



**MAHARASHTRA ELECTRICITY REGULATORY COMMISSION**

**EXPLANATORY MEMORANDUM**

**ON**

**DRAFT MAHARASHTRA ELECTRICITY REGULATORY  
COMMISSION (RENEWABLE PURCHASE OBLIGATION, ITS  
COMPLIANCE AND IMPLEMENTATION OF RENEWABLE ENERGY  
CERTIFICATE FRAMEWORK) REGULATIONS, 2019**

**October, 2019**

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# 1 Introduction

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## 1.1 Background & Regulatory Framework

As a part of its Intended Nationally Determined Contribution (INDC) targets, as announced in October 2015, the Government of India (GoI) set up ambitious target of 175 GW of installed capacity of Renewable Energy (RE) by 2022. Further, it has pledged to have about 40% cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030<sup>1</sup>. Also, there are reports from different private research firms forecasting India's RE installed capacity to be about 225 GW by 2027.

From the target of 175 GW by 2022 as set by the GoI, the share of Maharashtra is about 22 GW. As on 30 June, 2019, the installed RE capacity in the State is about 8.8 GW implying that Maharashtra needs to achieve a target of about 13 GW in less than 3 years.

The State of Maharashtra is one of the largest electricity consumer in the Country<sup>2</sup>. The Maharashtra Electricity Regulatory Commission (MERC or Commission) has been very proactive in promoting energy generation from RE sources. MERC has been in the forefront of determining preferential tariffs for renewable energy technologies, with its first tariff Order for non-fossil fuel based co-generation projects issued even before the enactment of Electricity Act, 2003 (EA 2003).

The EA 2003 provides for policy formulation by the GOI and mandates Electricity Regulatory Commissions (ERCs) to take steps to promote renewable sources of energy within their area of jurisdiction. As per the provisions of EA 2003 and Tariff Policy, MERC has taken proactive measures for promoting RE based generation within the State, such as determination of preferential tariff, Renewable Purchase Specification framework, grid connectivity framework, etc. The Commission has issued Tariff Orders for various types of renewable energy technology such as wind energy, non-fossil fuel based cogeneration, small hydel power, biomass power, etc.

MERC, through its Order dated 3 September, 2004 under Case No. 1 of 2004 has recognised need for introducing the "Renewable Purchase Obligation" (RPO) to address the immediate requirement of equitable sharing of renewable energy purchase obligation amongst all distribution licensees in the State, before devising a long-term regulatory policy for harnessing renewable energy resources within the State as mandated by the EA, 2003.

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<sup>1</sup>

<https://www4.unfccc.int/sites/submissions/INDC/Published%20Documents/India/1/INDIA%20INDC%20TO%20UNFCCC.pdf>

<sup>2</sup> CEA Load Generation Balance Report 2018-19

The Commission started the concept of mandatory procurement of RE by obligated entities, which included Distribution Licensees, Open Access and Captive Consumers, through its Order dated 16 August, 2006 in Case No. 6 of 2006 relating to ‘Long term Development of Renewable Energy Sources and associated Regulatory (RPS) Framework’. The Order was issued after due public consultation process and the following percentage of energy to be procured from RE sources were stipulated:

*3.1.1 RPS Percentage Specification: Every ‘Eligible Person’ will have to procure electricity generated from eligible renewable energy sources at the percentages specified below*

<b>Year</b>	<b>Renewable Purchase Specification (RPS)*</b>
2006-07	3.0%
2007-08	4.0%
2008-90	5.0%
2009-10	6.0%

*\*Percentage RPS as stipulated above denotes Minimum Quantum of purchase from ‘co-generation and generation of electricity from renewable energy sources’*

The Renewable Purchase Specification (RPS) framework continued as Renewable Purchase Obligation (RPO) through RPO Regulations, 2010 (MERC RPO-REC Regulations, 2010) which was applicable for the period of FY 2010-11 to FY 2015-16. Said Regulation also introduced Renewable Energy Certificates (REC) Framework under which RE generator can either sell its power as Renewable Energy to the obligated entity for meeting its RPO or sell such energy to local Distribution Licensee at average pool power purchase rate of that Distribution Licensee and claim REC on such power. These RECs then can be sold through power exchanges to obligated entity for fulfilling their respective RPO. The RPO targets defined by the Commission from FY 2010-11 till 2015-16 for obligated entities are reproduced below:

<b>Year</b>	<b>Minimum 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>
2010-11	0.25%	5.75%	6.0%
2011-12	0.25%	6.75%	7.0%
2012-13	0.25%	7.75%	8.0%
2013-14	0.50%	8.50%	9.0%
2014-15	0.50%	8.50%	9.0%
2015-16	0.50%	8.50%	9.0%

On 30 March, 2016, the Commission notified the Maharashtra Electricity Regulatory Commission (Renewable Purchase Obligation, Its Compliance And Implementation Of Renewable Energy Certificate Framework) Regulations, 2016 (MERC RPO Regulations, 2016) for a new five year Control Period from FY 2016-17 to FY 2019-20. The RPO targets notified by the Commission from FY 2016-17 till 2019-20 for obligated entities are reproduced 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%

In 2010 and 2016 RPO Regulations, the Commission further stipulated that each Distribution Licensee shall meet 0.2% per year of its Non-solar (other RE) RPO target by way of purchase from Mini Hydro or Micro Hydro Power Projects.

