

**Before the**  
**MAHARASHTRA ELECTRICITY REGULATORY COMMISSION**  
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**Case Nos. 167 of 2019**

Case of Maharashtra State Electricity Distribution Co. Ltd. seeking approval for Procurement of 500 MW Flexible and Schedulable Power from Renewable Energy Sources with Energy Storage facility on Long Term Basis for 25 years from Renewable Sources and approval of Tender Documents.

**Coram**

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

Maharashtra State Electricity Distribution Co. Ltd. :Petitioner

**Appearance**

For the Petitioner : Smt. Kavita Gharat (Rep)

**ORDER**

**Date: 29 August, 2019**

1. Maharashtra State Electricity Distribution Co. Ltd. (**MSEDCL**) has filed this Case dated 27 July, 2019 seeking approval for procurement of 500 MW Flexible and Schedulable Power from Renewable Energy Sources with Energy Storage facility on Long Term Basis for 25 years from Renewable sources and approval of Tender Documents.

2. **MSEDCL's main prayers are as follows:**

- a) *To approve the procurement of 500 MW power from flexible, schedulable power generators on long term basis from renewable energy sources along with energy storage system through competitive bidding process;*

- b) To approve the Tender documents i.e. RfS and Draft PPA for such Power procurement;
- c) To allow MSEDCL to consider such procurement for fulfillment of Renewable Purchase Obligations.

**3. MSEDCL in its Case has stated as follows:**

3.1. The Commission has notified the MERC (Renewable Purchase Obligation, its compliance and implementation of REC framework) Regulations, 2016 (RPO Regulations 2016) on 30 March, 2016 for the Control Period from FY 2016-17 to FY 2019-20.

3.2. As per Regulation 7.1 of the MERC RPO Regulations 2016, the RPO targets have been set as provided in the table below:

Year	Quantum of purchase (in%) from RE sources (in terms of energy equivalent in kWh)		
	Solar	Non-Solar	Total
2018-19	2.75%	11.00%	13.75%
2019-20	3.50%	11.50%	15.00%

3.3. In the existing Control Period, RPO trajectory has reached upto 15% of gross energy consumption and in the coming year may be increased at higher percentage considering the trajectories notified by Ministry of Power (MoP) through notification dated 22 July, 2016 and further related Order dated 14 June, 2018 as below:

Year	Quantum of purchase (in%) from RE sources (in terms of energy equivalent in kWh)		
	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%

3.4. Further, under Mukhyamantri Saur Krishi Vahini Yojana of the Government of Maharashtra (GoM), the decentralized Solar Generation projects are being implemented to feed all Agriculture pump load in day time.

3.5. MSEDCL has already contracted 9852 MW power from Renewable energy sources as on 31 March, 2019 and planned to contract around 8000 MW Power from Renewable Energy sources particularly from Solar to meet RPO Targets. By FY 2021-22, around 16500 MW Renewable power is expected to be fed in the Grid.

- 3.6. It is submitted that MSEDCL is facing difficulties in purchasing Renewable Energy Certificates (**RECs**) due to non-availability of sufficient quantities of RECs and increased rates in the market. In such a scenario with increasing targets of RPOs on Year to Year basis, it is necessary that MSEDCL should contract sufficient Renewable power through the long term contracts.
- 3.7. Presently, MSEDCL is managing its demand profile using Agricultural demand management schemes by providing different time schedule (8 to 10 hrs per day) to Agriculture feeders on monthly rotational basis. This enables MSEDCL to observe seasonal power demand pattern.
- 3.8. Presently peak demand mostly falls during day time. It is being catered from its long term Power Purchase Agreements (**PPAs**) with base load thermal generators and by peaking Koyna Hydro Generation.
- 3.9. Whenever there is lower availability from contracted generation due to shortage of fuel, water, etc. and also for cost optimization purpose, power is being purchased from market to meet consumer demand.
- 3.10. Also, contracted renewable generation for meeting RPO is available during certain period of the day and is not available round the clock. In such scenario, for integration of such huge RE Power in the grid, shifting of AG Load during day time on solar power and to supply power with changed demand pattern; flexible and schedulable generation will be required. Therefore, to fulfill the RPO target and to meet changed demand pattern, MSEDCL proposes to procure flexible and schedulable power from Renewable Energy source with storage facility on long term basis for 25 years.
- 3.11. The flexible and schedulable generators may inject power either through RE generation or pumped storage or batteries. Construction of these projects may take around 3-4 years and will be available after FY 2021-22, if process is initiated now.
- 3.12. Considering the various aspects of such flexible Generation, MSEDCL is intending to procure 500 MW Flexible Generation from Renewable Energy sources along with the energy storage system through the competitive bidding process which will also support MSEDCL to fulfill RPO targets.
- 3.13. Accordingly, MSEDCL has prepared tender documents i.e. Request for Selection (**RfS**) and Draft PPA for procurement of power from flexible, schedulable power generators on long term basis from Renewable Energy sources based on the guideline dated 3 August,

2017 issued by Ministry of Power for Tariff Based Competitive Bidding Process for Procurement of Power from Grid Connected Solar PV Power Projects.

