

## FAQ: Grid Connected Solar Rooftop System

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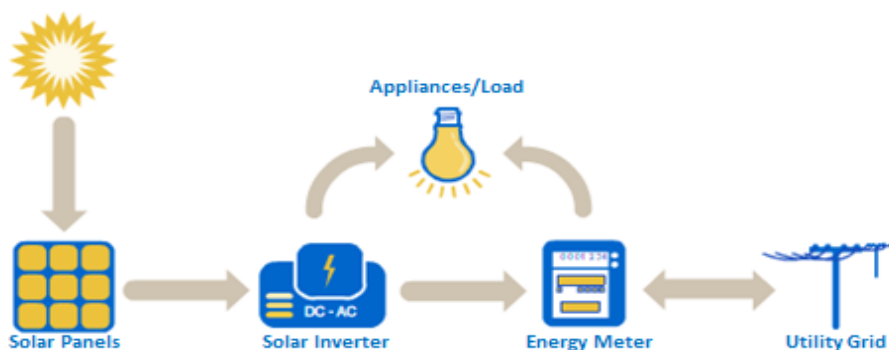
### 1. What is a Solar Rooftop System?

In a solar rooftop system, the solar panels are installed in the roof of any residential, institutional, social, Government, commercial, industrial buildings etc.. This can be of two types

- (i) Solar Rooftop System with storage facility using battery, and
- (ii) Grid Connected Solar Rooftop System.

### 2. What is a Grid Connected Solar Rooftop System?

In grid connected rooftop or small SPV system, the DC power generated from SPV panel is converted to AC power using power conditioning unit/Inverter and is fed to the grid either of 440/220 Volt three/single phase line or of 33 kV/11 kV three phase lines depending on the capacity of the system installed at residential, institution/commercial establishment and the regulatory framework specified for respective States. These systems generate power during the day time which is utilized by powering captive loads and feed excess power to the grid as long as grid is available. In case, where solar power is not sufficient due to cloud cover etc., the captive loads are served by drawing balance power from the grid.



### 3. What are the main components?

- **Solar PV Modules/Solar Panels** – The Solar PV modules/Solar Panels convert solar energy to electrical energy. They are available in different technologies such as crystalline, thin film, CIGS, CdTe, HIT, etc. Crystalline Solar PV panels are most common in use on roof tops.
- **Inverter** – Inverter converts DC output of Solar PV panels into AC power.
- **Mounting structure** – The mounting structure, is the support structure that holds the Solar PV panels
- **Balance of System** – These consist of cables, switchboards, junction boxes, meters, structures, tracking system (if required), earthing system ,circuit breaker,fuses etc.

#### 4. What are the models for implementation of Rooftop PV systems?

**CAPEX Model :** Here, the entire system is owned by the rooftop owners and he bears the cost of the Solar system. Responsibility of O&M for the system lifetime (25 years) is also with the rooftop owner. Developer is responsible for installing the system and initial 2 years O&M and five years warranty.

**RESCO Model :** Here, the entire system is owned by the developer. Responsibility of O&M for the system lifetime (say about 25 years) is also with the developer. Rooftop owners may consume the electricity generated, for which they have to pay a pre-decided tariff on a monthly basis. Excess generation may be exported to the grid, subject to availability of requisite state regulations.

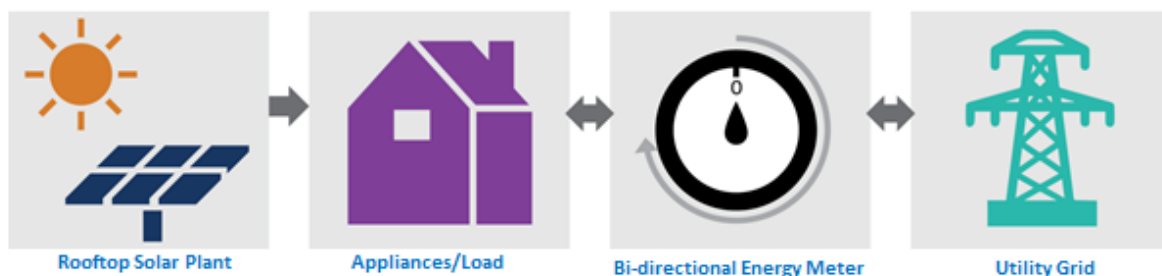
#### 5. Which model is best for me?

