

**318/331/2017-GCRT**  
**Government of India**  
**Ministry of New and Renewable Energy**  
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**18 December 2017**

**NOTICE**

Ministry of New and Renewable Energy (MNRE) is implementing Grid Connected Rooftop Solar (RTS) Power Programme. In order to accelerate the deployment of rooftop solar power in the country, Ministry has prepared a concept note to bring DisComs to the forefront in implementation of RTS by providing them financial support which will be linked to their performance in facilitating the deployment of RTS.

2. In this regard, MNRE seeks comments/views from stakeholders on the said concept note. The Feedback/Views/Comments on the said concept note may please be sent to Shri. Manish Singh Bisht, Scientist-B, MNRE, at Email: [manish.mnre@gov.in](mailto:manish.mnre@gov.in) latest by 31<sup>st</sup> December, 2017 preferably in the word format.

(J. K Jethani)  
Scientist-E

# Ministry of New and Renewable Energy

## Grid Connected Rooftop Solar Division

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### Concept Note

**Subject: SRISTI (Sustainable Rooftop Implementation for Solar Transfiguration of India)**

### Introduction:

This document presents a brief concept to integrate DisComs as an implementing agency in Phase-II of rooftop solar scheme of MNRE. The document also provides an insight of the various factors that attribute to bring DisComs to the fore- front, instead from being an indirect participant, for rooftop solar (RTS) implementation in the country. The concept, once approved, shall serve as the basis of revised scheme of MNRE for solar rooftop in Phase-II and will replace the CCEA note that has been submitted to cabinet since 18.04.2017. This concept only provides an idea for implementation and shall be circulated to all stakeholders for comments on the same. The Phase-II targets and arrangements shall be applicable till 2021-22. The proposed scheme shall thrive to ensure that the national target of solar rooftop of 40 GW is achieved within time.

### 1. Background:

Rooftop solar (RTS) plants utilize idle rooftop space for solar generation. Typically 1 kWp RTS plant requires about 10 sq. m area. Such power can then be used, either for captive consumption of the premises or can be fed into the grid and be adjusted in the electricity bill. Net metering regulations notified by respective State Electricity Regulatory Commissions (SERCs) provide a legal framework for such adjustment. RTS plants also help Distribution utilities/companies (DisComs) by eliminating transmission and distribution losses as power consumption and generation are co-located. These are also useful in tackling day time peak loads as solar generation profile matches such peak loads. Government of India has set the target of installing 40,000 MWp of RTS power by the year 2022. The year wise targets (in MW) are as follows:

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Target in MW	200	4800	5000	6000	7000	8000	9000	40000

### 2. Ongoing Programme:

Government, on 30<sup>th</sup> December 2015, approved an increase in the central financial assistance (CFA) from Rs. 600 crore to Rs. 5,000 crore for implementation of 'Grid Connected Rooftop and Small Solar Power Plants Programme' upto the financial year 2019- 20. The CFA being provided is upto 30% of benchmark cost/tender cost (whichever

is lower) for general category states/UTs and upto 70 % of of benchmark cost/tender cost (whichever is lower) for special category states/UTs, i.e. North Eastern States including Sikkim, Uttarakhand, Himachal Pradesh, Jammu & Kashmir, Lakshadweep, Andaman & Nicobar Islands. Only residential, institutional and social sectors are eligible for CFA under the programme and no CFA for commercial & industrial establishments. For Government Sector an achievement linked incentive scheme was made operational under the programme as under:

<b>Achievement vis-a-vis Target Allocation</b>	<b>Incentives for General Category States/UTs</b>	<b>Incentives for Special Category States and NE States /islands</b>
80% and above	Rs.16,250/- per kW	Rs.39,000/- per kW
Below 80% and above 50% (including 50%)	Rs.9,750/- per kW	Rs.23,400/- per kW
Below 50% and above 40% (including 40%)	Rs.6,500/- per kW	Rs.15,600/- per kW
Below 40%	Nil	NIL

The programme was expected to support installation of 4,200 MW RTS plants in the country by year 2019-20, of which 2,100 MW through CFA and balance 2,100 MW without CFA. So far, 2047 MWp capacity RTS plants have been sanctioned under the Programme and about 845 MWp aggregate capacity plants has been installed in the country. RTS projects are being implemented by State Nodal Agencies (SNA's), Solar Energy Corporation of India (SECI), Public Sector Undertakings (PSUs) and other Government Agencies (GAs).

### **3. Learning from the Programme:**

Although the Ministry had sanctioned CFA for aggregate project capacity of 2363 MWp to different implementing agencies, including 316 MW under NCEF, it has been observed that so far 225 MWp has been commissioned in the subsidized sector (out of overall commissioned capacity of 845 MWp). The following major issues were identified for slow progress:

- Multiple tenders by different agencies and subsequently considerable delay in tendering.
- Involvement of multiple stakeholder viz. SNAs, DisComs, PSUs, Developers etc.
- Reluctance of DisComs due to revenue loss; availability of net meter; CEIG inspection etc.
- Lack of mandatory notification (only 4 State have made mandatory)/lack of State policies
- Lack of uniform regulation.
- Degradation in quality of system due to cost cutting by bidders for L1 matching and frequent bidding.