## 1.2 RE Potential & Achievement in Maharashtra

The following table indicates potential of various types of RE sources in Maharashtra vis-a-vis potential in India and achievement by end June, 2019:

Sr. No.	Source	Potential (MW)		% of total Potential	Achievement of Maharashtra (MW) (June, 2019)	% Achievement of potential
		India	Maharashtra			
1	Wind	49130	9400	19.1%	4792.00	50.97%
2	Small Hydro Power	15000	732	4.9%	366.47	50.06%
3	Biomass	16881	781	4.6%	215.00	27.52%
4	Bagasse co-generation	5000	2200	44.0%	2283.55	103.80%
5	Urban waste	1700	287	16.9%	3.00	1%

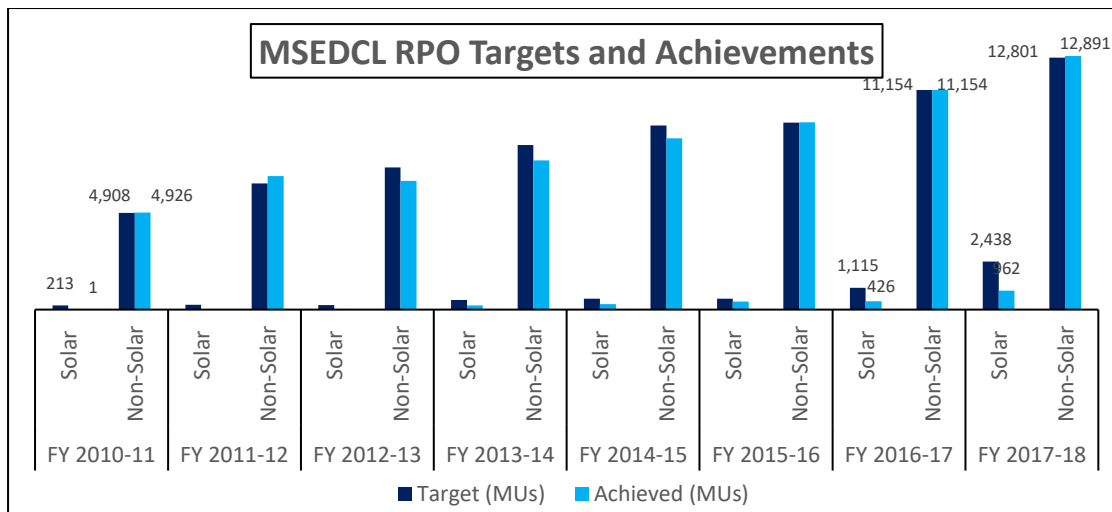
6	Industrial waste	1700	350	20.6%	37.838	10.81%
7	Solar Power Project	20-30/sq.km	49/sq.m 35/sq.m	-	1060.45	--
	<b>Total</b>	<b>89411</b>	<b>13750</b>	<b>15.4%</b>	<b>8758.32</b>	<b>63.70%</b>

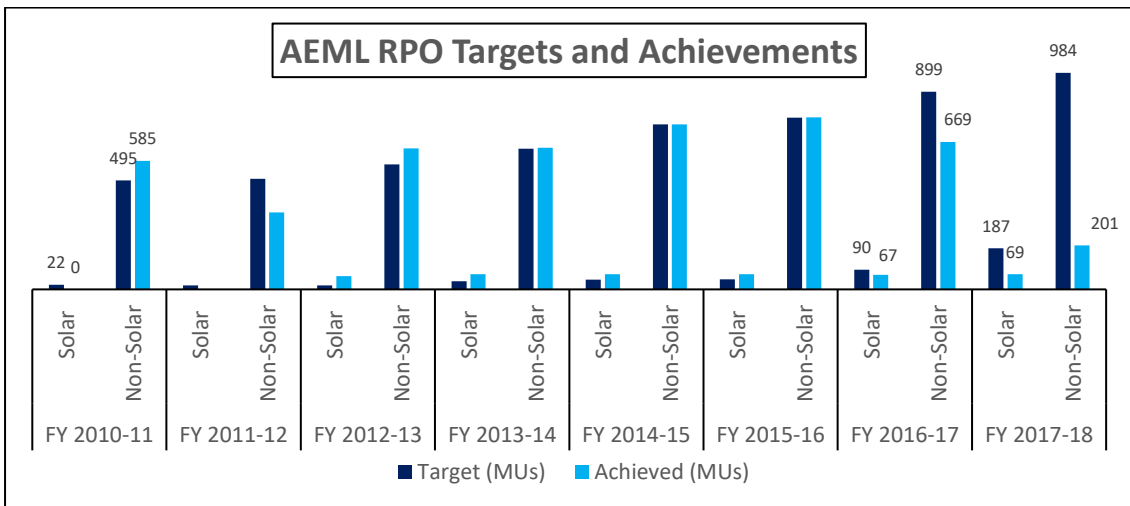
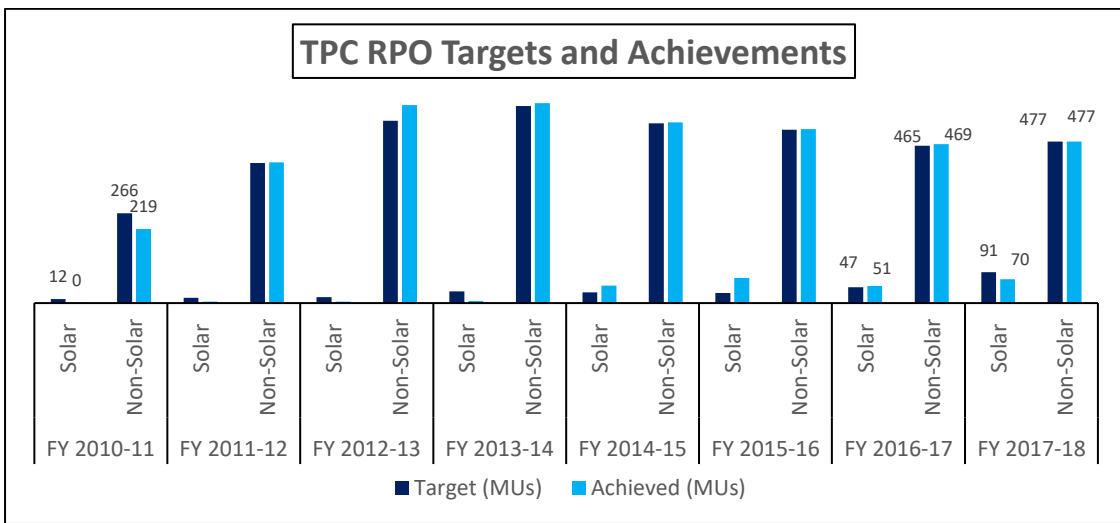
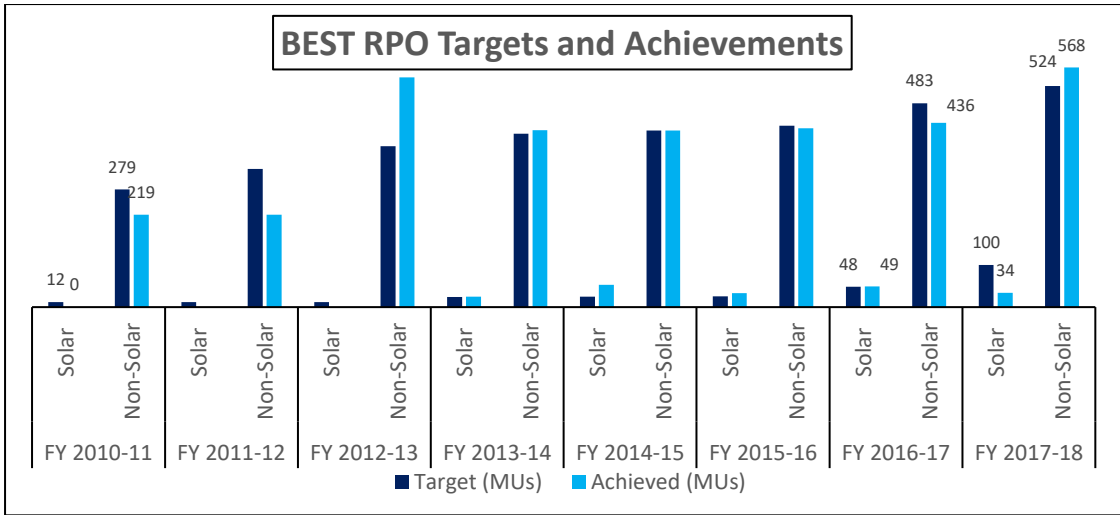
(Source: Maharashtra Energy Development Agency)

