

Before the
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION
World Trade Centre, Centre No.1, 13th Floor, Cuffe Parade, Mumbai 400005
Tel. 022 22163964/65/69 Fax 22163976
Email: mercindia@merc.gov.in
Website: www.mercindia.org.in / www.merc.gov.in

Case No. 334 of 2018

Case of MSEDCL seeking approval to Bidding Documents for Long Term procurement (25 years) of 1000 MW Solar power from 10 clusters of 100 MW Floating Solar Projects to be developed on Ujjani Dam, Solapur through Competitive Bidding process for meeting the Renewable Purchase Obligations

Coram

Anand B. Kulkarni, Chairperson
I.M. Bohari, Member
Mukesh Khullar, Member

Maharashtra State Electricity Distribution Company Ltd.

.....Petitioner

Appearance:

For the Petitioner

: Mrs. Kavita Gharat
Shri. Harshal Patil

ORDER

Date: 18 December, 2018

1. Maharashtra State Electricity Distribution Co. Ltd (MSEDCL) Plot No G-9, 5th Floor, Prakashgad, Station Road, Bandra (East), Mumbai - 400 051, has filed a Petition on 3 November, 2018 seeking approval for the Bidding Documents for Long Term procurement (25 years) of 1000 MW Solar power from 10 clusters of 100 MW Floating Solar Projects to be developed on Ujjani Dam, Solapur through Competitive Bidding process for meeting the Renewable Purchase Obligations. The said power is proposed to be procured to meet the

Renewable Purchase Obligations under Regulation 5 of MERC (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2015 and Regulation 19 of MERC (RPO, its Compliance and Implementation of REC Framework) Regulations, 2016 and Regulation 94 of MERC (Conduct of Business) Regulations, 2004

2. MSEDCL's main prayers are as follows:

- a) *To accord approval for initiation of competitive bidding process for procurement of 1000 MW power from Floating Solar Project on long term basis to be established on Ujjani Dam.*
- b) *To approve the Bidding Documents (Draft RFS and Draft PPA) prepared & enclosed for procurement of power from Floating Solar Project along with the deviations as sought above in this petition.*
- c) *To consider procurement of power from Floating Solar Power projects for meeting the respective Solar RPO requirement of MSEDCL.*

3. MSEDCL has stated as follows:

3.1 Background:

- 3.1.1 Maharashtra State Electricity Distribution Co. Ltd. (*hereinafter to be referred to as "MSEDCL" or "the Petitioner"*) has been incorporated under Indian Companies Act, 1956 pursuant to decision of Government of Maharashtra to reorganize erstwhile Maharashtra State Electricity Board (herein after referred to as "MSEB").
- 3.1.2 MSEDCL is a Company constituted under the provisions of Government of Maharashtra, General Resolution No. PLA-1003/C.R.8588/Energy-5 dated 25 January, 2005 and is duly registered with the Registrar of Companies, Mumbai on 31 May, 2005.
- 3.1.3 MSEDCL is functioning in accordance with the provisions envisaged in the Electricity Act, 2003 and is engaged, within the framework of the Electricity Act, 2003, in the business of Distribution of Electricity to its consumers situated over the entire State of Maharashtra, except some parts of city of Mumbai.
- 3.1.4 Clause 6.4 of the National Tariff Policy (NTP), 2016, provides that *'States shall endeavour to procure power from Renewable Energy (RE) sources through Competitive Bidding to keep the tariff low, except from the waste to energy plants. Procurement of power by Distribution Licensee from RE sources from projects above*

the notified capacity shall be done through Competitive Bidding process, from the date to be notified by the Central Government”.

- 3.1.5 Clause 5.12.2 of the National Electricity Policy (NEP), 2005 notified on 12 February, 2005, provides for Competitive Bidding in Renewable Energy:

“...Progressively the share of electricity from non-conventional sources would need to be increased as prescribed by State Electricity Regulatory Commissions. Such purchase by distribution companies shall be through Competitive Bidding process....”

- 3.1.6 Accordingly, the Ministry of Power (MoP), vide its Notification dated 3 August, 2017, has issued Guidelines under Section 63 of the Electricity Act (EA), 2003 for Tariff- based Competitive Bidding for long-term procurement of 5 MW and above from grid-connected Solar PV Power Projects.

- 3.1.7 Government of Maharashtra (GoM) set out its policy dated 20 July, 2015 for development of new and renewable sources of energy and considering the limitations of the availability of the land for the Solar Projects, and the scope for development of solar projects on the water surface of the rivers, sea, dams, etc. GoM appointed MSEDCL as implementing agency to set up a 1000 MW Floating Solar PV Power Plant on Ujjani Dam water reservoir in Solapur district of Maharashtra.

- 3.1.8 MSEDCL invited expression of Interest (EoI) from interested parties for Floating Solar Project of 1000 MW at Ujjani Dam and asked them to submit various information available regarding the floating solar project, technology details, clearances required, power evacuation, etc.

- 3.1.9 MSEDCL received responses to EoI from 25 interested firms/parties. The parties made suggestions on various aspects such as Structure/ Material /Design criteria, Installed Capacity, Merits/De-merits, Power Evacuation Arrangement, Environmental effect, Project site and timelines, Project Cost and other requirements of various studies.

