MSEDCL has shortfall of its stand-alone non-Solar RPO of 1933.85 MU and 4236.56 MU for FY 2018-19 and FY 2019-20, respectively. Further, the cumulative non-Solar RPO shortfall at the end of FY 2019-20 is 6115.26 MU.**

c. MSEDCL has shortfall of its stand-alone Mini/Micro RPO of 28.45 MU and 22.45 MU for FY 2018-19 and FY 2019-20, respectively. Further, the cumulative Mini/Micro RPO shortfall at the end of FY 2019-20 is 50.89 MU.

2) MSEDCL to fulfill its cumulative RPO shortfall till FY 2022-23.

Sd/-
(Mukesh Khullar)
Member

Sd/-
(I.M. Bohari)
Member

Sd/-
(Sanjay Kumar)
Chairperson


(Abhijit Deshpande)
Secretary



Annexure – 1

Summary of RPO compliance by MSEDCL for FY 2018-19 and FY 2019-20, as submitted by MEDA and MSEDCL

(in MU)

MSEDCL's RPO status for FY 2018-19	Gross Energy Consumption	Solar RPO Target (2.75 %)	Solar RPO Achievement	Solar RPO Shortfall / (surplus)	Non-Solar RPO Target 11.00%	Non-Solar RPO Achievement	Non-Solar RPO Shortfall/(Surplus)	Mini/Micro Hydro target (0.2%) within Non-Solar RPO)	Mini/Micro Hydro RPO Achievement	Mini/Micro Hydro Shortfall/(Surplus)
As per MEDA	130932.65	3600.65	2279.17	1321.48	14402.59	12468.74	1933.85	28.81	0.36	28.45
As per MSEDCL	130932.65	3600.65	2279.17	1321.48	14402.59	12468.74	1933.85	28.81	0.36	28.45

MSEDCL's RPO status for FY 2019-20	Gross Energy Consumption	Solar RPO Target (3.50 %)	Solar RPO Achievement	Solar RPO Shortfall / (surplus)	Non-Solar RPO Target 11.5%	Non-Solar RPO Achievement	Non-Solar RPO Shortfall/(Surplus)	Mini/Micro Hydro target (0.2%) within Non-Solar RPO)	Mini/Micro Hydro RPO Achievement	Mini/Micro Hydro Shortfall/(Surplus)
As per MEDA	127674.75	4468.62	3616.45	852.17	14682.60	10446.04	4236.56	29.37	6.92	22.45
As per MSEDCL	127674.75	4468.62	3616.45	852.17	14682.60	10446.04	4236.56	29.37	6.92	22.45

Annexure -2

A] List of those who submitted written comments/suggestions or made oral submissions at the Online Public e-Hearing

1. Shri Kiran Chudhari

B] List of persons at the Online Public e-Hearing:

1. Smt. Kavita Gharat, MSEDCL
2. Shri. Nikhil Meshram, MSEDCL
3. Smt. Juelee M. Wagh, MSLDC
4. Shri. Manoj Pise, MEDA
5. Shri. Arif H.Shaikh, MEDA