Maharashtra has around 15% of total potential of RE in the country (excluding Solar power projects). Due to the long-term certainty provided by the prevalent regulatory framework and several other policy initiatives by the State Government, there has been significant development of installed capacity based on renewable energy sources. Around 63.70% of total assessed potential of RE (excluding Solar power projects) has been harnessed till date, indicating that there is still some scope for harnessing additional RE sources.

### 1.3 Status of RPO achievement during current Control Period (FY 2016-17 and FY 2017-18)

As part of RPO compliance verification process, the Commission has completed verification of RPO targets achievements for distribution licensee and deemed distribution licensee till FY 2017-18. Following graphs represents RPO compliance status of four major distribution licensees viz. Maharashtra State Electricity Distribution Co. Ltd.(MSEDCL), Brihanmumbai Electric Supply and Transport Undertaking (BEST), The Tata Power Co. Ltd. (TPC) and Adani Electricity Mumbai Ltd. (AEML), in the State:





It is observed that that total Renewable Energy procurement by Distribution licensees has increased from 10.30% during FY 2016-17 to 11.04% during FY 2017-18 as against the RPO targets of 11% and 12.50 % for FY 2016-17 and FY 2017-18 respectively. The trend indicates efforts of Distribution Licensees to increase RE procurement for meeting RPO targets.

Apart from the Distribution Utilities, Captive Users and Open Access consumers within the State have also been identified as Obligated Entities. In accordance with Regulation 9.6 of the MERC RPO-REC Regulations, 2010, Maharashtra Energy Development Agency (MEDA) had submitted the RPO settlement data for total 683 Captive Users and Open Access consumers in the Maharashtra State for FY 2010-11 and FY 2013-14 and the Commission undertook the process of Verification and Compliance of RPO targets for the period from FY 2010-11 to FY 2013-14. RPO verification for four years FY 2014-15 to 2017-18 will be initiated shortly.

Since, the Control Period of the existing RPO Regulations shall be expiring on 31 March, 2020, the Commission has formulated *Draft Maharashtra Electricity Regulatory Commission (Renewable Purchase Obligation, Its Compliance And Implementation Of Renewable Energy Certificate Framework) Regulations, 2019* (Draft MERC RPO-REC Regulations, 2019) for public consultation for a new Control Period of five years beginning from 1 April, 2020. While formulating these draft Regulations, the Commission has been guided by different factors like, RE development in Maharashtra, RE Procurement planning of various DISCOMs, existing Market realities, Policies of GoM, Targets set by the GoI and Petitions filed by Obligated Entities seeking modifications in the existing Regulations etc.

The Commission has proposed modifications to certain Clauses vis-à-vis the Clauses specified in the MERC RPO Regulations, 2016 based on the experiences in implementation of the MERC RPO Regulations, 2016 over the previous four years, and in order to simplify/clarify/amend certain provisions as considered reasonable. **The rationale for the changes proposed in the Draft MERC RPO-REC 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 Draft MERC RPO-REC Regulations, 2019 the same have been discussed in this Explanatory Memorandum.**

The Commission while formulating Draft MERC RPO-REC Regulations, 2019, has endeavoured to balance the interest of all stakeholders. Based on the analysis, possible regulatory options have been discussed subsequently.