- 3.1.10 Further considering the complexities involved in this new type of project, MSEDCL requested GoM for involvement of various departments in the implementation of the project.

- 3.1.11 GoM vide Resolution dated 21 June, 2018 set up a Committee comprising the various departments to analyze, study and redress various issues and works involved, methodology for implementation, and any other related issues, which may arise

during the implementation. After due deliberations, Committee submitted its report with recommendations.

3.1.12 Considering the initiative specified in the NTP / NEP to promote Renewable Power, the guidelines / Policy issued by MoP to undertake the procurement of the renewable power under the competitive bidding route and the GoM's policy, MSEDCL is proposing to procure the Floating Solar Power (as a one of its kind project) under Competitive bidding route. The bidding documents so framed by MSEDCL are based on the guidelines for Solar plants with the necessary changes as required considering the technical and project specification required for floating solar project, also considering the recommendations of the above mentioned Committee.

3.2 RPO targets and fulfillments:

3.2.1 The Commission has notified Maharashtra Electricity Regulatory Commission (Renewable Purchase Obligation, its compliance and implementation of REC framework) Regulations, 2016 (*hereinafter to be referred as RPO Regulations 2016*) on 30 March, 2016 for the control period from FY 2016-17 to FY 2019-20.

3.2.2 As per Regulation 7.1 of MERC RPO Regulations 2016, the revised RPO targets are as below.

Year	Quantum of Purchaser (in %) from RE sources (in terms of energy equivalent in kWh)		
	Solar	Non-Solar (Other RE)	Total
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%

Further, as per Ministry of Power GoI letter dated 14 June 2018, MoP in consultation with Ministry of New & Renewable Energy (MNRE) has notified the long term growth trajectory of Renewable Purchase Obligations (RPOs) for Solar and Non-Solar, uniformly for all States/Union Territories, for three years period from FY 2019-20 to FY 2021-22 as under:

Year	Long Term RPO Trajectory		
	Solar	Non-Solar	Total
2019-20	7.25%	10.25%	17.50%
2020-21	8.75%	10.25%	19.00%
2021-22	10.50%	10.50%	21.00%

3.2.3 The Compliance status of MSEDCL's existing Solar RPO is as under:

Period	Shortfall in Mus
FY 2010-11 to FY 2015-16	1360
FY 2016-17 (Provisional)	690
FY 2017-18 (Provisional)	1476
Total	3526

3.2.4 MSEDCL is making all out efforts to fulfill its Non-Solar and Solar RPO target by way of procurement of respective power and purchase of RECs. However, considering the future RPO targets, MSEDCL needs to procure additional RE power for fulfillment of RPO targets so as to accommodate the actual power in the system rather than to rely upon RECs.

3.2.5 In order to fulfill the Solar RPO targets & also to provide daytime Power supply to Agricultural Consumer, MSEDCL proposes to carry out the competitive bidding for selection of Floating Solar project developers (FSPD) for 1000 MW power procurement of power from Floating Solar project on long term basis on Ujjani Dam, Solapur based on the recommendations of the Committee set up by GoM vide its Resolution dated 2 June, 2018. MSEDCL plans to carry out 10 separate bidding processes of 100 MW each for 10 different locations out of 14 suggested locations in the report of the Committee.

3.2.6 The basic advantage of implementation of Floating Solar model are summarized below:

- a. The floating solar panels do not require land to be deployed and hence can be deployed in areas which have limited land space available

- b. Floating solar panels can shade the water they float on and reduce evaporation by up to 70%. In case of this project of 1000 MW, Reduction in water evaporation will be upto 6 to 7%, which will save around 1 TMC water from evaporation
- c. Improve water quality because of lesser algae formation due to reduced exposure
- d. Also, Solar systems installed on water will be cooler due to evaporating water, which causes them to operate more efficiently as compared to ground mounted project
- e. Further, the floating solar power project shall provide electricity primarily to the agricultural consumers in the nearby areas.

3.3 Recommendations of the Committee:

3.3.1 GoM vide Resolution dated 21 June, 2018 had set up a Committee to analyze, study and redress various issues and works involved, methodology for implementation, and any other related issues, which may arise during the implementation of Floating Solar power project of 1000 MW at Ujjani Dam, Solapur.

3.3.2 The Committee under Chairmanship of Director (Commercial), MSEDCL and comprising the members from Water Resource Department, MEDA, STU, Environment department was formed considering the limited knowledge presently available regarding this new technology.

3.3.3 After detailed study and analysis of various parameters which may play an important role in the implementation of Floating Solar Project on Ujjani Dam, Solapur, the Committee provided following recommendations on various factors:

- a. **Finalization of Locations:** The Committee finalized 18 cluster locations for 100 MW capacity each in the reservoir area along with the detailed geo-coordinates as below:

Sr. No.	Location details		Nearby location along the flank	
	Lat	Long	Village	Flank
1	18.233950	75.106521	Between Chikhalthan And Dahigaon	LHS
2	18.241939	75.072562	Chikhalthan No.1	LHS
3	18.225676	75.025626	Between Chikhalthan No.2 And Kugaon	LHS

