

**OFFICE OF THE CHIEF ENGINEER (Commercial)**

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No. Comm/MERC/ Petition/ **No 21950** Date: **03 AUG 2013**

To,

**The Secretary,**  
**Maharashtra Electricity Regulatory Commission,**  
13<sup>th</sup> Floor, Centre No.1, World Trade Centre,  
Cuffe Parade, Colaba,  
Mumbai – 400 005.

**Sub:-** Submission of MSEDCL in case no. 86 of 2013.

**Ref:-** Notice No. MERC/ Case no. 86 of 2013/00811 dated 08.07.2013

Dear Sir,

Please find enclosed herewith the MSEDCL's submission in case no. 86 of 2013 regarding grid connectivity to solar generators having capacity below 1 MW.

Submitted for your further needful please.

Thanking you,

Yours faithfully,

(2)  
**Chief Engineer (Commercial)**

**Copy to:**

- 1) Ms Sudhir Budhay, 39, Shankar Nagar, Nagpur 440 010.
- 2) Prayas ( Energy Group ),  
Amrita clinic, Athwale Corner, Lakdipool-Karve Road Junction,  
Deccan Gymkhana, Karve Road, Pune – 411 004
- 3) Mumbai Grahak Panchayat,  
Grahak Bhavan, Sant Dnyaneshwar Marg,  
Behind Cooper Hospital, Vile Parle (West), Mumbai – 400 056
- 4) Thane Belapur Industries Association,  
Plot No. P-14, MIDC, Rabale Village, PO Ghansoli, Navi Mumbai - 400 701
- 5) Vidarbha Industries Association,  
1<sup>st</sup> Floor, Udyog Bhavan, Civil lines, Nagpur - 440 001.

RW  
5 Aug 13  
JL

BEFORE THE MAHARASHTRA ELECTRICITY REGULATORY

COMMISSION, MUMBAI

CASE NO. 86 OF 2013



IN THE MATTER OF:

Petition filled by Mr. Sudhir Budhay seeking guidelines for connectivity to solar generators having capacity below 1 MW.

I, **Murhari S. Kele**, Aged 47 years, having my office at Maharashtra State Electricity Distribution Co. Ltd., Prakashgad, Plot No.G-9, Anant Kanekar Marg, Bandra (East), Mumbai-400 051 do solemnly affirm and say as follows :-

I am Chief Engineer (Commercial) of Maharashtra State Electricity Distribution Co. Ltd., the respondent in the above matter and am duly authorized to make this affidavit.

The averments made in the enclosed Additional Submission are based on the information received from the concerned officers of the Company and I believe them to be true.

I solemnly affirm at Mumbai on this 3<sup>rd</sup> Day of August, 2013 that the contents of this affidavit are true to my knowledge, no part of it is false and nothing material has been concealed there from.



Chief Engineer (Commercial)

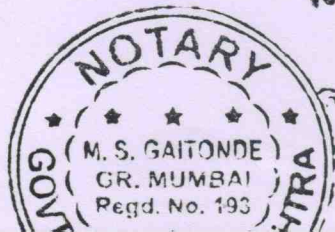
MSEDCL

BEFORE ME

**M. S. GAITONDE**  
NOTARY  
B.A.L.L.M  
GREATER MUMBAI  
GOVT. OF MAHARASHTRA  
INDIA

Identified before me

**A. K. Dubey**  
B.A., LL.B.,  
ADVOCATE HIGH COURT



NOTED	REGISTER
Sr No. 127	2-8-2013





BEFORE THE MAHARASHTRA ELECTRICITY REGULATORY  
COMMISSION, MUMBAI

CASE NO. 86 of 2013

IN THE MATTER OF;

Petition filed by the applicant Mr. Sudhir Budhay seeking guidelines for connectivity to solar generators having capacity below 1 MW.


REPLY OF MAHARASHTRA STATE ELECTRICITY DISTRIBUTION  
COMPANY LIMITED

At the outset, it is to humbly state that, the Respondent has gone through the Petition submitted by Mr. Sudhir Budhay (hereafter referred as 'Petitioner'), seeking guidelines for connectivity to solar generators having capacity below 1 MW.