## 2 Definitions

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### 2.1 Modification

The Commission, in the Draft MERC RPO-REC Regulations, 2019 has deleted and modified some definitions, as under:

1. The Commission has removed the definition of ‘Floor Price’ and ‘Forbearance Price’ as these are not used in proposed draft Regulations and hence have become redundant.
2. The Commission has modified the definition of ‘*Preferential Tariff*’ to ‘*Generic Tariff*’ to make it consistent with other Regulations viz, Draft RE Tariff Regulations and Draft Grid Interactive Renewable Energy Generating System Regulations, 2019. The revised definition is as below:

*f. "Generic Tariff" means the Generic Tariff approved or adopted by the Commission for generation from different Renewable Energy sources in accordance with the Maharashtra Electricity Regulatory Commission (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2015, or as amended from time to time;*

### 3 General

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#### 3.1 Scope of Regulations and extent of application

In compliance with Section 3 of the Electricity Act 2003 (EA 2003), the Central Government notified the Tariff Policy on 6 January, 2006. Further amendments to the Tariff Policy were notified on 31 March, 2008, 20 January, 2011 and 8 July, 2011. On 28 January, 2016, the Central Government notified the revised Tariff Policy.

The Tariff Policy has given an elaborate role of Regulatory Commissions, the promotional mechanism for harnessing renewable energy sources and timeframe for implementation, etc. Clause 6.4 of the Tariff Policy addresses various aspects associated with promotion and harnessing of renewable energy sources. Relevant part of Tariff Policy is reproduced below:

***“6.4 Renewable sources of energy generation including Co-generation from renewable energy sources:***

*(1) 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.*

*(i) Within the percentage so made applicable, to start with, the SERCs shall also reserve a minimum percentage for purchase of solar energy from the date of notification of this policy which shall be such that it reaches 8% of total consumption of energy, excluding Hydro Power, by March 2022 or as notified by the Central Government from time to time. (emphasis added)”*

Therefore, Tariff Policy has excluded energy consumption met from Hydro Power from total consumption on which RPO targets is to be computed. Accordingly, the Commission has proposed exclusion of the consumption met from Hydro power from total consumption of Obligated Entities on which RPO Targets is to be determined. The proposed Clause is as below:

*“3.1 These Regulations shall apply in all cases where the State Commission is to promote Co-generation from renewable sources and generation of electricity from renewable sources and is to specify a percentage for procurement of energy generated from such sources on the basis of total consumption of electricity within the area of a Distribution Licensee.*

***Provided that total consumption of electricity shall exclude the consumption met from Hydro power.”***

Illustration: A Distribution Licensee has a total consumption of 100 MU in a FY 2020-21 and out of this 10 MU is procured from Hydro sources. Then, its RPO targets in energy terms will be computed by applying RPO percentages on 90 MU (100-10).

## 4 Renewable Energy Purchase Obligation

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### 4.1 Eligible Renewable Energy Sources

The Commission in the RPO Regulations, 2016 has specified that the generation from all types of RE sources as approved by the Ministry of New and Renewable Energy (MNRE), Govt. of India shall qualify as Eligible RE source for the purpose of meeting the RPO targets as specified under the RPO Regulations, 2016. For the Draft RPO-REC Regulations, 2019, the Commission has proposed to continue with the same Eligible RE Sources as specified earlier.

Further, the Commission has proposed to consider all grid connected RE sources, including Rooftop Solar projects, having suitable metering and communication arrangement with Distribution Licensee or Maharashtra State Load Despatch Centre (MSLDC), as the case may be, as eligible RE sources.

With respect to generation from Off-grid RE sources, the Commission has proposed to consider such generation as eligible RE source if it is setup by Distribution Licensee to meet its Universal Service Obligation and there is availability of suitable metering and communication arrangement, and the Distribution Licensee is communicating details of such generation to the State Agency on monthly basis. This aspect was covered in the Commission's Order dated 19 March, 2019 in Case No. 33 of 2019 wherein MSEDCL has been allowed to consider power generation from Off-Grid Solar Pumps as the deemed renewable generation and to consider it for its RPO fulfilment. Relevant part of the said Order is reproduced below:

*“2. MSEDCL is allowed to consider solar generation from the Off-Grid Solar pumps for fulfilment of its solar RPO targets.*

*3. MSEDCL shall provide access of its System of online monitoring of off-grid Solar pumps to MEDA for verification and accounting of solar energy generation.”*

Accordingly, the Eligible Renewable Energy Sources Clause is proposed to be revised as below:

*“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) *Any other source recognised or approved by MNRE and the State Commission;*

*4.3 Generation from grid-connected RE sources having suitable metering and communication arrangement with Distribution Licensee / Maharashtra State Load Despatch Centre (“MSLDC”) shall be considered as generation from eligible RE sources;*

*Provided that generation from off-grid RE sources setup by Distribution Licensee for meeting its universal service obligations, shall be considered as generation from eligible RE sources only if suitable metering and communication arrangement is exist and Distribution Licensee communicate details of such generation on monthly basis to State Agency.”*

## **4.2 Obligated Entities**

Under the existing Regulations, all Distribution Licensees in the State are considered as Obligated Entities which have to comply with RPO targets. Open Access consumers and Captive Users who are sourcing their power from conventional sources and their Contract Demand/Capacity is more than 5MW/5MVA, are also considered as Obligated Entities.