Sr. No.	Location details		Nearby location along the flank	
	Lat	Long	Village	Flank
4	18.226532	75.026956	Kugaon	LHS
5	18.241450	75.039745	Kugaon And Sogaon East	LHS
6	18.241450	75.039745	Kugaon And Sogaon East	LHS
7	18.252047	75.051504	Kugaon And Sogaon East	LHS
8	18.255022	75.007044	Near Goyegaon	LHS
9	18.280778	74.946190	Near Kettur	LHS
10	18.256306	74.870358	Between Pomalwadi And Takali (R)	LHS
11	18.254574	74.861263	Near Takali (R)	LHS
12	18.202521	75.075064	Between Takali No.1 And Padasthal	RHS
13	18.190617	75.030604	Between Kalthan No.2 And Padasthal	RHS
14	18.206109	75.003653	Near Kalthan No.1	RHS
15	18.249072	75.019189	Near Gangawalan	RHS
16	18.266402	74.939194	Near Chandgaon	RHS
17	18.236518	74.877396	Between Chandgaon And Palasdeo	RHS
18	18.236763	74.844523	Near Kalewadi	RHS

In its report, the Committee has suggested that initially 10 locations shall be taken up in first phase. The details of the 10 locations are as under:

Sr. No.	Location details		Nearby location along the flank	
	Lat	Long	Village	Flank
1	18.233950	75.106521	Between Chikhalthan And Dahigaon	LHS

Sr. No.	Location details		Nearby location along the flank	
	Lat	Long	Village	Flank
2	18.226532	75.026956	Kugaon	LHS
3	18.241450	75.039745	Kugaon And Sogaon East	LHS
4	18.255022	75.007044	Near Goyegaon	LHS
5	18.256306	74.870358	Between Pomalwadi And Takali (R)	LHS
6	18.202521	75.075064	Between Takali No.1 And Padasthal	RHS
7	18.190617	75.030604	Between Kalthan No.2 And Padasthal	RHS
8	18.206109	75.003653	Near Kalthan No.1	RHS
9	18.266402	74.939194	Near Chandgaon	RHS
10	18.236518	74.877396	Between Chandgaon And Palasdeo	RHS

After completion of first phase, possibility of installation of floating solar project on balance 8 clusters may be explored in second phase.

- b. **Technology and Technical Parameters:** The Committee suggested to utilize the available technical standards of ground mounted plants along with material of marine grading. For floating structure, Mooring System and Anchoring System, Developer shall discover standards and specifications at its own and shall conduct Bathymetry and Hydrography study.
- c. **Evacuation arrangement:** Solar Power Developer to develop evacuation arrangements from project to existing / proposed STU/MSETCL Sub-Station by keeping spare land for at least four (4) nos. of 33 kV bays for Mukhyamantri Solar Agriculture Feeder Scheme.
- d. **Environment and other clearances:** The Committee recommended that consent to establish and consent to operate from MPCB was required and the third party study for assessment of the impact of project on environment shall be done by Developer. Environment Department and Conservator of Forest (wild life) confirmed that no clearance was required from them. GoM would communicate the same to MoEF, GoI.

- e. **Safety and Risk management:** The Committee proposed to create the Special Fund as the contingency reserve (Certain part of the Tariff for example Rs. 0.02 per unit may be allocated) for clearances of project site after PPA Period or to meet any other eventuality/ emergency in future periods. Till then support from the Green Cess fund shall be provided.

The final Committee Report on the Floating Solar Project was enclosed with the Petition.

3.4 MSEDCL's proposal for development of 1000 MW Floating Solar project on Ujjani Dam, Solapur:

- 3.4.1 Considering the above submission and the recommendations of the Committee, MSEDCL will initiate the process for power procurement from Floating Solar project on long term basis, through 10 separate competitive bidding processes for 10 different locations on TCIL Portal to fulfill the Renewable Purchase Obligation requirement as per MERC (Renewable Purchase Obligation, its Compliance and implementation of REC Framework) Regulations, 2016 with a ceiling Tariff of Rs. 2.71/unit.
- 3.4.2 MSEDCL plans to float 10 separate bids of 100 MW at each location whereby each bidder shall have an obligation to bid for a minimum of 100 MW installed capacity at each location.
- 3.4.3 It is important to note that MSEDCL in consultation with Water Resources Department, WRD shall make available the spare lands to the developer for the duration of the PPA Period. For the said purpose, MSEDCL shall facilitate a tri-partite agreement between MSEDCL, Floating Solar Project Developer, FSPD and WRD. The validity of the tri-partite agreement shall be linked with the validity of the PPA between MSEDCL and the FSPD. MSEDCL will provide details of the locations mapped by WRD along with its geographical information and has incorporated the necessary terms and conditions in the tendering documents, as recommended by the Committee in its Report.
- 3.4.4 STU will make plan according to the locations selected by the successful bidder to ensure capability of its network to evacuate 1000 MW Power from the said projects, however the evacuation arrangements from its project to existing EHV Sub-station and acquiring the Grid connectivity for the project shall be the responsibility of the FSPD.