To address the above issues, and especially the fact that the consumer had to approach multiple agencies for getting a roof top installed on the roof top, it is being proposed to streamline the system by making the DISCOMS and its local offices as the nodal points for implementation of the programme. DisComs are expected to play a key role in expansion of RTS as DisComs are having a direct contact with end user and they provide approval for installation, manage the distribution network and also have billing interface with rooftop owner. Thus, it is essential that DisComs become the key drivers of this programme rather than indirect participation. As DisComs already have direct access to consumers, RTS client acquisition or demand aggregation cost could be reduced substantially. DisComs already have an organised invoicing/billing/execution systems and are best suited to manage distributed and relatively independent clients/prosumers. Since the DISCOMS would have to incur some additional expenditure in implementing the programme, an incentive scheme has also been suggested in the programme.

#### **4. Proposed Concept for future Scheme:**

It is understood that a policy shift is required for expeditious implementation of rooftop solar program and this can only be achieved by reducing complexity of the implementing mechanism. Accordingly, it is proposed to bring DisComs to the forefront in RTS implementation by providing them performance based financial support to accelerate deployment of RTS plants within their distribution area and to make DisComs the sole implementing agency for implementation of rooftop solar scheme of MNRE in next Phase.

It is proposed that CFA will be provided only for installation of RTS plants in residential sectors. The residential users may install the RTS plant of capacity as per their requirement and the respective SERC regulation, however, the CFA will be limited up to 5 kWp capacity of RTS plant.

*Subsidy requirement for residential sector: It is essential to retain capital subsidy for the residential beneficiaries as adoption of solar for this category does not appear to be lucrative and thus is not an obvious choice. The beneficiaries in this sector enjoy benefit of subsidized electricity rates and would not be inclined to adopt solar until some capital subsidy mechanism is in place. Hence, subsidy has to be retained for this sector upto a maximum capacity of 5 KWp as most of the residential consumers fall under this category.*

*No subsidy to other sectors: CFA will not be available for other categories i.e. residential (beyond 5 kWp), institutional, social, government, commercial and industrial sectors as the beneficiaries in these sectors are high tariff paying consumers and adoption of solar would be economically beneficial for them. The tariff for these category of consumer is usually greater than Rs. 5 per unit and in some cases (industrial, commercial, institutional and large Govt.) even upto Rs. 10 per unit. The power generated through RTS plant would result in significant reduction of the electricity bill paid by them to the DisCom, hence making it an economically viable solution. Only enabling ecosystem is required to be created for such customers.*

Since DISCOMs are likely to incur additional expenditure in becoming the main implementation agency, in terms of capacity building, creating awareness, etc., it is proposed to compensate them by providing performance linked incentives. The incentives may be provided for each MWp capacity of solar rooftop, added by them in their distribution network.

These incentives will be provided to enable DisComs to create an enabling ecosystem for expeditious implementation of RTS projects in their area. The tasks taken by DisCom shall include but not be limited to providing dedicated manpower for RTS implementation, rooftop assessment, bid process management, technical studies, upgradation in ERP system/components, providing time bound services to RTS consumers, inspection and monitoring of RTS plants, online database management of commissioned capacity, consumer awareness and publicity, ensuring availability of net-meters, empanelled vendors along with rates, providing grid connectivity etc.

The DisComs will submit the cumulative capacity of grid connected RTS plants (in MWp) installed in their jurisdictional area as on 31st March 2018. This will be taken as the installed base capacity for the first year of participating DisComs.

The incentives will be given on incremental RTS capacity installed by the DisComs in their distribution network from the installed base capacity (at the end of previous financial year) within the time line of 12 months (financial year-wise, i.e. 01.04.2018 to 31.03.2019, 01.04.2019 to 31.03.2020 and so on till the duration of the scheme). The incentive pattern would be a progressive one with higher incentive rates for higher levels of achievement. This is elaborated in the following table:

<b>S. No.</b>	<b>Parameter</b>	<b>Incentive to be Provided</b>
1.	For incremental installed capacity upto 10 % of the installed base capacity* within one financial year	5% of the project cost # of capacity installed in the year over and above the previous year's installed capacity
2.	Additional installed capacity, above 10 % and up to 15 % of the installed base capacity within one financial year	(5% of the project cost for 10 % of the installed base capacity above the installed base capacity) + (10% of the project cost for additional capacity above 10 %)
3.	Additional installed capacity beyond 15 % of the installed base capacity within one financial year	(5% of the project cost for 10 % of the installed base capacity) + ( 10% of the project cost for additional capacity above 10 % to 15 % of the installed base capacity) + ( 15% of the project cost for additional capacity beyond 15 % of the installed base capacity)

#Project cost means benchmark cost of MNRE or actual cost of the project arrived through competitive process, whichever is lower.