The Commission notes that various SERCs in their RPO Regulations have specified Open Access (OA) Consumers and Captive users with capacities of 1 MW or above as Obligated Entities. The Commission in its earlier Control Period (FY 2010-11 to 2015-16) has specified the similar threshold for the OA and Captive users which was revised to 5MW/5MVA in the MERC RPO Regulations, 2016. Such revision was envisaged due to large number of such consumers, very small contribution of these consumers in total consumption of State and various issues in the RPO monitoring mechanism. However, in the proposed draft Regulation, the Commission has strengthened the RPO monitoring and verification process and has also proposed to make it a Web-based application which will ease out issues in monitoring. Hence, in the Draft MERC RPO-REC Regulations, 2019, the Commission proposes to restore the minimum threshold capacity for OA and Captive users as 1 MW/1MVA. Hence, the proposed Clause is as below:

*“5.1 The percentage specified in Regulation 7.1 shall be applicable to all Distribution Licensees, Open Access Consumers and captive users within Maharashtra, subject to the following conditions:*

*(a) Any person who owns a grid-connected Captive Generating Plant based on conventional fossil fuel with installed capacity of 1 MW and above, or such other capacity as may be stipulated by the State Commission from time to time, and consumes electricity generated from such Plant for his own use shall be subject to RPO to the extent of a percentage of his consumption met through such fossil fuel-based captive source;*

*(b) Any person having a Contract Demand of not less than 1 MVA and who consumes electricity procured from conventional fossil fuel-based generation through Open Access shall be subject to RPO to the extent of a percentage of his consumption met through such fossil fuel-based Open Access source:*

*Provided that the State Commission may, by order, revise the minimum capacity referred to in sub-clauses (a) and (b) above from time to time;*

*Provided further that the condition under sub-clause (a) above shall not be applicable in case of stand-by (or emergency back-up) captive generating facilities.”*

### **4.3 Operating Period**

The Commission has proposed the Operating Period of Draft MERC RPO-REC Regulations, 2019 as 5 years. The Commission is of the view that since procurement of RE forms a part of Distribution Licensee's power purchase, Control Period for RPO Regulations need to be co-terminous with Multi Year Tariff (MYT) Control Period which is 5 years starting from 1 April, 2020 till 31 March 2025. Further, specifying RPO targets for longer period gives regulatory certainty which in turn drives confidence of the investors. Hence, the proposed Clause on Operating Period is as below:

*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.*

### **4.4 Renewable Purchase Obligation Target**

In order to propose the RPO targets for new Operating Period, the Commission has analysed various factors like, targets achieved by Obligated Entities in existing Control Period, RE procurement planned in near future by the Distribution Licensees, development of RE Sources in Maharashtra, targets notified by the GoI and compatibility with State Load Curve. The Commission has also analysed various Petitions filed by different entities seeking reliefs due to difficulties, clarity in understanding/interpreting the Regulations, practical difficulties necessitating modifications in the MERC RPO Regulations, 2016.

The Commission observes that Ministry of Power (MoP) vide its letter dates 22 July 2016 and 14 June 2018 has notified following trajectory for Solar and Non-Solar RPO which shall be uniform for all States and Union Territories:

Year	Solar	Non-Solar	Total
FY 2016-17	2.75%	8.75%	11.50%
FY 2017-18	4.75%	9.50%	14.25%
FY 2018-19	6.75%	10.25%	17.00%
FY 2019-20	7.25%	10.25%	17.50%
FY 2020-21	8.75%	10.25%	19.00%
FY 2021-22	10.50%	10.50%	21.00%

Although, the Commission is guided by the policy laid down by the GoI, most of SERC have not as yet specified their RPO targets matching with those notified by GoI. Targets notified by different SERCs/JERCs is reproduced below:

State	Andhra Pradesh			Chhattisgarh			Gujarat			
	Solar	Non-Solar	Total	Solar	Non-Solar	Total	Solar	Wind	Others	Total
FY 2017-18	6.0%	3.0%	9.0%	2.0%	7.0%	9.0%	1.75%	7.75%	0.50%	10.00%
FY 2018-19	7.0%	4.0%	11.0%	3.5%	7.5%	11.0%	4.25%	7.75%	0.50%	12.50%
FY 2019-20	8.0%	5.0%	13.0%	5.0%	8.0%	13.0%	5.50%	8.05%	0.75%	14.30%
FY 2020-21	9.0%	6.0%	15.0%	6.5%	8.5%	15.0%	6.75%	8.15%	0.75%	15.65%
FY 2021-22	10.0%	7.0%	17.0%	-	-	-	8.00%	8.25%	0.75%	17.00%

State	Madhya Pradesh			Bihar			Telangana		
Year	Solar	Non-Solar	Total	Solar	Non-Solar	Total	Solar	Non-Solar	Total
FY 2017-18	1.50%	7.00%	8.50%	2.25%	5.50%	7.75%	-	-	-
FY 2018-19	1.75%	7.25%	9.00%	3.25%	6.00%	9.25%	5.33%	0.67%	6.00%
FY 2019-20	4.00%	8.00%	12.00%	4.75%	6.75%	11.50%	5.77%	0.73%	6.50%
FY 2020-21	6.00%	8.50%	14.50%	6.75%	7.50%	14.25%	6.21%	0.79%	7.00%
FY 2021-22	8.00%	9.00%	17.00%	8.00%	9.00%	17.00%	7.00%	0.90%	7.90%

State	JERC for Goa & UT			Karnataka*			Punjab		
Year	Solar	Non-Solar	Total	Solar	Non-Solar	Total	Solar	Non-Solar	Total
FY 2017-18	2.50%	4.20%	6.70%	2.75%	12.00%	14.75%	1.80%	4.20%	6.00%
FY 2018-19	3.60%	5.40%	9.00%	6.00%	13.00%	19.00%	2.20%	4.30%	6.50%
FY 2019-20	4.70%	6.80%	11.50%	7.25%	10.00%	17.25%	4.00%	5.50%	9.50%
FY 2020-21	6.10%	8.00%	14.10%	8.50%	11.00%	19.50%	5%	6.50%	11.50%
FY 2021-22	8.00%	9.00%	17.00%	10.50%	12.00%	22.50%	6.50%	8.50%	15.00%
FY 2022-23	-	-	-	-	-	-	8%	9.50%	17.5%

\*Highest value among different Distribution Licensee for a particular year is reproduced.