For consumers that have adequate manpower/expertise for O&M, rooftop access concerns, availability of funds upfront, CAPEX model is better. Consumers in states that have net-metering regulations can take benefit of the same in case they have substantial excess generation.

On the other hand, consumers who prefer not to take responsibility for the system O&M, do not have rooftop security concerns and prefer to pay on a monthly basis rather than bulk upfront payment may choose to go for RESCO model.

#### 6. What is net-metering?

The grid connected rooftop system can work on net metering basis wherein the beneficiary pays to the utility on net meter reading basis only. Alternatively two meters can also be installed to measure the export and import of power separately. The mechanism based on gross metering at mutually agreed tariff can also be adopted.



#### 7. What is Gross Metering:

In gross metering the energy generated from the spv plant is feed to the grid . In lieu to the energy fed to the grid , they are paid a feed in tariff.

## 8. What are the advantages of Grid-Connected Rooftop Solar System?

- Benchmark cost of Roof top Solar system: Rs. 60,000/- per kW
- Central financial assistance: Rs. 18,000/- per kW
- Net cost to customer (CAPEX Mode): Rs. 42,000/- per kW
- Generally , a 1 kW system generates about 1200- 1500 units per year
- Savings per annum Rs. 6000 to Rs. 7500 per year ( condidering average tariff of Rs. 5 per unit)
- Payback period: Rs. 5 - 7 years\*

( \*Payback period may further reduce in case *there is any change in higher tariff slabs of electricity bill of the consumer due to net reduction in monthly electricity units consumed from Grid or if electricity tariff increases* )

Benefits under RESCO mode:

- In a RESCO model the entire system is owned by the project developer and rooftop owners used to pay a monthly pre-determined tariff based on their consumption of electricity to the project developer.
- Responsibility of *operations and maintenance* is on the developer.

## 9. General procedure for installation of Rooftop Solar system for beneficiary

**Application, where to apply:**

Interested beneficiary submits application (alongwith id proof, DISCOM bill, site photograph etc. ) to State Nodal Agency ([https://solarrooftop.gov.in/Agencies\\_list.html](https://solarrooftop.gov.in/Agencies_list.html) ) for availing CFA . Few States has also developed online portal for accepting of application

**How much capacity one can install?**

Dependent on availability of budget with the consumer, electrical load requirement of the beneficiary, electrical connected load, availability of shadow free rooftop area, maximum capacity allowed by respective State Regulatory Commission etc.

**Selection of vendor:**

To avail CFA the beneficiary need to install the RTS system through the valid selected vendor of the respective State Nodal Agency which were selected through transparent process ( say bidding/empanelment/rate contract etc. ) against the MNRE's sanctioned capacity.

**Feasibility analysis:**

The selected vendor after getting the work order from the State Nodal Agency will do the feasibility study of the RTS plants to be installed at the rooftop of beneficiary and will install the plant as per the minimum technical standards specified by the Ministry under the scheme.

**Capex Agreement /PPA:**

In case of CAPEX mode the agreement is signed between the beneficiary/customer and the project developer/installer.

In case the beneficiary want to install the system in RESCO mode (i.e. investment is made by the project developer), a long term Power Purchase Agreement need to be signed between RESCO project developer and the beneficiary (say upto 25 Years) agreeing to the tariff at which the power will be procured by the beneficiary from the project developer which need to be determined by bidding process by the State Nodal Agency. A sample PPA for Govt. sector project is placed in website.

**Request for grid connectivity/ Net meter:**

The selected vendor will assist the consumer in submission of forms of respective DISCOMs for grid connectivity/net-metering connections etc. After submission of application form the DISCOM conducts feasibility study, charges application /net metering fees, conducts site visits, installs net-meter and provides grid connectivity/net metering after commissioning of the project. In some cases, inspection by Chief Electrical Inspector to the Govt. (CEIG) may also be required.

