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***7.1.2: The Institution has facilities for alternate sources of energy and energy conservation measures***

**Wheeling to the Grid**

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## Wheeling to the Grid

### 1. Solar Energy Project- 400 KW Solar Roof Top PV Plant

- Institute has installed 400 KW Solar Roof Top PV Plant as a clean energy project to make the campus eco-friendly. The project has been successfully installed and generating power which is more than energy requirement of the campus. The surplus power is export to MSEDCL (2.87 Lakh units)
- Effective utilization of natural sunlight in the campus.
- Using solar water heater at hostels. (capacity 41000 Litres per day)
- Use of Solar street lights in the campus.

#### Solar Roof Top PV Plant SRTPV Impact



## 2. Net metering Photos



### Net metering Photos:





### 3. Net Metering Proof

**MAHAVITARAN**  
Maharashtra State Electricity Distribution Co. Ltd.

(A Govt. of Maharashtra undertaking)  
CIN: U40109MH2005SGC153645

Phone no: 02412353645  
Fax no: 0241 2344585  
Email: seahmednagar@gmail.com  
Website: [www.mahadiscom.in](http://www.mahadiscom.in)

Office of the, Superintending Engineer,  
O&M Circle, Ahmednagar.  
Old Power House, New Admn.Bldg,  
Station Road, Ahmednagar - 414 001.

No. SE/ANRC/TECH/HT/DYEE AMR/ No 04402 Date: 14 MAR 2018

To,  
The Executive Engineer,  
MSEDCL, Sangamner Division,  
**AHMEDNAGAR.**

Sub:- Permission for connectivity/ installation of roof-top solar PV system of **100.0 KW** for net metering in r/o existing HT consumer M/S. Chief Executive Amrutvahini Sheti & VS, Amrutnagar, Tal. Sangamner, Dist. Ahmednagar **consumer no 155049004099**

Ref: - 01) Consumer application dated 04.09.2017.  
02) Load sanction solar no. 22 dated 06.11.2017.  
03) T. O. L. No. 17790 dated 08.11.2017.  
04) WCR vide EE/SNGR/T/789 dtd 23.02.2018  
05) T.O.L.No.3324 dated 28.02.2018.  
06) Joint inspection report dated 01.03.2018.

In connection with above subject, and letter under references, it is to inform you that the above consumer has completed all formalities such as documents, meter testing payment and executed agreement at this office. The test report of solar already given to you.

Permission is here by granted to connect/ install roof-top solar PV system of **100.0 KW** for net metering in r/o existing HT consumer M/s. Chief Executive Amrutvahini Sheti & VS, Amrutnagar, Tal. Sangamner, Dist. Ahmednagar **consumer no 155049004099** by observing Comm circular no 258 & all rules and regulation of MSEDCL.

You are requested to connect/ install roof-top solar PV system of **100.0 KW** for net metering to above said consumer & after installation return the test report duly signed by you and sub divisional officer for billing purpose.

(Anil Borse)  
Superintending Engineer  
Ahmednagar

**Copy to:**  
01) The Executive Engineer, MSEDCL, Testing Division, Ahmednagar.  
□ You are requested to connect roof-top solar PV system load after satisfactory testing work at your end.  
02) The Add Executive Engineer, MSEDCL, O&M Sub Division, SNGR-I.  
....After releasing connection TM/2 with all documents should submit to this office immediately for billing.  
03) The Manager (F&A), MSEDCL, Ahmednagar.  
✓ 04) M/s. M/S. Chief Executive Amrutvahini Sheti & VS, Amrutnagar, Tal. Sangamner, Dist. Ahmednagar **consumer no 155049004099**  
05) M. File.



# Amrutvahini College of Engineering, Sangamner



(A Govt. of Maharashtra undertaking)  
CIN: U40109MH2005SGC153645

Phone no:02412353645

Fax no: 0241 2344585

Email:seahmednagar@gmail.com

Website: www.mahadiscom.in

Office of the, Superintending Engineer,  
O&M Circle, Ahmednagar.

Old Power House, New Admn.Bldg,  
Station Road, Ahmednagar - 414 001.