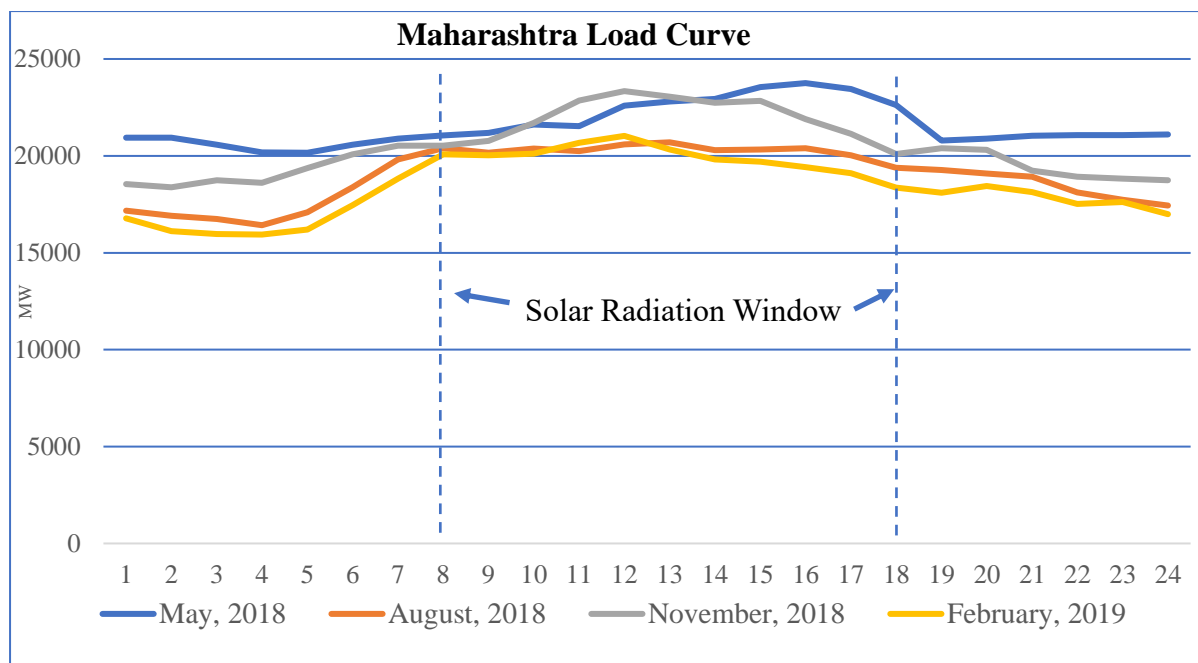
The Commission observes that apart for Karnataka (for 3 Distribution Licensees), none of the State/UT has notified RPO targets in accordance with targets notified by Power Ministry GoI.

For evolving RPO targets for State of Maharashtra, the Commission apart from the RE potential has considered three basic factors viz. impact on consumer tariff, suitability/compatibility with State Load Curve and security of supply and ability of Obligated Entities to tie-up such incremental RE capacities.



As far as impact on tariff on account of increased RPO target is concerned, the Commission notes that incremental RE energy being procured by Distribution Licensees through competitive bidding is at the rate comparable/marginally lower to/than the conventional power purchase rate. Hence, in the opinion of the Commission, if incremental energy consumption of Distribution Licensees is sourced from RE projects through competitive bidding at rate lower than Average Power Purchase Cost, then there would not be substantial impact on Tariff of end consumers. In fact Distribution Licensee may plan procurement of RE as a measure to reduce average power purchase cost. Hence, with RE achieving grid parity, financial implication on account of higher procurement of RE is no longer an issue of concern, barring requirement of arranging balancing power and underutilisation of existing conventional capacities which might remain underutilised if enough demand is not there.

Regarding, suitability/compatibility of specific RE technology for State demand, the Commission has analysed the State Load Curve for FY 2018-19. Graph below indicates, Load Curves for representative day (day on which peak demand has been recorded for the month) of each quarter:



As can be seen from above Load Curve, peak demand of Maharashtra system is reaching in afternoon. Even after considering seasonal variation, peak demand remains during the daytime unlike some parts of the Country where peak demand is normally recorded during evening period i.e. after sun set.

Maharashtra's Load Curve having peak demand in the afternoon, is thus suitable for integration of Solar Energy which is available at its peak in the afternoon. Typical Solar generation curve starts with lower generation in the morning, peaking at afternoon and then showing reduction in generation in the evening. Such generation pattern of Solar energy will reduce the energy

balancing requirement for Distribution Licensees in Maharashtra as Solar generation is naturally increasing at time of peak demand i.e. in afternoon and thereafter reducing with reduction in demand. Therefore, in the opinion of the Commission, more generation from Solar energy needs to be promoted for State of Maharashtra.

As far as the ability of Obligated Entities to contract and procure incremental RE energy is concerned (timelines and capacity), the Commission notes that all Distribution Licensees are inviting bids for procurement of RE power. However, even after signing of the PPA, minimum period of 12-18 months is required for commissioning of the project. Possibilities of issues related to land acquisition, RoW permission can not be ruled out which could delay commissioning of the projects. Hence, in the opinion of the Commission, RPO target needs to be increased gradually so as to provide sufficient time to the Obligated Entities for entering into new contracts for procurement of RE and also to provide sufficient time for commissioning of such projects.

Based on the above understanding, the Commission is proposing achievable below mentioned targets for the next Control Period beginning from 1 April, 2020 till 31 March 2025 which is slightly lower than the RPO targets notified by GoI:

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)
2020-21	4.50%	11.50%	16.00%
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%

The Commission also recognises the fact that national level targets notified by the GoI need to be achieved to meet national objectives. Therefore, the Commission has proposed incentive mechanism for encouraging Obligated Entities to achieve RPO targets upto the targets notified by GoI. Accordingly, the Commission has proposed to provide incentive of Rs. 0.25/kWh for RE procured above the MERC targets upto the national level RPO targets.