**Subsidy disbursement:**

After installation of RTS plants the consumer shall inform the respective State Nodal Agency for inspection of the plants along with grid connectivity/net metering application form already submitted to the DISCOMs. Concerned State Nodal Agency after due inspection and satisfactory performance will disburse the applicable CFA to the beneficiary/ bidder depending on the condition that whether the full project cost has been made by beneficiary or project cost minus CFA has been made by the beneficiary.

*(Note: The above procedure may vary from State to State depending on State policy)*

## 10. How much area is required for a 1 kW rooftop Solar PV system?

A 1 kW rooftop system generally requires 10 sq. metres of shadow-free area. Actual sizing, however, depends on local factors of solar radiation and weather conditions, efficiency of solar module, shape of the roof etc.

## 11. What is the average cost of grid connected rooftop solar systems?

The benchmark cost of grid connected rooftop solar systems for FY 2018-19 varies from Rs. 53 per watt – Rs. 60 per watt. The details are as follows:

| Capacity                      | Benchmark Costs (Rs./Wp)* |
|-------------------------------|---------------------------|
| Above 1 kW and up to 10 kW    | 60                        |
| Above 10 and up to 100 kW     | 55                        |
| Above 100 kW and up to 500 kW | 53                        |

( ref. notification in website: <https://solarrooftop.gov.in/notification/Notification-18062018-092754.pdf> ).

( Central Govt Subsidy is available on these Bench mark cost or tender cost established by State Govt, which ever is lower.)

\*However this varies from State to State/project developers/tenders etc. For the year 2019 Benchmark costs may be revised during April, 2019.

## 12. What are the subsidies/ capital support available from the Government?

The brief of central financial assistance/incentives for Rooftop Solar programme are as follows:

### **Residential, institutional, social sector:-**

Central Financial Assistance upto 30% of the benchmark cost for general category states (upto 70% of the benchmark cost for special category states i.e., North - Eastern States including Sikkim, Uttarakhand, Himachal Pradesh, Jammu & Kashmir and Lakshadweep, Andaman & Nicobar Islands) is being given in residential, institutional, social sector etc.

### **Govt. sectors including PSUs:-**

Achievement linked incentives upto ( 25%, 15 % and 10 %) of the benchmark cost for general category states and upto ( 60%, 36 % and 24 %) of the benchmark cost for special category states i.e., North - Eastern States including Sikkim, Uttarakhand, Himachal Pradesh, Jammu & Kashmir and Lakshadweep, Andaman & Nicobar Islands) is being provided based on achievement in various slabs. Details are given in website

<https://mnre.gov.in/file-manager/UserFiles/Notification-Incentive-&-Award-scheme-for-Govt-Sector-30032017.pdf> ,

<https://solarrooftop.gov.in/notification/Notification-16022018-140242.pdf>

Commercial and Industrial establishments in private sectors:-No central financial assistance /incentives

### 13. Sector-wise eligibility of CFA /Incentive

| Sr. No | Category                                  | Coverage of Buildings                                                                                                                                                                                                                                                                                                                                                                                        | Central Financial Assistance (CFA)/Achievement linked Incentives & awards                                                                                                                                                   |
|--------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Residential                               | All types of residential buildings                                                                                                                                                                                                                                                                                                                                                                           | CFA upto 30% of benchmark cost for                                                                                                                                                                                          |
| 2      | Institutional                             | Private Schools, health institutions including medical colleges & hospitals, universities, educational institutions etc. (including those registered under the Societies Registration Act and the Indian Trust Act )                                                                                                                                                                                         | General Category States/UTs and upto 70% of benchmark cost for Special Category States i.e. North Eastern States including Sikkim, Uttarakhand, Himachal Pradesh, Jammu & Kashmir and Lakshadweep, Andaman & Nicobar Island |
| 3      | Social sector                             | Community centres, Welfare homes, old age homes, orphanages, common service centres, common workshops for artisans or craftsman, facilities for use of community. Trusts/ NGO/ Voluntary organization /training institutions, any other establishments for common public use etc. (including those registered under the Societies Registration Act and the Indian Trust Act )                                |                                                                                                                                                                                                                             |
| 4.     | Private, Commercial and Industrial sector | a. Companies registered under the Company Act 1956/2013 other than registered under Section 25/8<br>b) Company/firms registered with Central/state government authority (SIDC, DIC)<br>c) Company registered under Limited Liability Partnerships (LLPs) act 2008<br>d) Partnerships firm registered under Partnerships Act 1932<br>e) Shops and establishment Act<br>f) Multi state cooperative society Act | No CFA/No incentives                                                                                                                                                                                                        |