The main prayers of the petitioner are as follows:

- a) Finalize connectivity norms for Solar Generators below 1 MW with minimum procedures and paper work for consumers specially for captive consumption with generation/consumption at one or multiple places.
- b) Wave off transmission/wheeling charges & cross subsidy surcharge for the power so generated from solar Power generation Plants for the consumers consuming the power during the captive solar power generation period.
- c) Charge differential rate as banking charge per unit for the consumers opting for "Power Banking Scheme" & consume power deposited any time in 24 Hrs.
- d) Formulate procedure for metering and certification of power generated by micro solar power plants to be accounted only for the purpose of reducing REC buying liabilities and if need charge reasonable metering & certification charges per KW certified to the beneficiary.
- e) Pass such further and other orders, as the Commission may deem fit and proper keeping in view the facts and circumstances of the case.

In this regards, it is to submit as under:

- 
- i. MSEDCL has always promoted RE generation in the State.
  - ii. Many consumers, Industries are willing to invest in solar power generation for their captive consumption as per the availability of land, load requirement in their premises. However, the Grid connectivity is insisted at LT level.
  - iii. Solar Power Generators may use their generation for their captive consumption without connecting to grid.
  - iv. The guidelines regarding the grid connectivity at LT distribution network are not yet established.
  - v. The operational and technical difficulties involved in issuing grid connectivity on LT side are as under:

**1. Issue of Connectivity:-**

- a) It is noted that the clause 2.1(p) of MERC(RE Tariff) Regulations, 2010 which defines interconnection point as;

“....interface point of renewable energy generating facility with the transmission system or distribution system, as the case the case may be ...”

The Petitioner can connect the Rooftop Solar plant to the Transmission or Distribution network. Feasibility of connectivity to LT system (433V) of adjoining distribution network needs to be explored. Also reliability of supply/evacuation at LT feeders could be a concerning factor besides line loss & cost of long LT line.

- b) Draft CEA (Technical Standards for connectivity of the Distributed generation resources) regulations, 2010 are yet to be finalised.

The said draft CEA regulation **does not** recognise connection to installations/facilities owned by consumer within premises of consumer.

- c) **If** the Grid connectivity is granted at Distribution network, then it will be governed by the State Grid Code. The wheeling of energy from the injection point upto the drawl point will be allowed by MSEDCL and all applicable losses will be deducted from the exported energy in line with the Open Access Regulations amended from time to time.





- d) Depending upon the voltage level for Grid connectivity, the provisions of CEA (Technical Standards for Connectivity of the distributed generation resources) Regulation 2010 or State Grid code Regulations will be made applicable.
- e) In case of connectivity at Distribution network as per SOP regulation, the connectivity agreement shall be executed between generator and the host Distribution Licensee & the user of such energy. Presently no guidelines are available regarding connectivity agreement.
- f) It is suggested that verification/certification of the configuration of Rooftop PV installation and connectivity arrangements shall be done by the Electrical inspector before commissioning so as to standardize the same.
- g) The protocol for monitoring and third party verification (i.e. Electrical Inspector) for installation may be in line with provisions of E.A.2003, I.E. Rules 1956 and 2005.
- h) The terms and conditions of connectivity agreements shall be amended from time to time as and when generation capacity additions are required/ envisaged.

## 2. Metering Arrangements:-

- a) The metering arrangement shall be as per the CEA (Installation and Operation of Meters) Regulations, 2006 and amendments thereto from time to time.  
  
SERC may specify metering arrangement through metering code as a part of Grid code **as the custody and responsibility of reading 'internal' meters for measuring self-consumption has prime importance.**
- b) As far as possible single meter with separate registry for export/import be made applicable.
- c) Single metering is recommended hence the metering location should be the interconnection point.
- d) In order to schedule the power, the metering arrangement shall be equipped with real time communication facility.

- e) The meter shall meet the criterion as specified in the CEA (Installation and Operation of Meters) Regulations, 2006 and the amendments to it from time to time.
- f) For capacity above 50 kW meters with all the features shall be installed.
- g) Above metering arrangement be linked to capacity of Rooftop project in stages as per CEA (Installation and Operation of Meters) Regulations, 2006.