3.14. Key features of the tender documents are given below:

- a. Maximum Capacity: 500 MW for 8 hrs schedulable in two slots with +/-10% capacity. The minimum bid capacity to be quoted shall be 100 MW
- b. Maximum MUs per annum - 1460 MUs.
- c. Maximum period for commissioning: 36 months.
- d. Maximum period for financial closure: 15 months
- e. Pumping/charging power from Renewable Energy Sources only.
- f. Renewable Generation will be considered for RPO fulfillment of MSEDCL.
- g. Bid parameter/Tariff in Rs/kWh.
- h. The Minimum Project size of a single Renewable Project with storage facility shall be 100 MW to be interconnected at a single Delivery Point.
- i. The Net-Worth of the Bidder for the last financial year shall not be less than INR 2 Crores/MW of the bid quantum for being eligible to participate in the bidding process.
- j. Liquidity: A minimum annual turnover of Rs. 25 crores during the previous financial year.
- k. Technical Eligibility Criteria:
  - i. The owner of Renewable power projects, having ownership of either a wind or a solar power project of minimum capacity of 25 MW at one location continuously for not less than one year as on original date of bid opening.  
(OR)
  - ii. The Engineering, Procurement & Construction (EPC) contractor of Renewable power projects having commissioned a wind or a solar power project of minimum capacity of 25 MW at one location as on original date of bid opening.  
(OR)
  - iii. Developers of Renewable power projects, who have installed a Renewable power

project of minimum capacity of 25 MW at one location as on original date of bid opening.

(OR)

- iv. Who have completed the financial closure of at least 50 MW Renewable power projects and such project is under execution as on original date of bid opening.
- l. The bidder should also demonstrate storage credentials for respective storage technologies.
- m. On day-ahead basis, before 08:00 AM of Delivery Date-1, MSEDCL shall convey their next-day requirement to the Supplier for each of the 96 time-blocks, subject to the following conditions:
  - i. Buyer can requisition full Contracted Capacity in any of its peak demand hours, subject to the maximum of Daily Energy over a day, but shall not requisition higher than the Contracted Capacity at any time.
  - ii. Buyer shall requisition full Contracted Capacity in two slots for minimum continuous period of 2 hours.
  - iii. Daily Energy may be requisitioned by the Buyer during 0:00–24:00 hrs in 2 slots of minimum 2 hours.
- n. The Supplier shall provide its revised generation schedule for each time-block within  $\pm 10\%$  of the Required Energy for each time-block. If beyond  $\pm 10\%$ , the Supplier shall pay the penalty to MSEDCL, which shall be equal to the energy shortfall beyond  $\pm 10\%$  multiplied by the difference between IEX landed rate and PPA Tariff for that time-block (Short-Scheduled Energy Penalty).
- o. On monthly basis, the total Generation shall be within  $\pm 3\%$  of the total Required Energy for the month. If beyond  $\pm 3\%$ , the Supplier shall pay the penalty to MSEDCL, equal to the energy shortfall beyond  $\pm 3\%$ , multiplied by the difference between IEX landed rate (average market clearing price for that month) for that month and PPA Tariff.
- p. The above penalties shall not be applicable to the extent the Supplier arranges the power from alternate sources.
- q. Required Energy requisitioned by MSEDCL over a day shall be within  $\pm 3\%$  of the Daily Energy. In case of shortfall, MSEDCL shall pay penalty to the Supplier equal to

the shortfall, multiplied by the difference between the PPA Tariff and IEX net realization for the day.

- 3.15. The Commission is requested to approve the tender documents for procurement of 500 MW power from flexible, schedulable power generators on long term basis from Renewable Energy sources for better utilization of non-RTC Renewable Generation and fulfillment of Renewable Power Obligations.
4. At the hearing held on 21 August, 2019 the representative of MSEDCL reiterated its submissions.