No.SE/ANRC/TECH/HT/SOLAR/DYEE AMR/ No 17790

Date: 08 NOV 2017

To,  
M/s. Chief Executive Amrutvahini Sheti & VS,  
Amrutnagar, Tal. Sangamner,  
Dist. Ahmednagar  
**consumer no 155049004099**  
Emailid:

Sub:- Permission for connectivity/ installation of roof-top solar PV system of **100 KW** for net metering in r/o existing HT consumer M/s. Chief Executive Amrutvahini Sheti & VS, Amrutnagar, Tal. Sangamner, Dist. Ahmednagar consumer no 155049004099

- Ref:-1) CE (Comm)/CP/Solar-net metering/3051 dated 25.01.16, (Comm circular no 258)  
2) CE(PP)/Solar/Net Metering/19312 dated 18.06.16  
3) Consumer application dated 04.09.2017.  
4) This office application inward no SE/ANRC/Solar/Net-metering/33 dated 08.09.2017.  
5) T.O.L.No.14090 dated 08.09.2017  
6) EE/TD/ANR/T/Camp Circle dtd.10.10.2017  
7) EE/AN/SNGR/TECH/4459 dated 08.09.17  
8) T.O. Office Note SE/ANRC/ dated 31.10.2017  
9) Estimate Sanctioned SE/ANRC/T/HT/SOLAR/1.3% Normative Charges/2017-18/22/ dated.06.11.2017 .  
9) Load sanction No. 22 dated.06.11.2017

Dear Sir,

In view of the Government of Maharashtra notification for new Renewable Policy dated 20.07.2015 and methodology for its implementation on dated 09.09.2015, MERC (Net Metering for Roof-top Solar Photo Voltaic Systems) regulations,2015 on 10th September, 2015 and circular 258 by MSEDCL for installation of Solar PV systems on Rooftop or any mounting structure by the existing/new consumers of MSEDCL in their premises for captive use so as to align the provisions as per the Regulations, 2014, the undersigned is pleased to permit for connectivity/ installation of roof-top solar PV system of **100.0 KW** for net metering in r/o existing HT consumer M/s. Chief Executive Amrutvahini Sheti & VS, Amrutnagar, Tal. Sangamner, Dist. Ahmednagar **consumer no 155049004099** at the address as mentioned above with the terms and conditions as below.

| Particulars              | Connected Load (KW) | Contract Demand (KVA) |
|--------------------------|---------------------|-----------------------|
| Existing sanctioned Load | 425                 | 315                   |
| roof-top solar PV system | 100.00              |                       |

## Terms and Conditions:

- VALIDITY:** The validity of this sanction is for a period of **6 (Six) months** from the date of issue of this letter and you will ensure to make the necessary payments within 1 (one) month and further ensure that you are ready o for connectivity/ installation of roof-top solar PV system within the period.



## 2. **PAYMENTS:**

As you have given consent for executing the works involved for releasing the power supply by paying 1.3 % supervision charges on the estimated cost to MSEDCL, hence permission is hereby granted to execute the works by engaging the Licensed Electrical Contractor (LEC) subject to the terms and conditions which are enclosed with the load sanction order.

**In view of the above, you are requested to pay the following charges. ...**

| Sr. No. | Particulars                      | Amount in Rs.                |
|---------|----------------------------------|------------------------------|
| a       | Fixed Service connection charges | 0.00                         |
| b       | 1.3% charges on estimated cost   | 1950                         |
| c       | Security Deposit                 | NIL                          |
| d       | Testing fee of T/F               | Will be intimated by testing |
| E       | GST(18%)                         | 351                          |
|         | <b>TOTAL Rs. :</b>               | <b>2301/-</b>                |

(Rs. Two Thousand Three Hundred and One only/-.)

The Xerox copy of payment made may be submitted to this office and the concerned division office under a covering letter and acknowledgement of which may be obtained.