|   |                                   |                                                                                                                                                                                                                                                                                                                                                     |                               |
|---|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|   |                                   | g) SSI (Small Scale Industries)<br>h) Proprietorship Firms                                                                                                                                                                                                                                                                                          |                               |
| 5 | Government Buildings/institutions | Buildings of Both Central & State Government, local government covering all Government offices<br>Government Institutions, Public Sector Undertakings, all buildings owned by Government directly or by any Government owned societies, companies, corporations, Institutions or organizations, Government educational/<br>health institutions etc. | Achievement linked incentives |

#### 14. Is there any change in subsidy /incentives recently?

The phase II of the programme has been approved by CCEA wherein central financial assistance has been restricted to domestic sector only upto maximum capacity of 10 kWp.

The brief of new subsidy programme is as follows:

1-3 kW domestic rooftop : upto 40 % of the benchmark cost

Above 3 kW to 10 kW: upto 20 % of the benchmark cost

For Group Housing Society / RWA upto 500 kW system: upto 20 % of the benchmark cost

**For other sectors e.g. social/institutional/govt. /commercial/industrial etc. no CFA will be provided**

Under Phase-II Programme, focus will be on increased involvement of DISCOMs. Performance based incentives will be provided to DISCOMs based on RTS capacity achieved in a financial year (i.e. 1st April to 31st March every year till the duration of the scheme) over and above the base capacity i.e. cumulative capacity achieved at the end of previous financial year. The incentive to DISCOMs will be as follows:

| S.No. | Parameter                                                                                                    | Incentive    |
|-------|--------------------------------------------------------------------------------------------------------------|--------------|
| 1     | For installed capacity achieved upto 10% over and above of installed base capacity* within a financial year. | No incentive |

|   |                                                                                                                             |                                                                                                                                                                                                             |
|---|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | For installed capacity achieved above 10% and up to 15% over and above of installed based capacity* within a financial year | 5% of the applicable cost** for capacity achieved above 10% of the installed base capacity                                                                                                                  |
| 3 | For installed capacity achieved beyond 15% over and above of installed based capacity* within one financial year.           | 5% of the applicable cost** for capacity achieved above 10% and up to 15% of the installed base capacity PLUS 10% of the applicable cost** for capacity achieved beyond 15% of the installed base capacity. |

\*Installed base capacity shall mean the cumulative RTS capacity installed within the jurisdiction of DISCOMs at the end of previous financial year. This will include total RTS capacity installed under Residential, Institutional, Social Government, PSU, Statutory/Autonomous bodies, Private Commercial, Industrial Sectors etc.

\*\* applicable cost is the applicable benchmark cost of MNRE for the state/UT for mid-range RTS capacity of above 10 kW and upto 100 kW or lowest of the costs discovered in the tenders for that State/UT in that year, whichever is lower.

Press brief is at <http://pib.nic.in/PressReleaseIframePage.aspx?PRID=1565282>  
Administrative approval is at website  
<https://solarrooftop.gov.in/notification/Notification-08032019-181024.pdf>

**Detailed guidelines are under formulation and will be notified shortly .**

## **15. What are the procedures for availing subsidy/achievement linked incentives ?**

Residential/Social/Institutional Sector:

Eligible beneficiary interested to avail subsidy may directly apply to the implementing agency ( e. g. State Nodal Agency/SECI etc. ) and get necessary approvals prior to installation of RTS systems. The implementing agency needs to select vendors for installation of Rooftop projects by adopting competitive bidding process. Sanction orders are given by MNRE to these implementing agencies for the capacity of the rooftop solar systems planned to be installed by them.

