From : Sudhir Budhay
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Dt : 14/8/13

To,
The Secretary,
Maharashtra Electricity Regulatory Commission
13th Floor, Centre No 1, World Trade Centre
Cuffe Parade, Colaba, Mumbai 400 005

Ref : MREC case no 86 of 2013

Sub : Petitioner's reply to the submission filed by MSEDCL in case no 86 of 2013 vide their letter No : Comm/MERC/Petition/21950 Dt 3/8/13.

Dear Sir,

Please find here with the reply to the the submission filed by MSEDCL in case no 86 of 2013 vide their letter No : Comm/MERC/Petition/21950 Dt 3/8/13 received by me on 5th Aug 13 during hearing regarding connectivity guide lines for Solar Generators (SG) below 1 MW.

Thanking You

Yours truly

Sudhir Budhay

Copy to:

1. MSEDCL, Mumbai
2. Prayas Energy Group, Pune
3. VIA, Nagpur
4. Mumbai Grahak Panchayat, Mumbai
5. Thane Belapur Industrial Association, Navi Mumbai

Encl :
Ann A : Reference from http://wikipedia.org
Ann B : Test Certificate from BHEL, Corporate Research & Development Centre, Hydrabad

BEFORE THE MAHARASHTRA ELECTRICTY REGULATORY COMMISSION, MUMBAI

Case No : 86 of 2013

Petitioner's Reply to the Submission filed by MSEDCL filed on 5th Aug 2013

This is to state that, I , Sudhir Budhay (Petitioner), have gone through the submission of MSEDCL (respondent) filed on 5th Aug 2013.

In this regard, it is to submit that

i. Petitioner appreciates the concern shown by the respondent in respect of promotion of Renewable Energy in the State.

ii. Petitioner also appreciates the concern shown by the respondent for the safety of grid & also human safety.

iii. Petitioner also realises the technical issues raised by the respondent in their reply and is ready to accept technically & commercially feasible solution for the same for either sides.

Para wise replies are as under :

1. *Issue of Connectivity :*
   a. *Feasibility of connectivity to LT system :* Connectivity to the LT can be subject to technical feasibility but if the Solar Power to be injected is less than the present connected load then technical feasibility need not be done for the given project.
   b. *Draft CEA Regulation 2010 :* Nothing is mentioned about the location of generation & such a type is not banned by CEA draft regulations. On the other side Single Phase Solar Generator (SG) is permitted with the consideration of balanced load.
   c. *State Grid Code :* All applicable regulations for the solar generation as per the State Grid Code shall be acceptable.
   d. *CEA & State Grid Code Regulations* : CEA & State grid code shall be acceptable if they are applicable to smaller solar generations as well.
   e. *Connectivity Agreement* : Appropriate agreement can be entered in to by DISCOM and the consumer if recommended by honourable commission.

f. *Verification / Certification of SG setup* : Can be done by electrical inspector as applicable.

g. *Protocol for monitoring & Third Party Verification* : Acceptable as per IE Rules.

h. *Terms & Conditions of connectivity may change* : Acceptable within the frame work of prevailing Rules & Guidelines.

2. *Metering Arrangements :*

(a) to (c) : Agreed and Acceptable within the frame work of prevailing Rules & Guidelines.

d. *Schedule of Power* : For small SG below 100 KW, real time communication facility should not be made compulsory and simple "Import / Export Meter" based on Units is proposed.

e. *Meter Criterion :* Agreed

f. *Full Featured Meter* : Full Featured Meters may be installed for capacity above 100 KW.

g. *Metering Arrangement :* Agreed

3. *Energy Accounting*

a. *Accounting Frequency* : Agreed

b. *JMR* : Agreed

c. *Line Losses* : Agreed but in order to promote solar power generations, it is an humble request to the commission to wave off the same at least for first 5 Yrs for generations less than 100 KW.

4. *Scheduling Requirements :*

a. *Scheduling of Solar Generation* : Solar being infirm generation, scheduling of power cannot be done and hence it should not be made compulsory. It can only work on banking principle. However DNI data for entire India is available on MNRE web site. Based on this data fairly correct estimate of solar generation per KW can be calculated and scheduling can be done based on the total permissions given in that area.

b. *Scheduling for LT grid connectivity* : Generation capacity of SG connected on LT would be very low. Estimated generation can be worked out on the basis of DNI data. So it is an humble request that it should not be made mandatory.

c. *Opinion of SLDC :* No Comments

d. *Injection & Scheduling of Solar Power* : Estimated generations can be worked out per SG based on the installed capacity as per DNI data.

5. *Third Party Wheeling Charges* : Honourable Commission may decide the issue.

6. *Recovery of Administrative Cost :*

(a) to (c): Administrative cost of JMR : Considering the amount of energy produced, no administrative charges should be charged below 100 KW. Energy involved being very small, normal meter reading will take care of this.

7. *REC Benefits* :

a. *RE Certificates* : For small SG below 100 KW, RE certificates need not be issued. DISCOM can utilise the RE benefits in lieu of wheeling charges and may enter in to agreement with the consumer for the same, in case allowed by the honourable commission.

b. *Power Consumption of generated power within the premises* : There should not be any charges on the internal consumption of the generated power, if any, before the point of interconnection.