### 3. Energy Accounting:-

- a) The host Distribution Licensee shall take JMR and issue energy credit notes subject to payment of appropriate charges by generator per instance.

S.N.	Case	JMR	Issuance of Credit notes	Frequency of meter reading
1	Intra Utility Purchase	Yes	Within 30 days from the date of JMR	Monthly
2	Intra Utility open access wheeling	Yes	Within 30 days from the date of JMR	Monthly
3	Inter Utility Purchase	Yes	Within 30 days from the date of JMR	Monthly
4	Inter Utility open access wheeling	Yes	Within 30 days from the date of JMR	Monthly

- b) In case of Rooftop PV generator is connected to transmission line the JMR is will be taken by Nodal officer of Discom at generation point. However, credit notes will be issued by SLDC as per FBSM.
- c) Line Losses shall be accounted for as per state Grid code & MERC Order.



**4. Scheduling Requirements:**

- a) Scheduling shall be done compulsory for all the solar projects.
- b) Maharashtra has a large solar potential and the expected solar generation in Maharashtra till 2020 will be up to 5000 MW or above. In case LT grid connectivity is permitted, most of the generators may opt for grid connectivity at 11 kV and below network as it is economical. To utilize this power optimally, scheduling of solar power shall be mandatory.
- c) In near future, a large number of small micro solar projects will be commissioned. The cumulative installed capacity of such solar power projects on LT side will be sizable. The opinion of SLDC regarding scheduling of such micro solar generators power may please be obtained.
- d) MSEDCL has to plan its power procurement from conventional sources, hence it is very much necessary for MSEDCL to know the injection/scheduling of solar power.

**5. Applicable Wheeling Charges/Losses:-**

No exemption shall be given for third party wheeling or inter utility wheeling.

**6. Recovery of Administration Cost:-**

- a) The Host Distribution Licensee may be permitted to recover administrative cost associated with JMR/ credit note issuance.
- b) Approximately, Rs.5000/- per month or as may be decided by MERC.
- c) Annual administrative charges for next financial year will be recovered before the start of Financial year.

**7. REC Benefit:-**

- a) Credit notes will be issued for solar power injected in the grid of host distribution licensee after deducting all applicable losses. MEDA being the nodal agency may consider the accreditation of the project for availing REC benefit. Moreover, the units considered by SLDC for REC claim shall be binding on the Solar developer.
- b) The case of In situ rooftop PV generation and consumption within consumer premises is not considered for issuing certificate/credit note for solar generation,



however in such cases MSEDCL shall arrange for monthly JMR subject to payment of appropriate charges by generator.

**8. Reactive Energy:**

- a) The generators could draw reactive energy from the system; as such excess drawl of reactive energy will affect the system stability & voltage profile. The same shall be taken care of by the Commission.
- b) The Grid requires active as well as reactive power; the solar generators will inject only active power. Hence, the grid's requirement of reactive power is not fulfilled. As such, the appropriate reactive power compensation charges shall be levied.

**9. Operational Issues In Case Connectivity Is Allowed At LT Distribution Network Of Host Utility.**

- a). In case of any planned /unplanned shutdown, breakdown on LT network, there should be a provision that solar generation automatically gets isolated from the LT network, so that lineman can work on the line safely.
- b) For the breakdown / shutdown in the LT network no benefit of deemed generation will be given by host distribution licensee. Solar generator will have to bear all the cost of such deemed generation.
- c) MSEDCL is always in favour to promote the RE power generation. As such MSEDCL is ready to implement policies/regulations decided by various statutory authorities such as MNRE/CEA/CERC/MERC etc. provided that these are techno-commercially feasible.
- d) The Solar Generator shall maintain the Grid standards regarding voltage profile, harmonic & DC current injection, introduction of flicker at HT level or LT level, as the case may be.
- e) The LT system is easily prone to theft and as such the solar generator connected on LT side, the generator shall also bear the commercial losses of the LT Grid.
- f) In case of LT system, the ceiling for maximum power that can be evacuated is not specified.