The implementing agency must submit complete project details online in the website [www.solarrooftop.gov.in](http://www.solarrooftop.gov.in) for availing eligible service charges and incentives. The online portal captures all details of the project, viz. capacity, project cost, address, district, State, latitude, longitude etc.



MNRE does not sanction any project or subsidy directly to the beneficiaries.

The sanctions would be issued on the basis of online project proposal submitted by implementing agency.

**16. Are there any Subsidy/Support from State Government?**

State Subsidy support is also available in a few states which varies according to the state policies.

**17. Whether solar module should be made of indigenously for subsidised projects?**

Yes. Only indigenously manufactured PV modules should be used in Solar PV systems power plants for subsidised sector. The scheme requires the project proponents to adhere to the national/ international standards specified by the Ministry from time to time. See detailed technical specification in website (<https://mnre.gov.in/file-manager/UserFiles/Scheme-Grid-Connected-Rooftop-&-small-solar-power-plants.pdf> )

**18. What is the minimum warrantee period envisaged under the scheme?**

Solar PV modules used in solar power plants /systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 12years and 80% at the end of 25 years.

The mechanical structures, electrical works including power conditioners/inverters/charge controllers/maximum power point tracker units/distribution boards/digital meters/switch gear/storage batteries, etc. and over all workmanship of the SPV power plants/ systems must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years.

**19. What are the other fiscal incentives are available for Solar Rooftop Systems?**

There are provisions of concessional import duty, accelerated depreciation, tax holiday for setting up grid connected rooftop power plants.

**20. What are requirements from State to promote grid-connected rooftop solar systems?**

- (i) States should have conducive solar policy to allow the grid connectivity.
- (ii) State Regulators have issued tariff order for appropriate tariff, net-metering/gross metering and the grid connectivity,

(iii) The Distribution Companies agree to allow grid connectivity and purchase the electricity on feed-in-tariff or through net metering arrangement.

## **21. Who are the main stakeholders of the Grid Connected Rooftop Programmes ?**

- **State Nodal Agencies (SNAs)**

SNAs are the Government Agencies at State level that work for the promotion and development of renewable energy programmes/projects in their respective states.

- **Distribution Company (DISCOM)**

DISCOM interprets and implements the provisions of the policy and regulations, thereby allowing customers to interconnect their RTS system to the grid. In the process, the DISCOM ensures overall safety, adherence to the overall technical guidelines, and follow commercial processes etc..

- **Chief Electrical Inspector to Government**

The Chief Electrical Inspector to the Government (CEIG) ensures safety compliance and operations of RTS system as per the provisions laid out in the Electricity Act, 2003 and Indian Electricity Rules, 1956. The CEIG's involvement with respect to the process is on two counts: firstly, approval of drawings and design documents, secondly, pre-commissioning inspection of the installed RTS plant for issue of 'Charging Certificate'.

- **Channel Partners including project developers /Renewable Energy Service Providing Companies (RESCOs)/System Integrators/Manufactures of components of the Solar Plants/Vendors/ suppliers of solar equipment, NGOs etc. However, the process of empanelment of Channel partners has been discontinued w.e.f. 23rd November 2017 onwards (ref. notification in website <https://mnre.gov.in/file-manager/UserFiles/discont-empanelment241117.pdf> )**

For respective States/ UTs, SNAs and DISCOMs have to undertake competitive bidding for selection of developers for installing RTS plants and only such empaneled developers will be allowed to claim CFA/ subsidy.

- **Solar Energy Corporation of India (SECI)**

Solar Energy Corporation of India Ltd. (SECI) is a Central Public Sector Undertaking working in the renewable energy sector

- **Financial Institutions/Banks**

The financial Institutions and financial Integrators i.e., NABARD, National Housing Banks, other Banks, IREDA, etc.