8. *Reactive Energy :*

a. *Generators Draw reactive energy* : Unlike wind, Solar Generators do not draw any energy from the grid in idle state hence question of excess drawl of reactive energy does not come in to picture.

b. *Compensation of reactive power during working* : Solar Generators generate and feed active power with specified power factor. Reactive power is neither utilised nor injected hence there should not be any compensation charges to be levied.

9. *Operational Issues in Case Connectivity is allowed at LT Distribution Network of Host Utility*

a. *Manpower Safety in case of grid failure / shut down* : Grid Connected SG come with the feature that stops power generation instantaneously when the grid fails. Solar power is DC and it needs to be converted to AC of same electrical properties as that of the reference grid signal. Reference grid input signal is necessary for generation. It is a grid follower. There will be no generation in case of input signal / grid failure. So there is absolutely no chance of SG feeding power back to grid when there is a grid failure. (Pl refer to Ann – A & B)

b. *Non availability of LT grid for evacuation* : Evacuation in case of SG connected on LT grid will be subject to break down / shut down. Consumer asking for LT connectivity will be ready to bear the loss of such solar generation.

c. *MSEDCL will promote RE generation* : Appreciated and accepted

d. *SG to maintain Grid Standards* : Accepted

e. *Theft / Commercial losses on LT* : DISCOM is authorised by law to prevent theft of electricity and book criminal cases against the culprits. Solar Power Generator / Investor / Consumer has no such power to prevent theft. More over once the solar power is metered & injected to grid, it is the property of DISCOM and as such SG should not be burdened.

f. *Ceiling for maximum power evacuation* : This is not required in case of solar generations as the SG cannot generate power more that the installed capacity. In practice, considering the conversion looses, it will always be less than the installed capacity of total photovoltaic cells connected. Hence this point need not be considered.

g. *Reverse Power Flow* : Agreed. It is always available in grid tied solar generators. (Pl refer Ann – A & B)

h. *Synchronizing on LT* : SG generates AC power from the DC as per the grid sample. It follows the grid and as such they are always synchronized.
Draft CEA "Technical Standards for Connectivity for Distributed Generation Resources, 2012 refers to this in para 12.4 which reads as *"Provided further that distributed generation resources using inverters shall not be required to have separate synchronising device, if the same is inherently built into the inverter."*

i. *Absence of load* : In absence of load, it is agreed that evacuation will not be possible but it cannot result in over voltage as the SG follows the grid and electrical parameters of power generated by SG will be same as that of grid.

j. *Grid connectivity at 11 KV* : Existing HT consumers may opt for connectivity at 11 KV however for LT consumers, typically less than 100 KW, it will not be financially viable. Respondent mentions that agricultural feeders are subject to 12 Hrs load shedding during day time. So the connectivity of SG on LT specially in rural areas will provide power for agriculture and this has been categorically highlighted as social benefit on slide no 17 of the presentation given by petitioner on 5th Aug 13. This will also result in reduction of agricultural subsidy burden of DISCOM.

k. *CEA Guide lines for LT Connectivity* : CEA guide lines does not specify voltages and hence it is presumed that it is applicable to all voltages. In absence of any clear connectivity guide lines from Centre or State, this petition has been filed.

l. *Metering guidelines of JNNSM below 100 KW* : It is an humble request that, considering the amount of energy evacuated by SG of capacity less than 100 KW, simple import / export meter may kindly be provided. This will motivate common small consumers to invest in Solar Generation and add to the Generation capacity of the State.

m. *MSEDCL's willingness* : MSEDCL's willingness to accept all types of SG provided that they are techno commercially feasible is appreciated.

n. *MEDA & SLDC* : Copy of the petition is mailed to SLDC under copy to MERC and also to MEDA on 7th Aug 13.

o. *Relevant charges for transmitting energy on guide lines similar to OA Regulations 2005* : It has been prayed to wave off all such charges considering the size of SG. DISCOM may retain & utilise the RE benefits in lieu of the same.

10. Old Case Reference of case no 173 of 2011 :

Since the respondent has quoted the reference of case no 173 of 2011, the petitioner is now forced to bring out the reference of case no 77 of 2011 where in connectivity permission for 60.48 KW SG was granted at 415 V as a special case.

In light of the para 36 of the same order, which reads as " ..... *the above ruling has been given considering the present project as a unique case and thus should not be considered as precedent for any other rooftop solar PV case*", this case was never refereed to by the petitioner in any of his past communications. It is mentioned here just to counter the point no 10 of the respondent without any other intentions.

Change is natural process of life and has to be accepted for developments. If govt. had not accepted the changes, we would still be using coal fired steam engines and long passenger ques for manual reservations.

Govt is promoting this technology by giving subsidies and accelerated depreciations but consumers at the ground level cannot avail the same due to lack of connectivity regulations. It is the right time for the State to come out with connectivity guide lines to promote RE and add to the power generation capacity of the state without investing in Land, Machinery, Manpower & maintenance expenditure.

Nagpur

14 Aug 2013

Sudhir Budhay
Petitioner