3. **Metering :** as your load is supplied at 11 kV Volts with HT Connection, Net meter will be installed on HT side of Transformer as per MSEDCL rules regulation 7 with following specifications:

4. **NET meter of CTR -/5 A, PTR 11KV/ $\sqrt{3}$ /110V/ $\sqrt{3}$ ; of 0.5S class.**

**C.T. RATIO: - 10 / 5 A, single core, single ratio, Accuracy class: 0.2S, VA burden 10 VA.**

**PT RATIO: - 11KV/ $\sqrt{3}$ /110V/ $\sqrt{3}$ , single core, single ratio, Accuracy class: 0.2, VA burden 50 VA.**

4. **Installation:** Your installation arrangement/drawing should be as per letter at ref. no 5 & is required to be got approved from EE testing Ahmednagar and the Electrical Inspector. **You have to install meter for measurement of solar generation at LT side with following specifications for meter & external CT's.**  
**SOLAR generation meter of CTR -/5 A, 3 X 240 V, 0.5s class with external CTR 100/5 A. 0.2S class**

5. **CLEARANCE:**  
As per MSEDCL Rules and IE Standards

6. **Grid standards and safety:**

- 6.1 You can install a Rooftop Solar PV System with or without battery. However, if an eligible consumer opts for connectivity with the battery Back-up, the inverter should have separate back-up wiring to prevent the battery/decentralized generation power from flowing into the Grid.
- 6.2 The consumer shall be responsible for the safe operation, maintenance and rectification of any defect in the Rooftop Solar PV system up to the point of Net-meter.
- 6.3 The consumer shall provide appropriate protection for islanding of the Roof-top Solar PV System from the Network of Distribution Licensee in the event of Grid or supply failure of supply and the same shall be verified/ certified by Testing Division in consultation with concerned Sub-division/circle.

7. The Net Meter and the Solar Generation Meter shall be installed at such locations in the premises that MSEDCL should have easy access to the Meter for meter reading.

8. The unadjusted net credited Units of electricity as at the end of each financial year shall be purchased by MSEDCL at its Average Cost of Power Purchase as approved by the Commission for that year, within the first month of the following year, At the beginning of each Settlement Period, the cumulative quantum of injected electricity carried forward will be re-set to zero.



9. In case the Consumer is within the ambit of TOD tariff, the electricity consumption in any time block, i.e. peak hours, off-peak hours, etc., shall be first compensated with the quantum of electricity injected in the same time block. Any excess injection over and above the consumption in any other time block in a Billing Cycle shall be accounted as if the excess injection had occurred during off-peak hours. As per 9.7 MSEDCL shall compute the amount payable to the Eligible Consumer for the excess solar energy purchased by it as specified in Regulation 9.5, and shall provide credit equivalent to the amount payable in the immediately succeeding Billing Cycle.
10. The Consumer shall have recourse, in case of any dispute with MSEDCL regarding billing, to the mechanism specified by the Commission under Sections (5) to (7) of the Act for the redressal of grievances.
11. The Solar energy generated by Consumer in a Net Metering Arrangement under these Regulations shall not be eligible for REC.
12. The Solar generation data shall be monitored quarterly so as to ascertain whether the effluence of solar plant is commensurate with the capacity utilization factor (CUF) determined by MERC from time to time.
- 13. Net metering Connection Agreement:**

The consumer shall execute a Net metering Connection Agreement on Stamp Paper of Rs.200/-- with MSEDCL as per Regulation No. 9 of MERC(Net Metering for Roof-top Solar Photo Voltaic Systems) Regulations, 2015. A Copy of Net metering Connection Agreement is enclosed as Annexure-I.
- 14. Incentives & Penalties:**

The consumer opts for net metering by installation of Rooftop Solar PV system for his partial requirement of load, such consumer shall be eligible for incentives, which may be applicable as per MERC Tariff Order for MSEDCL consumer; only to the extent it uses MSEDCL supply.

The Eligible consumer shall be liable to pay the penalty charges which may be applicable as per MERC tariff order, amended from time to time, if the power factor is not maintained at required level as per State Grid Code.