As can be seen from the RPO targets proposed in the above table, the Commission has gradually increased Solar RPO targets but has kept the non-Solar RPO target constant. This is because, Maharashtra's non-Solar RPO target is much ahead of national level target of 10.50% which is to be achieved by FY 2021-22. Further, as explained above, Solar energy is more suitable for Maharashtra in terms of its Load Curve. Also, even if the non solar RPO percentages is not increased, the Obligated Entities will be required to continue incremental contracting of non-Solar RE power to match the increasing Gross Energy Consumption. The

Obligated Entities will also be required to contract such incremental requirement against expired contracts of non solar RE sources.

Further, the Commission, considering the past performance and the potential of Mini and Micro Hydro Projects has proposed to remove separate category for the procurement of energy (RPO 0.2% of non-solar RPO) specified within the Non-Solar category. This is because no new generation capacity from Mini and Micro Hydro project has been added in the State for the past several years and therefore Obligated Entities are fulfilling this obligation through procurement of non-Solar REC (as no separate REC is available for Mini and Micro Hydro). Hence, keeping separate percentage for Mini and Micro Hydro is not serving its intended purpose.

Accordingly, proposed provisions of Regulations are as follows:

*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:*

<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>
	<i>(a)</i>	<i>(b)</i>	<i>(c)</i>
2020-21	4.50%	11.50%	16.00%
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%

*7.2 RPO target stipulated above are minimum target to be achieved. Obligated Entity shall endeavour to achieve RPO target notified by the Central Government from time to time for which it will be eligible for incentive as per Regulation 12.*

#### **4.5 Crossover of RPO Target**

The Commission recognises the necessity of flexibility to the Obligated Entities for their power planning and also consider their Load Curve while procuring RE Power. MoP vide its notification dated 14 June, 2018 has provided for cross over of Solar RPO by Non-Solar and vice versa to the extent of 15%. The relevant excerpts from the notification is reproduced below:

*“Provided that on achievement of Solar RPO compliance to the extent of 85% and above, remaining shortfall if any, can be met by excess Non-Solar energy purchased beyond specified Non-Solar RPO for that particular year.*

*Provided further that on achievement of Non-Solar RPO compliance to the extent of 85% and above, remaining shortfall if any, can be met by excess Solar energy purchased beyond specified Solar RPO for that particular year.”*

Accordingly, the Commission has proposed such cross over in the Draft MERC RPO-REC Regulations, 2019. Further, the Commission has also provided that Obligated Entity may approach the Commission with adequate justification for allowing crossover of technology specific RPO beyond 15%.

Accordingly, Clauses of the Draft MERC RPO-REC Regulations, 2019 is as proposed below:

*7.3 Obligated Entity can use surplus Solar energy upto 15% of total RPO target to meet short fall in non-Solar RPO target and vice-versa;*

*Provided that Obligated Entity by providing detailed justification may seek prior approval of the Commission for adjusting more than 15% surplus energy from one category against short fall in other RPO category.*

#### **4.6 Source of Energy for meeting RPO**

At the time of framing the MERC RPO Regulations, 2016, the regime of procuring RE power through competitive bidding was not prevalent. Most of the RE power was procured by the Distribution Licensee at Generic Tariff notified by the Commission. Over time, the Competitive Bidding Mechanism has been introduced to procure power from Wind and Solar Energy which has resulted in significant reduction in the discovered tariff of these technologies. The GoI has also brought in measures like waiver of ISTS Charges for Wind and Solar Projects resulting in increased number of Inter-State projects. The fallout of such development is procurement of Solar and Wind energy through competitive bidding by the Distribution Licensees at much lower tariff than that approved by the Commission as Generic Tariff. Considering these facts, the Commission by its various Orders in recent past has allowed Distribution Licensees in the State to consider RE power procured through transparent process of competitive bidding as eligible source for meeting RPO. The Commission is proposing to incorporate such provision in draft Regulations.

Accordingly, the Commission has proposed following clause in the Draft MERC RPO-REC Regulations, 2019:

*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;*

#### **4.7 Incentives and Penalty Mechanism**

As discussed in earlier part, 'Total Target' for FY 2020-21 and FY 2021-22, as proposed by the Commission in Regulation 7 are falling short of the 'Total Targets' notified by the MoP. RPO Targets proposed by the Commission shall act as a minimum percentage of RE to be procured by the Obligated Entity for each year. The Commission encourages the Obligated Entity to make efforts for achieving the targets as notified by the MoP and accordingly the Commission proposes to provide incentive of Rs. 0.25 per kWh for the RE procured above 'Total' percentage as proposed in Regulation 7 of the Draft MERC RPO-REC Regulations, 2019, upto the 'Total' percentage notified by the MoP.

Such incentives shall be applicable on the 'Total Percentage' and not on the individual category of 'Solar' and 'Non-Solar'. Further, such incentive shall be computed annually and any shortfall in the previous years (on cumulative basis) shall be adjusted first while determining the suitable incentive. This incentive mechanism shall continue beyond FY 2021-22 for the 'Total Targets' as and when specified by the GoI.

Accordingly, the Commission has proposed following clause in the Draft MERC RPO-REC Regulations, 2019:

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

*12.2 Obligated Entity 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>2020-21</i>	<i>8.75%</i>	<i>10.25%</i>	<i>19.00%</i>
<i>2021-22</i>	<i>10.50%</i>	<i>10.50%</i>	<i>21.00%</i>

*Provided such incentive will not be applicable if Obligated Entity 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.*

With regard to any shortfall by the Obligated Entity in achieving its Target for a particular financial year, the Commission has proposed to carry forward such shortfall to next year subject to a penalty of Rs. 0.10 per kWh for total shortfall of units of that particular financial year. The

Obligated Entity shall meet such shortfall, if any, on cumulative basis. The objective of proposing such penalty is to ensure result oriented efforts from the Obligated Entity to meet their targets .