3.5 Approval of the Bidding Documents

- 3.5.1 As per the Clause 3.1.1 (b) of the Guidelines dated 03.08.2017 issued by Ministry of Power, for Tariff Based Competitive Bidding Process for Procurement of Power from Grid Connected Solar PV Power Projects, the procurer shall inform the initiation of bidding process to the appropriate Commission.
- 3.5.2 Also, the Commission in its order dated 6 December, 2017 in Case No. 157 of 2017; in the matter of seeking approval of Long/Medium/Short term procurement of Renewable Energy through Competitive Bidding has ruled that MSEDCL shall come before the Commission through specific Petition prior to the bidding process only if MSEDCL requires any deviation with respect to the bidding documents.
- 3.5.3 Accordingly, MSEDCL has approached the Commission for Procurement of Power through competitive bidding process followed by e-reverse e-auction for Grid connected Floating Solar Power projects at Ujjani Dam, Solapur.
- 3.5.4 MNRE has not notified any specific guidelines for Floating Solar Project till date. Therefore, MSEDCL while preparing Bidding Documents has considered the already issued guidelines dated 3 August, 2017 for Solar Projects along with its Amendment dated 14 June 2018.
- 3.5.5 Accordingly, MSEDCL has prepared bidding documents, namely Draft Request for Selection (RfS) and Draft Power Purchase Agreement (PPA) in line with the Guidelines specified by the MoP for Tariff Based Competitive Bidding Process for Procurement of Power from Grid Connected Solar PV Power Projects dated 3 August, 2017 along with its amendment dated 14 June 2018.
- 3.5.6 MSEDCL seeks approval of the Commission for the following deviation in the RfS and Draft PPA with respect to Clause 5.5.1(a) and Clause 5.5.1(b) of the above mentioned MoP guideline:

Clause	Clause in MoP Guideline	Deviation in Clause	Remark
<p>Generation Compensation in offtake constraint due to Transmission Infrastructure not complete/ready (Transmission constraint)</p>	<p><u>Clause 5.5.1(a)</u> After the scheduled commissioning date, if the plant is ready but the necessary power evacuation/ transmission infrastructure is not ready, for reasons not attributable to the Solar Power Generator, leading to offtake constraint, the provision for generation compensation is as follows.....</p>	<p><u>Article 5.2.6 of Draft PPA & Clause 3.11.5 of RfS</u> After the scheduled commissioning date, if the plant is ready but the necessary power evacuation / transmission infrastructure beyond delivery Point (i.e. LV side of the EHV pooling substation) is not ready, leading to offtake constraint, no compensation shall be permissible to the generator.</p>	<p>Since the responsibility for construction of the necessary power evacuation infrastructure from the floating solar power project till the delivery point i.e. the EHV pooling substation and further till the EHV substation of MSETCL is of the FSPD, no compensation shall be payable.</p>
<p>Generation Compensation in offtake constraints due to Grid Unavailability:</p>	<p><u>Clause 5.5.1(b)</u> During the operation of the plant, there can be some periods where the plant can generate power but due to temporary transmission unavailability beyond Delivery Point the power is not evacuated, for reasons not attributable to the Successful Bidder. In such cases the generation compensation shall be addressed by MSEDCL in following manner....</p>	<p><u>Article 5.2.7 of Draft PPA & Clause 3.11.6 of RfS</u> During the operation of the plant, there can be some periods where the plant can generate power but due to temporary transmission unavailability beyond Delivery Point (i.e. LV side of the EHV pooling substation) the power is not evacuated. In such cases the no compensation shall be permissible to the generator.</p>	<p>Since the responsibility for construction of the necessary power evacuation infrastructure from the floating solar power project till the delivery point i.e. the EHV pooling substation and further till the EHV substation of MSETCL is of the FSPD, no compensation shall be payable.</p>

- 3.5.7 The Commission in its order dated 6 December, 2017 for Case No. 157 of 2017; seeking approval of Long/Medium/Short term procurement of Renewable Energy through Competitive Bidding had ruled that MSEDCL shall come before the Commission through specific Petition prior to the bidding process only if MSEDCL requires any deviation with respect to the bidding documents.
- 3.5.8 MSEDCL is therefore, filing this petition before the Commission for necessary approval to the deviations, as per clause no. 5.5.1(a) and 5.5.1(b) of MoP guidelines.
- 3.5.9 MSEDCL humbly requests the Commission to approve the draft RFS and draft PPA. The documents are prepared with an objective to get a higher participation from the bidders considering the emerging concept of Floating Solar.
- 3.5.10 On completion of the bidding process followed by e-reverse auction, MSEDCL shall again approach the Commission for adoption of Tariff discovered through the Competitive bidding process under Section 63 of the Electricity Act, 2003.
- 4 At the hearing dated 30 November, 2018, Representative of MSEDCL reiterated the submissions as made out in the Petition and requested the Commission to accord approval for the Bidding Documents (Draft RFS and Draft PPA) for procurement of power from Floating Solar Project along with the deviations as mentioned above in this petition.
- 5 In its additional submission dated 30 November, 2018 MSEDCL has provided the clarifications and reasons for seeking deviations with respect to Clause 5.5.1(a) and (b) of MoP's Guidelines dated 3 August, 2017 for compensation due to off take constraints due to transmission infrastructure/grid unavailability. Same have been summarised as below:
- 5.1 As per definition in the RFS, Delivery Point / Interconnection Point shall be the interconnection point at the LV side of the EHV pooling substation of the FSPD.
- 5.2 However, FSPD has to construct EHV Pooling sub-station and EHV lines for the connectivity to existing EHV Sub-station/Line of MSETCL i.e the State Grid (STU). Hence transmission constraint on account of construction of transmission infrastructure by FSPD could not be considered for the generation compensation as specified in the competitive bidding guideline before CoD.
- 5.3 In clause 3.11.6 of the RFS, it is mentioned that no Generation Compensation in Off-take Constraints due to Grid Unavailability Beyond Delivery Point during the operation of plant shall be permissible to the generator for the reason that Delivery Point in this case is the FSPD's pooling sub-station and the Grid as such is including the EHV Infrastructure developed and to be maintained by FSPD during the operation period. Hence the grid un-availability due to reason within the control of

FSPD on account of such Grid failure cannot be permitted.