- **Other Govt. Departments/Agencies i.e., Railways, Defense/Para Military Forces, Local Government Bodies including Municipal Corporations/Municipalities, State Departments, etc. interested in directly implementing the programme are also encouraged.**

**22. Kindly name the States having notified the solar rooftop policy?**

Please see the details in website <https://mnre.gov.in/file-manager/UserFiles/solar-rooftop-states-policy-tariff.htm> . Amendments if any may kindly be seen at the respective websites of the State Renewable Energy Department.

**23. Kindly name the States having Net-metering regulations?**

Electricity Regulatory commissions have notified the regulations for all States /UTs. <https://mnre.gov.in/file-manager/UserFiles/solar-rooftop-states-policy-tariff.htm> . Amendments if any may kindly be seen at the respective websites of the State Electricity Regulatory Commission/Joint Electricity Regulatory Commission .

**24. Kindly name the States having notification on mandatory solar installation?**

Haryana ( <http://hareda.gov.in/writereaddata/document/hareda742575984.pdf> ), Chandigarh ( <http://www.crestchd.org.in/Building.pdf> ), Uttar Pradesh & Chhattisgarh so far. For any amendments please visit respective website of State Govt. please.

**25. Kindly name the State having online portal for rooftop solar installation?**

- Chandigarh ( <https://www.solarchandigarh.com/> )
- Andhra Pradesh ( <http://usrtp.nredcap.in/> )
- Punjab ( <http://solarpunjab.com/> )
- Delhi ( <http://solarrooftop.gov.in/delhi/> )
- Gujarat ( <https://geda.ahasolar.in/> )
- Haryana ( <http://www.dnreapplyonline.gov.in/> )
- Jharkhand ( <https://jreda.ahasolar.in/> )
- Odisha ( <http://rts.odisha.gov.in/> )
- Rajasthan ( <http://rreclmis.energy.rajasthan.gov.in/Detail/Allproject.aspx> )
- Assam ( <http://rodalee.com/> )
- Goa ( <http://solarrooftop.gov.in/goa/> )
- Uttar Pradesh ( <https://upnedasolarrooftopportal.com/> )
- Maharashtra ( <https://www.mahaurja.com/gcrt1819/login.php> )
- Kerala ( [www.buymysun.com](http://www.buymysun.com) )
- Telangana ( <http://tsredco.telangana.gov.in/> )

**26. What efforts is the Government making to provide loans for solar rooftop systems?**

Department of Financial services has instructed to all Public Sector Banks (PSB) to encourage home loan/ home improvement loan seekers to install rooftop solar PV plants and include cost of system in their home loan proposals. So far, nine PSBs namely Bank of India, Syndicate Bank, State Bank of India, Dena Bank , Central Bank of India, Punjab National Bank, Allahabad Bank, Indian Bank and Indian Overseas Bank have given instructions to extend loan for Grid Interactive Rooftop Solar PV Plants as home loan/ home improvement loan.

**27. What are the multilateral loans available for RTS projects and who are the implementing banks:**

- World Bank to SBI (USD 620 Million). See loan product details at [https://www.sbi.co.in/webfiles/uploads/files/SBI\\_WORLD\\_BANK.pdf](https://www.sbi.co.in/webfiles/uploads/files/SBI_WORLD_BANK.pdf)
- Asian Development Bank to Punjab National Bank ( USD 500 million). See loan product details at <https://www.pnbindia.in/Rooftop-Solar-Power.html>

**28. What are the O&M aspects of a grid-connected rooftop solar PV system?**

Compared to most other power generating technologies, solar PV systems have very low maintenance and servicing requirements. However, suitable maintenance of a PV plant is essential to optimise energy yield and maximise the life of the system.

Some of the maintenance activity typically may include but not limited to the following:

- Only Module cleaning is required (dust, bird dropping and other debris can cause decrease in power generation)
- Other items may be checked periodically if so required as stated below
- Checking module connection integrity
- Checking junction / string combiner boxes
- Inspecting mechanical integrity of mounting structures
- Vegetation control
- Tightening cable connections that have loosened
- Replacing blown fuses
- Repairing lightning damage
- Repairing equipment damaged by intruders or during module cleaning

**29. What is the gross potential of solar power in the country**

India is endowed with vast solar energy potential. About 5,000 trillion kWh per year energy is incident over India's land area with most parts receiving 3-5 kWh per sq. m per day. Based upon the availability of land and solar radiation, the potential of solar power in the country has been assessed to be around 750 GW.