In case of default in payment of any of the charges otherwise payable by a eligible consumer /person, MSEDCL shall have the right to dislocate the arrangement of net metering after giving an intimation of 24 hours to such consumer/ person and in such circumstances, MSEDCLs shall not be liable to pay any compensation to such consumer or person for the loss that such consumer or person may sustain on any account.
15. The connectivity of Rooftop solar PV installation net metering systems shall be governed by CEA (Technical Standard for Connectivity of the Distributed Generation Resources) Regulations, 2013, CEA (Measures relating to Safety and Electricity Supply), Regulations, 2010 and MERC State Grid code 2006 or as may be specified in future.
16. MSEDCL shall have the right to disconnect the Roof-top Solar PV System from its Network at any time in the event of any threat of accident or damage from such System to its distribution system so as to avoid any accident or damage to it. However, the Eligible Consumer may use his Roof-top Solar PV System in Islanding mode for his own consumption.
17. The Roof-top Solar PV System meets the applicable norms for being integrated into the Distribution Network, and that the Eligible Consumer shall maintain the System accordingly for the duration of this Agreement.
- 18. Technical and Inter-connection Requirements:**

The metering arrangement and the inter-connection of the Roof-top Solar PV System with the Network of the Licensee shall be as per the provisions of the Net Metering Regulations and the technical standards and norms specified by the Central Electricity Authority for connectivity of distributed generation resources and for the installation and operation of meters.

The Eligible Consumer agrees, that he shall install, prior to connection of the



Roof-top Solar PV System to the Network of the Licensee, an isolation device (automatic and in built within inverter and external manual relays); and the Licensee shall have access to it if required for the repair and maintenance of the Distribution Network.

The Eligible Consumer shall furnish all relevant data, such as voltage, frequency, circuit breaker, isolator position in his System, as and when required by the Licensee.

## **19. Safety:**

The equipment connected to the Licensee's Distribution System shall be compliant with relevant International (IEEE/IEC) or Indian Standards (BIS), as the case may be, and the installation of electrical equipment shall comply with the requirements specified by the Central Electricity Authority regarding safety and electricity supply.

The design, installation, maintenance and operation of the Roof-top Solar PV System shall be undertaken in a manner conducive to the safety of the Roof-top Solar PV System as well as the Licensee's Network.

If, at any time, the Licensee determines that the Eligible Consumer's Roof-top Solar PV System is causing or may cause damage to and/or results in the Licensee's other consumers or its assets, the Eligible Consumer shall disconnect the Roof-top Solar PV System from the distribution Network upon direction from the Licensee, and shall undertake corrective measures at his own expense prior to re-connection.

The Licensee shall not be responsible for any accident resulting in injury to human beings or animals or damage to property that may occur due to back-feeding from the Roof-top Solar PV System when the grid supply is off.

The Licensee may disconnect the installation at any time in the event of such exigencies to prevent such accident.

## **20. Other Clearances and Approvals:**

The Eligible Consumer shall obtain any statutory approvals and clearances that may be required, such as from the Electrical Inspector or the municipal or other authorities, before connecting the Roof-top Solar PV System to the distribution Network.

## **21. Period of Agreement, and Termination:**

This Agreement shall be for a period for **20 years**, but may be terminated prematurely by

- (a) By mutual consent; or
- (b) By the Eligible Consumer, by giving 30 days' notice to the Licensee;
- (c) By the Licensee, by giving 30 days' notice, if the Eligible Consumer breaches any terms of this Agreement or the provisions of the Net Metering Regulations and does not remedy such breach within 30 days, or such other reasonable period as may be provided, of receiving notice of such breach, or for any other valid reason communicated by the Licensee in writing.

## **22. Access and Disconnection:**

The Eligible Consumer shall provide access to the Licensee to the metering equipment and disconnecting devices of Roof-top Solar PV System, both automatic and manual, by the Eligible Consumer

If, in an emergent or outage situation, the Licensee cannot access the disconnecting devices of the Roof-top Solar PV System, both automatic and manual, it may disconnect power supply to the premises.

Upon termination of this Agreement under Clause 5, the Eligible Consumer shall disconnect the Roof-top Solar PV System forthwith from the Network of the Licensee.

## **23. Liabilities:**

The Parties shall indemnify each other for damages or adverse effects of either Party's negligence or misconduct during the installation of the Roof-top Solar PV System, connectivity with the distribution Network and operation of the System.