5.4 Therefore, no compensation shall be payable in both the cases as the responsibility for construction of the necessary power evacuation infrastructure from the Floating Solar power project till the delivery point i.e. the EHV pooling substation and further till the EHV substation of MSETCL is of the FSPD.

6 Further, MSEDCL made additional submission by Email dated 7 December, 2018. Following points were elaborated:

6.1 Interconnection point: As per RE Tariff Regulations, the interconnection point shall be line isolator on the outgoing feeder on the HV side of the pooling Sub-station. However, the RFS says interconnection point shall be LV Side of the EHV Pooling sub-station of the Developer.

Justification for the same is as under:

As per the MERC (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2015, Interconnection point is defined as under:

“(r) ‘Inter-connection Point’ means the interface point of a Renewable Energy generating facility with the transmission system or distribution system, as the case may be, and

1. in relation to Wind Energy and Solar Photo Voltaic Projects, the inter-connection point shall be the line isolator on the outgoing feeder on the HV side of the Pooling sub- Station;

Explanation.—A Pooling sub-Station is a sub-Station, consisting of a step-up transformer and associated switchgear, to the LV side of which multiple generating Units (Wind Turbine Generators or Solar PV modules /arrays/inverter units) are connected...

.....

3. Scope of Regulations and extent of application

3.1 These Regulations shall apply to those new RE Projects which are commissioned in the State of Maharashtra for the generation and sale of electricity to Distribution Licensees in the State, are Eligible Projects for the purposes of these Regulations, and whose tariff is to be determined by the Commission under the provisions of Section 62 read with Section 86 of the Act :

5. Competitive Bidding for procurement of power generated by grid-connected RE Projects

The Commission shall adopt the tariff for a RE Power Project where such tariff has been determined through a transparent process of competitive bidding in accordance with guidelines under Section 63 of the Act as and when issued by the Central Government.....”

6.2 According to Regulation 3 of MERC (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2015, it has been mentioned that these Regulations are applicable to the RE projects in the state of Maharashtra and whose Tariff is determined by the Commission under Section 62 of the Electricity Act, 2003.

According to Regulation 3 of the said Regulations, for the project whose Tariff is discovered through Competitive bidding process, guidelines issued by Central Government under Section 63 of the Electricity Act, 2003 are applicable. Hence principally, these guidelines are more appropriately applicable for the procurement of power through Commutative bidding process.

6.3 Further, as per clause 16 of the Competitive Bidding Guideline dated 3 August, 2017 issued by MoP for Grid Connected Solar PV Projects, MSEDCL could choose to require the Solar Power Generator to bear the responsibility and cost of getting Transmission Connectivity and Access. Accordingly MSEDCL has set the responsibility on the developer to construct the EHV Pooling Sub-Station and Transmission line for its connectivity to STU Sub-Station (MSETCL). The relevant clause is reproduced below:

“ ...

16. TRANSMISSION CONNECTIVITY

16.1. *The Solar Power Plant shall be designed for inter-connection with (a) a Pooling Substation where other projects also inter-connect prior to the STU / CTU substation or, (b) directly with the STU / CTU substation; through a dedicated transmission line at the appropriate voltage level, as specified by the Procurer. **The entity responsible for the construction of the relevant substation and transmission lines shall be clearly specified in the bidding documents.** Depending on the implementation arrangements and design of the evacuation system, the capital costs of the transmission lines and substations prior to the STU / CTU substation may either be directly paid by the Solar Power Generator, or paid by the SPPD or another implementation agency and claimed from the Solar Power Generator as directly attributed or apportioned and recovered in lump sum or as payments over the years.*

.....

16.3. In cases, where the Project site specified by the Procurer is not in a Solar Park, the Procurer could choose to require the Solar Power Generator to bear the responsibility and cost of getting Transmission Connectivity and Access.

6.4 According to the conditions of RFS, FSPD shall spare land for at least four (4) numbers of 33 kV bay in each pooling substation for the connectivity of the project to the local distribution network, which will be used to cater to the local agricultural load during day-time under Mukhyamantri Solar Agricultural Feeder Scheme.

6.5 Also, in the Tender document, it is mentioned that the successful bidder for each of the 100 MW Floating Solar Power Project may choose to develop the complete evacuation arrangement including the EHV pooling substation and the EHV lines up to the EHV substation of MSETCL/STU on its own or along with the successful bidders of other 100 MW floating solar power projects by forming a separate Special Purpose Vehicle (SPV).