**30. What is the potential for rooftop solar power in the country?**

National Institute of Solar Energy (NISE) has estimated a potential of 43 GW for Grid Connected RTS in the country.

**31. What targets has the Government kept for installation of Rooftop Solar Plants in the country?**

Government of India has set the target of installing 40,000 MW of Rooftop Solar (RTS) Power by the year 2022. Statewise tentative targets are available in the website link ([https://mnre.gov.in/sites/default/files/webform/notices/State-wise-and-year-wise-target-for-installation-of-40000MWp-GCRT-systems\\_0.pdf](https://mnre.gov.in/sites/default/files/webform/notices/State-wise-and-year-wise-target-for-installation-of-40000MWp-GCRT-systems_0.pdf) )

**32. What is the State wise breakup of sanctioned capacity under the scheme?**

The State-wise breakup of sanctioned capacity under the scheme as on 04.03.2019 is as follows:

| Sr. No. | States/entity    | Total sanctioned capacity as on 04.03.2019 ( MW) |
|---------|------------------|--------------------------------------------------|
| 1       | Andhra Pradesh   | 69.39                                            |
| 2       | Bihar            | 50.21                                            |
| 3       | Chhattisgarh     | 13.7                                             |
| 4       | Delhi            | 90                                               |
| 5       | Gujarat          | 282.75                                           |
| 6       | Haryana          | 54.5                                             |
| 7       | Himachal Pradesh | 14.17                                            |

| Sr. No. | States/entity                                      | Total sanctioned capacity as on<br>04.03.2019 ( MW) |
|---------|----------------------------------------------------|-----------------------------------------------------|
| 8       | Jammu & Kashmir                                    | 22.09                                               |
| 9       | Jharkhand                                          | 35.57                                               |
| 10      | Kerala                                             | 38.28                                               |
| 11      | Madhya Pradesh                                     | 62.02                                               |
| 12      | Maharashtra                                        | 130.27                                              |
| 13      | Odisha                                             | 24.85                                               |
| 14      | Punjab                                             | 23.68                                               |
| 15      | Rajasthan                                          | 38.14                                               |
| 16      | Tamil Nadu                                         | 76.5                                                |
| 17      | Telangana                                          | 53.11                                               |
| 18      | Uttarakhand                                        | 46.77                                               |
| 19      | Uttar Pradesh                                      | 42                                                  |
| 20      | West Bengal                                        | 50.93                                               |
| 21      | Arunachal Pradesh                                  | 10                                                  |
| 22      | Assam                                              | 23.48                                               |
| 23      | Manipur                                            | 6.22                                                |
| 24      | Mizoram                                            | 6.86                                                |
| 25      | Tripura                                            | 0.5                                                 |
| 26      | Chandigarh                                         | 32.63                                               |
| 27      | Puducherry                                         | 6.77                                                |
| 28      | Andaman & Nicobar Islands                          | 3                                                   |
| 29      | Lakshadweep                                        | 1                                                   |
| 30      | Meghalaya                                          | 8                                                   |
| 31      | Goa                                                | 2                                                   |
| 32      | Karnataka                                          | 0                                                   |
| 33      | Sikkim                                             | 0                                                   |
| 34      | Nagaland                                           | 0                                                   |
| 35      | Dadar and Nagar Haveli                             | 0                                                   |
| 36      | Daman and Diu                                      | 0                                                   |
| A1      | Sub-Total ( by State Nodal Agency/<br>Departments) | 1319.39                                             |

| Sr. No. | States/entity                                                                                                                                                                                          | Total sanctioned capacity as on<br>04.03.2019 ( MW) |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| A2      | Sub Total by Other Govt. Departments /PSUs etc. ( e.g. SECI, Railway, REIL, DMRC, SBI, Noida Metro, RITES, ISTSL,CEL,NVVN, Delhi Jal Board, Greater Chennai Corporation, MMRDA, Cochin Shipyard etc. ) | 778.45                                              |
| A1+A2   | Total                                                                                                                                                                                                  | 2097.84                                             |