### **Commission's Analysis and Rulings**

5. MSEDCL has filed this Case seeking approval for Procurement of 500 MW Flexible and Schedulable Power from RE Sources with Energy Storage facility on Long Term Basis for 25 years through Competitive Bidding process and has sought approval of the Tender documents.
6. The Commission notes that MSEDCL, in its Petition, has highlighted that as on 31 March, 2019, it has already contracted about 10 GW of power from Renewable Energy sources and is planning to contract around 8GW Power from Renewable Energy sources particularly from Solar to meet RPO Targets. MSEDCL expects that by FY 2021-2022, around 16.5 GW Renewable power is expected to be fed in the Grid. As stated by MSEDCL, it is facing difficulties in purchasing RECs due to non-availability in enough quantities and increased rates of RECs. Therefore, to meet its future RPO targets, MSEDCL needs to contract sufficient RE power through the long-term contracts.
7. At present, Agricultural demand management schemes which involves providing power supply to Agricultural consumers for limited hours (8 to 10 hrs per day) in different hours at different part of State is an important tool with MSEDCL for managing variation in its demand. Further, Koyna Hydro Generation plant plays crucial role in managing its peak demand in addition to other contracted PPAs.
8. However, with GoM's Mukhyamantri Suar Krishi Vahini Yojana, supply to Agricultural feeders will be provided during day hours. Hence, benefit and flexibility of AG Load Management Schemes would be reduced.
9. Under the circumstances of large scale integration of RE power, proposed day time power to Ag consumers, introduction of grid level battery storage systems resulting in efficient management of variation in its demand pattern and also fulfillment its RPO the proposal is a step in right direction. Hence, the Commission may conceptually and principally consider

MSEDCL's proposal to procure 500 MW flexible and schedulable RE power through competitive bidding.

10. While scrutinizing Bid Document submitted by MSEDCL along with the Petition, the Commission has come across recent Tender floated by the Solar Energy Corporation of India (SECI) on 1 August, 2019 for '*Selection of Project Developers for setting up of 1200 MW ISTS-Connected RE Projects with assured Peak Power Supply in India (ISTS-VII)*'. This Tender of SECI is for RE power with storage facility. As this SECI's tender was floated after filing of this Case, MSEDCL might not have got opportunity to study said Tender documents.
11. The Commission compared the SECI's above referred tender documents with MSEDCL's RfS submitted with this Petition. On comparison it is observed that there are many Clauses in SECI's documents which if adopted by MSEDCL would improve the clarity of MSEDCL's RfS document. Some of the key features of SECI's tender document are highlighted below:
  - a. Bidding document prepared on the basis of MoP's Guidelines for Solar PV, Wind projects and the National Wind-Solar Hybrid Policy issued on 14 May, 2018
  - b. Peak hours and Off-Peak hours defined in the tender document
  - c. Off-Peak tariff fixed as Rs. 2.70/unit
  - d. Bidders to quote only Peak Tariff in the bidding process
  - e. CUF shall be 40% and shall be within +10% and -15% of the declared value till end of 10 years subject to annual CUF remaining minimum of 34%.
  - f. Buying utilities to mandatory off-take 300MWh for each 100MW capacity during peak Hours
  - g. Clarity on Connectivity of different combination of hybrid project with the Grid provided.

The Commission also notes that there are deficiencies in the Tender document of MSEDCL, some of them are listed below for illustration:

- a. MSEDCL RfS allows any RE technology which makes schedulable RE technologies such as Biomass/ Bagasse eligible for this RfS. This may not be intentional and would need to be reviewed.
- b. In technical Eligibility criteria, experience of only wind and solar project is mentioned.
- c. Peak and Off-peak hours are not mentioned (only two slots in a day is mentioned). SECI's bid document clearly specified the Peak and Off-peak hours and the rate for

Off-peak hour is also mentioned. The reverse bidding in SECI's Tender is on Peak hours only.

- d. No clarity on minimum Project size to bid (at single delivery point - 50 MW and also 100 MW is mentioned)
  - e. Commissioning period is MSEDCL's RfS is mentioned as 36 months as against 18 months in SECI tender. Reasons may be submitted in the petition.
  - f. No clarity on the Location/ co- location of Energy Storage project.
12. Above are just some of the issues on which MSEDCL needs to incorporate changes in its RfS document. MSEDCL may consider the SECI's tender document as reference document and the issues referred at para 11 above and accordingly make changes in its RfS which will provide better clarity to the intended bid participants.
13. After undertaking such exercise, MSEDCL is at liberty to approach the Commission afresh for approval of bidding document for procurement of Flexible and Schedulable Power from Renewable Energy Sources with Energy Storage.
14. Hence the following Order

### **ORDER**

- 1) **The Case No. 167 of 2019 is dismissed.**
- 2) **Maharashtra State Electricity Distribution Co. Ltd to rectify all the deficiencies and errors in its RfS document. As stated in para 12 above, MSEDCL could refer to Tender document of Solar Energy Corporation of India issued on similar concept.**
- 3) **After compliance of the direction made in para 12 above, Maharashtra State Electricity Distribution Co. Ltd. is at liberty to approach the Commission afresh to seek approval of the concept and the modified bid documents.**

Sd/-  
(Mukesh Khullar)  
Member

Sd/-  
(I.M. Bohari)  
Member

Sd/-  
(Anand B. Kulkarni)  
Chairperson

  
(Abhijit Deshpande)  
Secretary