6.6 In view of above, MSEDCL has defined delivery Point as the LV side of the EHV pooling substation of the Floating Solar Power Developer for the proper accounting of Energy to be delivered by the successful Projects and the energy drawn from the LV side feeders to be utilized to cater load during day-time under Mukhyamantri Solar Agricultural Feeder Scheme.

Commission's Analysis and Ruling

- 7 MSEDCL has submitted that the GoM appointed MSEDCL as implementing agency to set up a 1000 MW Floating Solar PV Power Plant on Ujjani Dam water reservoir in Solapur district of Maharashtra. Further, considering the complexities involved in this new type of project, MSEDCL had requested GoM for involvement of various departments in the implementation of the project.
- 8 GoM vide Resolution dated 21 June, 2018 set up a Committee under chairmanship of Director (Commercial), MSEDCL and comprising the members from Water Resource Department, MEDA, STU, Environment department. After detailed study and analysis of various parameters, the Committee provided recommendations on various factors. Based on the recommendations, MSEDCL has decided to initiate the process for power procurement from Floating Solar project on long term basis, through 10 separate competitive bidding processes for 10 different locations on TCIL Portal.
- 9 In the absence of Standard Bidding Guidelines/Documents for Floating Solar projects, MSEDCL has prepared the Bidding Documents based on the MoP's Guidelines under Section 63 of EA for Tariff based Competitive Bidding for long-term procurement of grid-connected Solar PV projects notified on 3 August, 2017 and on the recommendations of the Committee referred in above para 8.

- 10 MSEDCL is seeking approval for Bidding Documents for Long Term procurement (25 years) of 1000 MW Solar power from 10 clusters of 100 MW Floating Solar Projects to be developed on Ujjani Dam, Solapur through Competitive Bidding process for meeting its Renewable Purchase Obligations. Further, MSEDCL has also sought approval for the deviations from the MoP's Standard Bidding Guidelines for long-term procurement of 5 MW and above grid-connected Solar PV projects notified on 3 August, 2017.
- 11 The Commission notes that SECI had recently invited bids for selection of Solar Power Developers for Setting up of 150 MW (50 MW x 3) Grid Connected Floating Solar Power Projects to be installed at Rihand Dam, Sonbhadra District, Uttar Pradesh and has successfully auctioned 50 MW out of 150 MW tender.
- 12 The regulatory provisions require MSEDCL to approach the Commission for deviations if any from the Standard Bidding Document, SBD. The Commission notes that there is no SBD for procurement of power from Floating Solar Projects through competitive bidding and therefore, MSEDCL has referred to the SBDs of procurement through competitive bidding from solar projects. Under such circumstances, such variations from the reference documents shall not be considered as deviation rather they are altogether a new set of requirement which could act as a reference for future procurement from similar technology. However, any variation from the existing Regulation/Order of the Commission shall be considered as Deviation.
- 13 Commission feels that though the approval for RfS and PPA is not mandated, still preliminary analysis of these documents has been carried out as under. Further, the Commission assumes that the RfS and PPA documents are prepared in the best interest of the developer and the consumer after carrying out due diligence.
- 14 While analyzing the Bidding documents (RfS and PPA) which MSEDCL has prepared for procurement of 1000 MW Solar power from 10 clusters of 100 MW Floating Solar Projects, the Commission observes that the documents deviated from the existing provisions in the Commissions Regulations/Orders. The same are summarized below:

S. No.	Description	As per MSEDCL Draft RfS/PPA Document	As per Commission's Regulations/Orders	Relevant Regulation/Order
1	PPA Period	25 Years	13 Years	RE Tariff Regulations, 2015
2	Project Tariff	INR 2.71/unit (Ceiling)	For FY 18-19: INR2.72/unit (For Solar PV projects, not for Floating Solar)	MERC RE Tariff Order 2018-19

3	"Delivery Point/ Interconnection Point"	shall be the point or points of connection at which Electricity is delivered into the Grid System i.e. the interconnection point at the LV side of the EHV pooling substation of the FSPD	means the interface point of a Renewable Energy generating facility with the transmission system or distribution system, as the case may be, and 1. in relation to Wind Energy and Solar Photo Voltaic Projects, the inter-connection point shall be the line isolator on the outgoing feeder on the HV side of the Pooling sub-Station.	RE Tariff Regulations, 2015
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15 Further, MSEDCL is seeking deviations from the Clause 5.5.1(a) and Clause 5.5.1(b) of the MoP's Guidelines under Section 63 of EA for Tariff based Competitive Bidding for long-term procurement of grid-connected Solar PV projects notified on 3 August, 2017. The existing and the proposed Clauses are reproduced below:

Clause	Clause in MoP Guideline	Deviation in Clause
Generation Compensation in offtake constraint due to Transmission Infrastructure not complete/ ready (Transmission constraint)	<u>Clause 5.5.1(a)</u> After the scheduled commissioning date, if the plant is ready but the necessary power evacuation/ transmission infrastructure is not ready, for reasons not attributable to the Solar Power Generator, leading to offtake constraint, the provision for generation compensation is as follows.....	<u>Article 5.2.6 of Draft PPA & Clause 3.11.5 of RfS</u> After the scheduled commissioning date, if the plant is ready but the necessary power evacuation / transmission infrastructure beyond delivery Point (i.e. LV side of the EHV pooling substation) is not ready, leading to offtake constraint, no compensation shall be permissible to the generator.
Generation Compensation in offtake constraints due to Grid Unavailability:	<u>Clause 5.5.1(b)</u> During the operation of the plant, there can be some periods where the plant can generate power but due to temporary transmission unavailability the power is not evacuated, for reasons not	<u>Article 5.2.7 of Draft PPA & Clause 3.11.6 of RfS</u> During the operation of the plant, there can be some periods where the plant can generate power but due to temporary transmission unavailability beyond Delivery Point

Clause	Clause in MoP Guideline	Deviation in Clause
	attributable to the Solar Power Generator. In such cases the generation compensation shall be addressed by Procurer in following manner....	(i.e. LV side of the EHV pooling substation) the power is not evacuated. In such cases the no compensation shall be permissible to the generator.