The Commission proposes that the Incentives and Penalties for a Distribution Licensee shall be determined and allowed by the Commission during the Annual Revenue Requirement (ARR) determination process and for other Obligated Entities, it shall be determined and collected/paid by the State Agency. Further, the State Agency shall maintain and operate a separate account in the name of RPO Fund specifically for this purpose. At the end of each Financial Year the State Agency needs to submit certified details of all transactions in the RPO Fund with proposed options for utilising surplus fund or options for recouping the deficit in the RPO Fund.

Accordingly, the Commission has proposed following clause in the Draft MERC RPO-REC Regulations, 2019:

*12.3 Any shortfall in meeting the minimum percentage of RE as specified in Regulation 7 shall be carried forward to next year and Obligated Entity shall meet such shortfall on cumulative basis;*

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

*12.4 Incentives and Penalties for Distribution Licensees shall be determined and approved/levied by the Commission in ARR determination process.*

*12.5 Incentives and Penalties for other Obligated Entities shall be determined and collected or paid by the State Agency;*

*Provided that State Agency shall maintain separate account in the name of RPO Fund for this purpose;*

*Provided further that at the end of each Financial Year, State Agency shall submit certified details of all transaction under RPO Fund and also suggest options for utilising surplus or funding deficit in the RPO Fund.*

## 5 Monitoring and Implementation Framework

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Existing provision of MERC RPO Regulations, 2016 envisages, Monitoring Committee to be setup under the aegis of Grid Coordination Committee which is primarily responsible for addressing issues of energy accounting and monitoring transactions of RE and facilitating implementation of RPO Regulations. However, based-on experience, the Commission is of the opinion that this mechanism is not adequate for timely monitoring and implementation of RPO. Hence, the Commission has proposed to revamp the system by introducing a Web-based RPO monitoring framework along with assigning more responsibilities on State Agency.

The Commission notes that MEDA, which is designated State Agency under the RPO Regulations, is already having Web-based module for RPO monitoring. The Commission intends to strengthen this Web-based tool by providing mandate under the RPO Regulations and also to assign additional responsibilities which are not envisaged under existing Web-based module. Hence, MEDA needs to undertake appropriate changes in its Web-based module to make it compliant with requirement of RPO Regulations.

It is proposed that all Obligated Entities shall submit their electricity consumption and RE procurement details by 7<sup>th</sup> of each month. Thereafter, respective verifying agency (SLDC for Distribution Licensee, Electrical Inspector for Captive Consumer and Distribution Licensee for Open Access Consumer) shall complete the verification by 15<sup>th</sup> of every month. It is proposed that the State Agency should publish the RPO compliance status of the Obligated Entities on quarterly basis. At the end of Financial Year, within 30 days, the Obligated Entities shall submit the documentary evidence of procurement of RE power or REC through the RPO Web-tool to the State Agency. Based on such submission, the State Agency shall compute the penalty or incentive, if any, for each Obligated Entity. For Distribution Licensee, such penalty or incentive will be finalized and adjusted in its ARR filed before the Commission. Other Obligated Entities shall pay the penalty within 15 days from the date it is imposed by the State Agency and such amount should be deposited by the State Agency in the RPO fund.

Within 3 months of notification of final MERC RPO-REC Regulations, 2019, State Agency shall develop RPO Web-portal having all above features and should ensure that all correspondence with Obligated Entities shall be through this portal only.

If any Obligated Entity fails to make the payment, within the stipulated time, against the penalty imposed on it, then it shall be treated as non-compliance of Regulations and the State Agency shall recommend to the Commission to initiate action against such Entity under Section 142 of the Act.

Accordingly, the Commission has proposed following clause in the Draft MERC RPO-REC Regulations, 2019:

*13.1 Within three months from notification of this Regulations, State Agency shall develop RPO Web-portal for RPO compliance monitoring and reporting.*

*13.2 Within one month of development of RPO Web-portal, all Obligated Entities shall register themselves on RPO Web-portal and submit requisite information monthly or for any other specified period to State Agency through this Web-portal only.*

*13.3 State Load Despatch Centre and Chief Electrical Inspector who will be assisting the State Agency in verification of RPO compliance of Distribution Licensees and Captive Consumers, respectively, shall also register themselves on RPO Web-portal within a month.*

*13.4 Every Obligated Entity shall submit its electricity consumption and details of RE procured for previous month by 7<sup>th</sup> of each month on the Web based portal.*

*13.5 Details of electricity consumption of Distribution Licensee shall be verified by MSLDC and that of other Obligated Entities shall be verified by concerned Distribution Licensee or Electrical Inspector, whichever is applicable.*

*Provided such verification of the web based data shall be completed by 15<sup>th</sup> of every month.*

*13.6 At the end of each quarter, State Agency shall publish RPO compliance status of Obligated Entities on RPO Web-portal.*

*13.7 At the end of Financial Year, Obligated Entities shall upload/submit documentary evidence of procurement of RE or REC to State Agency through RPO Web-portal;*

*Provided that such document shall be submitted within 30 days from end of Financial Year;*

*Provided further that State Agency shall complete verification process within 45 days of end of Financial Year.*

*13.8 Subsequent to completion of verification process, State Agency shall publish RPO compliance of each of Obligated Entity on RPO Web-portal.*

*13.9 Based on RPO compliance status, State Agency shall compute incentive or penalty to be levied to Obligated Entity;*

*Provided that incentive or penalty leviable to Distribution Licensee shall be finalised and adjusted in Annual Revenue Requirement;*

*Provided further that incentive payable to Other Obligated Entity shall be paid by the State Agency from RPO Fund;*



*Provided further that penalty payable by Other Obligated Entity shall be levied by the State Agency with 15 days as due date of payment which shall be deposited in RPO Fund.*

*13.10 Non-payment of penalty or non-submission of required details by Obligated Entity shall be treated as non-compliance of Regulations and State Agency shall recommend the Commission to initiate action against such Entity under Section 142 of the Act.*

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