The Parties shall not be liable to each other for any loss of profits or revenues, business interruption losses, loss of contract or goodwill, or for indirect, consequential, incidental or special damages including, but not limited to, punitive or exemplary damages, whether any of these liabilities, losses or damages arise in contract, or otherwise.



The commercial settlements under this Agreement shall be in accordance with the Net Metering Regulations. The Licensee shall not be liable to compensate the Eligible Consumer if his Rooftop Solar PV System is unable to inject surplus power generated into the Licensee's Network on account of failure of power supply in the grid/Network.

25. The existing metering System, if not in accordance with the Net Metering Regulations, shall be replaced by a bi-directional meter (whole current/CT operated) or a pair of meters (as per the definition of 'Net Meter' in the Regulations), and a separate generation meter may be provided to measure Solar power generation. The bi-directional meter (whole current/CT operated) or pair of meters shall be installed at the inter-connection point to the Licensee's Network for recording export and import of energy. The uni-directional and bi-directional or pair of meters shall be fixed in separate meter boxes in the same proximity.
26. The Licensee shall issue monthly electricity bill for the net metered energy on the scheduled date of meter reading. If the exported energy exceeds the imported energy, the Licensee shall show the net energy exported as credited Units of electricity as specified in the Net Metering Regulations, 2015. If the exported energy is less than the imported energy, the Eligible Consumer shall pay the Distribution Licensee for the net energy imported at the prevailing tariff approved by the Commission for the consumer category to which he belongs.
27. **Connection Costs:**  
The Eligible Consumer shall bear all costs related to the setting up of the Roof-top Solar PV System, excluding the Net Metering Arrangement costs.
28. **Dispute Resolution:**  
Any dispute arising under this Agreement shall be resolved promptly, in good faith and in an equitable manner by both the parties. The Eligible Consumer shall have recourse to the concerned Consumer Grievance Redressal Forum constituted under the relevant Regulations in respect of any grievance regarding billing which has not been redressed by the Licensee.
29. All conditions as per Commercial circular no 258 & MERC regulation regarding Roof Top solar net metering is binding on this sanction.
30. This is only Permission for installation of roof-top solar PV system of **100.0 KW** for net metering, after the payment of all the arrears/recovery of the connection & completion of all formalities as above & MSedCL rules & regulations, release for the connectivity (synchronization) of Roof top system with MSedCL grid will be given.

**Thanking you**

**Encl: -**

- 1) Annexure 1,
- 2) Annexure 2-Agreement
- 3) Circular 258

Yours faithfully,

  
(Anil Borse)  
Superintending Engineer  
Ahmednagar

**Copy to:**

- 01) The Executive Engineer, MSedCL, Sangamner.  
----It is requested to submit WCR report along with J.V. No. after finalization of accounting of the material installed & the kiosk should be installed near Main gate.
- 02) The Executive Engineer, MSedCL, Testing Division, Ahmednagar.  
----It is requested to submit the pre-release report & test the meter as per MSedCL Rules & regulation.
- 03) The Manager (F&A), MSedCL, Circle Office, Ahmednagar.
- 04) The Addnl. Executive Engineer, MSedCL, O&M Sub Division, SNGR I.
- 05) M. File.



## Amrutvahini College of Engineering, Sangamner

**MAHAVITARAN**  
Maharashtra State Electricity Distribution Co. Ltd.

(A Govt. of Maharashtra undertaking)  
CIN: U40109MH2005SGC153645

Phone no: 02412353645  
Fax no: 0241 2344585  
Email: seahmednagar@gmail.com  
Website: www.mahadiscom.in

Office of the, Superintending Engineer,  
O&M Circle, Ahmednagar.  
Old Power House, New Admn.Bldg,  
Station Road, Ahmednagar - 414 001.