MSEDCL has submitted that reasons for deviation from both the above listed Clause.

16 MSEDCL in above para 6.2 has submitted that the MERC RE Tariff Regulations, 2015 are applicable to the RE projects in the state of Maharashtra and whose Tariff is determined by the Commission under Section 62 of the Electricity Act, 2003. For the project whose Tariff is discovered through Competitive bidding process, guidelines issued by Central Government under Section 63 of the Electricity Act, 2003 are applicable. The Commission makes a note of this and further clarifies that as on date no Standard Bidding Guidelines for Floating Solar Projects are notified by the MoP. MSEDCL itself has submitted that it has prepared the bidding documents based on the guidelines specified for procurement of power from Solar PV projects and recommendations of the Committee mentioned under above para 7 and has considered the technical and project specification required for floating solar project. Under such scenario, where there are no specific Standard Bidding Guidelines/Document from MoP, the regulations notified by this Commission shall prevail.

17 The Commission observes that apart from general changes, there are 5 parameters with major deviations which are dealt as under:

17.1 PPA Tenure:- As per MERC RE Tariff Regulations, 2015 the Solar PV based power projects have Tariff Period of 13 years. MSEDCL, in the RfS and PPA document has proposed the Tariff Period as 25 Years for Floating Solar Power Project, equivalent to project's life of a new Solar PV Project. The Commission underscores that the only difference between a Ground Mounted Solar PV project and Floating Solar project is that in a Floating Solar project, the PV Panels are erected over surface of water instead of ground/land, which may not impact the life of the PV panels. The Commission notes that by considering the PPA period of 25 years, affordable and assured power supply will be available from such projects to MSEDCL for much longer period. Further, apart from benefit to the end consumers, reasonable return to the prospective bidders for 25 years will be guaranteed. Hence the Commission in exercise of its power under Regulation 82 "Power to remove difficulties" of RE Tariff Regulations 2015, accords its approval for proposed change of PPA tenure to 25 years (i.e. useful life of the project) instead of 13 years.

17.2 Ceiling Tariff of INR 2.71/unit:- The Commission observes that no Generic Tariff has been proposed by the Commission for projects based on Floating Solar technology. Prima Facia, these projects are similar to Solar PV project but erected over the water surface. As per the RE Tariff Order 2018-19 notified under Case No. 204 of 2018 dated 18 August, 2018, the Generic Tariff for Solar PV power projects for FY 2018-19 is INR 2.72/unit.

The Commission notes that in November, 2018, SECI invited bids for selection of Solar Power Developers for Setting up of 150 MW (50 MW x 3) Grid Connected Floating Solar Power Projects at Rihand Dam, Sonbhadra District, Uttar Pradesh. The ceiling tariff for the first 50 MW was INR 3.32/unit which included INR0.05/unit of waterbody lease charge. The project was successfully auctioned at INR 3.29/unit. MSEDCL has proposed a very minimal rate of INR 1 per land per year (i.e. land for the 100 MW project) which shall be paid by the developer to Water Resource Department. However, MSEDCL has also proposed that a part of tariff i.e. INR 0.02/unit, discovered through competitive bidding process shall be allocated towards Contingency Fund which shall be maintained by MSEDCL.

Further, the Commission has checked a recent report of World Bank which highlights the range for capital expenditures for turnkey floating Solar PV installations as USD 0.8–1.2/Wp owing to the need for floats, moorings, and more resilient electrical components required for such projects.

The Commission also underscores that the proposed project shall be connected at EHV sub-Station of STU and not to the DISCOM's sub-Station. MSEDCL has to still bear the applicable Transmission & Distribution losses and charges. The Commission has recently approved tariff ranging INR 3.09 – 3.15/unit for long term procurement of 235MW Solar Power under 'Mukhyamantri Saur Krishi Vahini Yojana' connected to distribution network under Order in Case No. 277 of 2018 dated 27 November, 2018. Further, The Commission has considered the PPA period as 25 years as cited in para 17.1 of the Order on the ground of reduced prevailing Bank interest rates and that the levelised tariff for serving the debt for 25 years and recovery of the fixed cost in 25 years would be relatively lower as compared to levelised tariff determined for 13 years of PPA tenure.

Considering the above and the important fact that this is being done for the first time in Maharashtra/Country, the Commission is of the view that the MSEDCL may carry out due diligence once again on Ceiling Tariff of INR 2.71/unit. Though the Commission supports the proposal assuming that a proper due diligence must have been carried out by MSEDCL, the Commission opines that the technology being at a nascent stage, the ceiling tariff shall not be so low that it does not attract potential bidders and also at same time the discovered rate should be in the interest of end consumer. Thus the Commission authorizes MSEDCL to decide the ceiling rate after

proper due diligence at their end and float the tender without referring this issue to the Commission for prior approval.