### 33. How much RTS capacity has been reported as installed?

As on 04.03.2019, aggregate capacity of about 1336.75 MW has been reported as installed. The state-wise breakup is as follows:-

| Sr. No. | State /UTs                  | Capacity installed with subsidy/incentives (MW) | Capacity installed without subsidy/incentives (MW) | Total capacity installed (MW) |
|---------|-----------------------------|-------------------------------------------------|----------------------------------------------------|-------------------------------|
| 1       | ANDAMAN and NICOBAR ISLANDS | 1.00                                            | 0.00                                               | 1.00                          |
| 2       | ANDHRA PRADESH              | 33.35                                           | 16.76                                              | 50.11                         |
| 3       | ARUNACHAL PRADESH           | 0.00                                            | 4.12                                               | 4.12                          |
| 4       | ASSAM                       | 7.64                                            | 1.68                                               | 9.32                          |
| 5       | BIHAR                       | 1.67                                            | 1.26                                               | 2.92                          |
| 6       | CHANDIGARH                  | 20.36                                           | 5.22                                               | 25.58                         |
| 7       | CHHATTISGARH                | 8.69                                            | 1.55                                               | 10.24                         |
| 8       | DADRA and NAGAR HAVELI      | 0.00                                            | 0.48                                               | 0.48                          |
| 9       | DAMAN and DIU               | 0.00                                            | 0.39                                               | 0.39                          |
| 10      | GOA                         | 2.44                                            | 0.51                                               | 2.94                          |
| 11      | GUJARAT                     | 107.76                                          | 69.95                                              | 177.72                        |
| 12      | HARYANA                     | 36.26                                           | 54.15                                              | 90.41                         |
| 13      | HIMACHAL PRADESH            | 2.52                                            | 2.22                                               | 4.74                          |

|    |                   |        |        |         |
|----|-------------------|--------|--------|---------|
| 14 | JAMMU and KASHMIR | 5.75   | 0.59   | 6.34    |
| 15 | JHARKHAND         | 8.98   | 1.62   | 10.60   |
| 16 | KARNATAKA         | 8.07   | 106.61 | 114.68  |
| 17 | KERALA            | 21.14  | 17.44  | 38.59   |
| 18 | LAKSHADWEEP       | 0.00   | 0.00   | 0.00    |
| 19 | MADHYA PRADESH    | 18.73  | 13.35  | 32.08   |
| 20 | MAHARASHTRA       | 61.32  | 116.29 | 177.60  |
| 21 | MANIPUR           | 1.90   | 1.33   | 3.23    |
| 22 | MEGHALAYA         | 0.04   | 0.08   | 0.12    |
| 23 | MIZORAM           | 0.30   | 0.10   | 0.40    |
| 24 | NAGALAND          | 0.00   | 0.00   | 0.00    |
| 25 | NCT OF DELHI      | 54.44  | 12.11  | 66.55   |
| 26 | ORISSA            | 5.06   | 1.65   | 6.71    |
| 27 | PUDUCHERRY        | 0.77   | 1.00   | 1.77    |
| 28 | PUNJAB            | 21.25  | 37.61  | 58.86   |
| 29 | RAJASTHAN         | 32.24  | 55.72  | 87.95   |
| 30 | SIKKIM            | 0.00   | 0.01   | 0.01    |
| 31 | TAMIL NADU        | 45.27  | 94.26  | 139.53  |
| 32 | TELANGANA         | 28.56  | 22.74  | 51.30   |
| 33 | TRIPURA           | 0.00   | 0.00   | 0.00    |
| 34 | UTTAR PRADESH     | 28.78  | 42.31  | 71.09   |
| 35 | UTTARAKHAND       | 20.92  | 45.12  | 66.04   |
| 36 | WEST BENGAL       | 11.10  | 12.22  | 23.32   |
|    | Total StateWise   | 596.32 | 740.44 | 1336.75 |

*\*The above mentioned FAQs are for informative purpose only*