No. SE/ANRC/TECH/HT/DYEE AMR/

No 03324

Date: 28 FEB 2018

To,  
The Executive Engineer,  
MSEDCL, Sangamner Division,  
**AHMEDNAGAR.**

Sub:- Joint inspection report for installation of roof-top solar PV system (100 KW for net metering in r/o existing HT consumer M/s. Chief Executive Amrutvahini Sheti & VS, Amrutnagar, Tal. Sangamner, Dist. Ahmednagar **consumer no 155049004099**

- Ref: - 01) Consumer application dated 04.09.2017.  
02) Load sanction solar no. 22 dated 06.11.2017.  
03) T. O. L. No. 17790 dated 08.11.2017.  
04) WCR vide EE/SNGR/T/789 dtd 23.02.2018  
05) Government notification of Industries, Energy & Labour Department dated 04.02.16.

With reference to above cited subject, this office has sanctioned the load for installation of roof-top solar PV system of 100 KW for net metering in r/o existing HT consumer M/s. Chief Executive Amrutvahini Sheti & VS, Amrutnagar, Tal. Sangamner, Dist. Ahmednagar **consumer no 155049004099.**

The details are as below.

- 01) Existing Ht consumers connected load **425 KW** / contract demand **315 KVA.**
- 02) Rooftop Solar system capacity :- **100 KW**
- 03) The test report of solar installation & WCR submitted by consumer on dtd. 27.02.2018 and are enclosed herewith however consumer has not submitted EI permission for charging of roof-top solar PV system of 100 KW as per letter under reference 5.

You are requested to carryout the joint inspection and submit the verification report to this office.

  
Superintending Engineer  
Ahmednagar

Encl: A.A.

**Copy to:**

- 01) The Executive Engineer, MSEDCL, Testing Division, Ahmednagar.
- 02) The Add. Executive Engineer, MSEDCL, O&M Sub Division, SNGR-I.
- 03) M/s. Chief Executive Amrutvahini Sheti & VS, Amrutnagar, Tal. Sangamner, Dist. Ahmednagar **consumer no 155049004099.**
- 04) M. File.



## Amrutvahini College of Engineering, Sangamner



(A Govt. of Maharashtra undertaking)  
CIN: U40109MH2005SGC153645

Phone no: 02412353645  
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Office of the, Superintending Engineer,  
O&M Circle, Ahmednagar.  
Old Power House, New Admn.Bldg,  
Station Road, Ahmednagar - 414 001.

No. SE/ANRC/TECH/HT/DYEE AMR/ No 03313

Date: 28 FEB 2018

To,  
✓ M/s. Chief Executive Amrutvahini Sheti & VS,  
Amrutnagar, Tal. Sangamner,  
Dist. Ahmednagar  
consumer no 155049004099  
Emailid:

Sub:- Testing of 1 nos of net meter for connectivity/ installation of roof-top solar PV system of 100 KW for net metering and 1 LT TOD meter in r/o existing HT consumer M/s. M/s. Chief Executive Amrutvahini Sheti & VS, Amrutnagar, Tal. Sangamner, Dist. Ahmednagar consumer no 155049004099

Ref:- 01) Consumer application dated 27.02.18 for testing of meter  
02) T.O.L.No.17790 dated 08.11.2017.

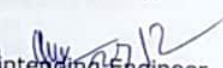
Sir,

With reference to the above subject, a charge for testing of net meter and LT TOD meter is Rs.1000/- Per meter + GST @ 18% per NET meter, i.e.Rs.1180/- per meter including GST.

You are requested to pay **Rs. 2,360/- (Rupees Two Thousand Three Hundred & Sixty Only) including GST @18 %** (Rs. 1000/- for testing of 1 no of meter & Rs.180/- as GST.) against testing of 1 nos of NET meter and 1 no of LT TOD Meter.

Thanking you.

Yours Sincerely,

  
Superintending Engineer  
Ahmednagar

**Copy to:**

- 01) The Executive Engineer, MSEDCL, Testing Division, Ahmednagar.  
...It is requested to carry out testing of above meters after verification of valid money receipts.
- 02) The Executive Engineer, MSEDCL, Rural Division, Ahmednagar.
- 03) The Manager (F&A), MSEDCL, Circle Office, Ahmednagar.
- 04) The Dy. Executive Engineer, MSEDCL, O&M Sub Division, Sangamner-1.
- 05) M. File.