- 17.3 Delivery Point/Interconnection Point: With regard to the deviation in the definition of Delivery Point/Interconnection Point, MSEDCL has proposed as below:

“Delivery Point / Interconnection Point” shall be the point or points of connection at which Electricity is delivered into the Grid System i.e. the interconnection point at the LV side of the EHV pooling substation of the FSPD.”

However, as per the RE Tariff Regulations, 2015, the Interconnection point for Solar PV projects shall be the line isolator on the outgoing feeder on the HV side of the Pooling sub-Station:

“(r) ‘Inter-connection Point’ means the interface point of a Renewable Energy generating facility with the transmission system or distribution system, as the case may be, and

1. in relation to Wind Energy and Solar Photo Voltaic Projects, the inter-connection point shall be the line isolator on the outgoing feeder on the HV side of the Pooling sub- Station;

Explanation.-A Pooling sub-Station is a sub-Station, consisting of a step-up transformer and associated switchgear, to the LV side of which multiple generating Units (Wind Turbine Generators or Solar PV modules /arrays/inverter units) are connected.

The Commission notes that owing to the special requirement of at least 4 number of 33kV bay connecting to the local distribution network, it is technically cumbersome to have Inter-connection point at the HV side of the Pooling sub-Station. Therefore, the Commission accords approval to the deviation sought on Delivery point/Interconnection Point.

- 17.4 Clauses 5.5.1(a) of MoP’s Solar PV Bidding Guidelines - Generation Compensation in offtake constraint due to Transmission Infrastructure not complete/ ready (Transmission constraint): The Commission notes that development of Transmission Infrastructure is the sole responsibility of the developer and hence rules that the deviation sought with regards to the Generation Compensation in offtake constraint due to Transmission Infrastructure not complete/ ready (Transmission constraint) is allowed.

- 17.5 Clauses 5.5.1(b) of MoP’s Solar PV Bidding Guidelines - Generation Compensation in offtake constraints due to Grid Unavailability: MSEDCL has submitted that during the operation of the plant, there can be some periods where the plant can generate power but due to temporary transmission unavailability beyond Delivery Point (i.e. LV side of the EHV pooling substation) the power is not evacuated and has

proposed that under such circumstances the FSPD shall not be eligible for the Generation Compensation due to Grid Unavailability. The Commission in above para 17.4 has clarified that though the responsibility of constructing the evacuation infrastructure up to EHV sub-Station of MSETCL/STU is with the FSPD, post completion, it shall transfer the entire asset to the MSETCL/STU and such infrastructure will form a part of the Grid. Hence, the responsibility of maintaining such infrastructure shall be with MSETCL/STU and not with the FSPD. Hence, the Commission does not accord its approval for such deviation and the FSPD shall be eligible for the Generation Compensation in offtake constraints due to Grid Unavailability.

- 18 The Commission notes that MSEDCL in its submission has wrongly quoted the Clause 5.5.1(b) of the MoP's Guidelines for Competitive Bidding of Solar PV Projects. The Commission expresses its displeasure to this and directs MSEDCL to refrain itself from making such errors in future.
- 19 The Commission notes that in the Bidding Documents, MSEDCL has provided provisions to comply with the MERC's Forecasting & Scheduling Regulations. MSEDCL should ensure that these regulations are strictly followed by the successful bidder.
- 20 The Commission observes that different fees/charges against RFS Document, Bidding Fees, Auction Fees, Earnest Money Deposit, etc have been proposed by MSEDCL in the bidding document. The Commission assumes that all such charges proposed by MSEDCL are based on applicable fees/charges and are being proposed after proper due diligence.
- 21 The Commission notes inconsistency in the Definition of "Delivery Point/ Interconnection Point" in RfS and PPA document. The Commission direct MSEDCL to rectify such errors and any typographical mistakes, repetition of Clauses, etc, in the Bidding Documents before finalizing the Bidding process and uploading the documents on its website.

ORDER

- 1 Case No.334 of 2018 is partly allowed.**
- 2 The Commission accords approval for Competitive Bidding process for procurement of 1000 MW power from Floating Solar Project on long term basis to be established on Ujjani Dam.**
- 3 The Commission approves procurement of such power for meeting the solar RPO requirement of MSEDCL.**

- 4 The Commission has no objection to the RfS and PPA documents prepared by MSEDCL in absence of Standard bidding document. However the issues discussed in paras 17.1, 17.2, 17.3, 17.4 and 17.5 are ruled accordingly in terms of deviations from existing regulations and MoP's Notified Guidelines for Tariff- based Competitive Bidding for long-term procurement of grid-connected Solar PV Power Projects.
- 5 The Commission directs MSEDCL to rectify all errors/repetitions in the Bidding document before finalizing the Bidding process.

**Sd/-
(Mukesh Khullar)
Member**

**Sd/-
(I. M. Bohari)
Member**

**Sd/-
(Anand B. Kulkarni)
Chairperson**


**(Abhijit Deshpande)
Secretary**