- g) The LT generator have to install proper and adequate protection equipments to avoid reverse power flow and accident thereof.
- h) The synchronizing on LT level is complicated as the voltage on LT side fluctuates more and also the three phase load on LT side is not balanced.
- i) In absence of load, the evacuation of power may not be possible; this may result in overvoltage of the LT grid.
- j) In case of 11 KV and above grid connectivity, the generator is connected to Grid through express feeder. Hence there is continuous corridor available for evacuation of generated power. The LT feeders are subjected to Load shedding depending on the various categories. The load shedding on Agriculture LT feeders are upto 12 Hours. In such cases, the LT feeder may not be available for evacuation of power.
- k) The guidelines regarding the grid connectivity at LT distribution network are not yet established either by CEA or appropriate commission.
- l) Also, it is to bring notice that, Clause No.2.4 of JNNSM states that guidelines in respect of grid connectivity, metering, measurement and energy accounting for projects to be connected at LT level with installed capacity lower than 100 KW is **complex**. Detailed guidelines for such project schemes will have to be issued once the clarity on such grid integration standard emerges.
- m) If MERC issues suitable guidelines/procedures for grant of LT connectivity, metering, billing, accounting and certification of energy generated by such micro solar power plants installed in the same premises on rooftop or ground after consideration of the operational and technical constraints of MSEDCL, MSEDCL is ready to implement the same provided they are techno-commercially feasible.
- n) MEDA, being the state nodal agency shall also be requested to submit their suggestion in the said matter. Also, this data needs to be certified by SLDC; hence SLDC shall also be requested to submit their comments on the prayers of the petitioners.



- o) It is humbly submitted that, the relevant open access charges for wheeling of such energy through MSEDCLs network would be made applicable, as per the provisions of EA 2003 and Open Access Regulations, 2005 as amended from time to time.

**10. Hon. Commissions Order in case no. 173 of 2011**

Earlier, M/s. Tata Power Renewable Energy Ltd. had also submitted a Petition before the Hon. Commission seeking grant of connectivity to 500 kWp Rooftop Solar Power Plant in Tata Motors" premises in the Pimpri unit to the electrical system (LT network) within the premises of Tata Motors.

The Hon. the Commission directed the office of the Commission to form a Working Group comprising of representatives from the Petitioner, the Respondent, TPC-D, Tata Motors Ltd., MSLDC, MEDA, NDPL, CEA, Shri. Ajit Pandit, ABPS etc., to study the present Policy framework for Grid connected and off-grid connected Solar applications and guidelines for net metering arrangements.

The Hon. Commission also communicated with the Forum of Regulators and CEA seeking guidelines for grid connectivity on LT network.

The Forum of Regulators informed as follows:

*draft CEA (Technical Standards for Connectivity of the Grid) (Amendment) Regulations, 2010 proposing the amendment of the existing CEA (Technical Standards for Grid Connectivity) Regulations, 2007 to include connectivity of RE Sources, seeking connectivity at voltage level 33 KV and above and draft CEA (Technical Standards for Grid Connectivity of Distributed Generation Resources) Regulations, 2010 proposing to include connectivity of RE Sources, seeking connectivity at voltage level below 33 KV, are both under various stages of process of previous-publication exercise*

The CEA informed as follows:

*the draft CEA (Technical Standards for Connectivity of the Grid) (Amendment) Regulations, 2010 proposing the amendment of the existing CEA (Technical Standards for Grid Connectivity) Regulations, 2007 to include connectivity of RE Sources, seeking connectivity at voltage level 33 KV and above and draft CEA*





*(Technical Standards for Grid Connectivity of Distributed Generation Resources) Regulations, 2010 proposing to include connectivity of RE Sources, seeking connectivity at voltage level below 33 KV, are both under various stages of process of previous-publication exercise.*

After considering the current status of CEA's aforesaid two draft Regulations and the, the Petitioner was permitted to withdraw the Petition. Accordingly, the Petition was dismissed as withdrawn.

In view of the above, it is respectfully submitted that in absence of suitable regulations, it will not be possible to allow grid connectivity on LT network.

Mumbai.

Dated: 03/08/2013

Chief Engineer (Commercial)

MS&EDCL.