\*Installed base capacity shall mean the RTS capacity installed within the jurisdiction of DisCom at the end of previous financial year.

The proposed incentive mechanism has been illustrated in the following table:

DisCom	Installed base capacity (MW)	Achievement under scheme (MW)	Percentage Achievement of installed base capacity (%)	Capacity eligible for 5% incentives slab (MW)	Capacity eligible for 10% incentives slab (MW)	Capacity eligible for 15% incentives slab (MW)
A	100	10	10%	10	nil	nil
B	100	15	15%	10	5	nil
C	100	20	20%	10	5	5
D	100	50	50%	10	5	35

#### **5. Sector wise proposed target:**

- Commercial and industrial sector - 20000MW
- Government sector - 5000MW
- Residential sector - 5000 MW
- Institutional sector - 5000 MW
- Social sector - 5000MW

Note: The above mentioned targets are indicative only and could be interchanged based on demand in respective sectors. However, CFA shall be available for only 5000 MWp capacity to be implemented in residential sector.

#### **6. Implementation arrangement:**

##### **(A) CFA Scheme for residential sector:**

DisComs will submit an online proposal, for allocation of target, in MNRE's SPIN portal by the month of January 2018. State-wise tender would be floated at central/ DisCom level in the month of February 2018 and rates to be arrived through competitive tender process by March 2018 for equipment/integration. Rates will be applicable from 1<sup>st</sup> April 2018 to 31<sup>st</sup> March 2019. The cycle will be repeated for the every financial year. The participating Government owned DisComs will be eligible to avail advance CFA of upto 30% of the total CFA amount for the project. For private DisComs advance CFA will be considered on submission of bank guarantee. CFA would be released on reimbursement basis either bimonthly or quarterly.

The beneficiary interested to install RTS plants will submit their application to the local office of the concerned DisCom who will assist the consumer in all the activities related to commissioning and connectivity of the RTS plants through transparently enlisted vendors/manufacture/system integrators. Consumer can choose any of the enlisted vendors/manufacture/system integrators of the DisCom. The beneficiary shall be eligible to avail CFA from the DisCom and this CFA amount will be released through DisCom to the vendor installing RTS plant. The consumer will pay only the balance amount, after excluding CFA portion, to the vendor. The online platform of MNRE, i.e., SPIN will be made available to the DisComs to aggregate/register the demand of consumers in their

operational area. The various forms/formats, required for settlement of the projects, shall be standardised by MNRE in consultation with Stakeholders.

**(B) Scheme to Incentivise DisCom:**

DisComs will be incentivised, as explained at Point 4 above, for installation of grid connected RTS plants for incremental capacity installed in their jurisdictional area. The capacity eligible for incentives by DisComs would cover the entire total capacity installed including the capacity installed under CFA scheme for residential sector.

Funds will be released on quarterly basis upon receipt of Project Installation Reports in prescribed formats. For Government DisCom, release of advance may be considered if sanction of specific capacity is sought by the DisCom.

**7. Financial Outlay:**

<b>Category</b>	<b>Target</b>	<b>CFA/incentive</b>
Towards subsidy to residential sector (1 to 5 kWp capacity)	5000 MW	Rs. 9000 Crore (CFA of Rs. 18,000 per kW calculated at benchmark cost of Rs. 60,000 per kW)
Towards incentive to DISCOMs for social, institutional, Govt. sectors, commercial and industrial sector	35000 MW	Rs. 14450 Crore (Incentive of Rs. 5500 per kW calculated at benchmark cost of Rs. 55,000 per kW, assuming all Discoms would claim 7.5% on the average as incentive)
<b>Total</b>	<b>40000 MW</b>	<b>Rs. 23,450 crore</b>

The Scheme would be in operation till March 2022.

**8. Responsibilities of DisComs:**

Following activities have to be ensured by DisComs for expeditious implementation of RTS projects:

- i. Create a RTS cell at each Division level headed by Executive Engineer and the respective Sub-Divisional Officer shall act as nodal officer for implementation of RTS projects in its operation area.
- ii. Develop dedicated online portal for grid connected RTS projects.
- iii. Notify time bound procedure for implementation of the programme.
- iv. Notify cost of net-meters, related connectivity components and other charges and ensure availability of net-meters.
- v. Undertake/follow transparent bidding (as per SBD and Guidelines to be provided by MNRE) and empanel vendors for supply and installation of RTS projects along with cost of such projects.
- vi. Ensure no CEIG inspection required for RTS plants upto 5 Kwh.
- vii. Undertake capacity building programs for DisCom officers for RTS projects on regular basis.
- viii. Undertake consumer awareness campaigns through print and electronic media, developed guidebook/handbook.

- ix. Inclusion of net metering settlement in ERP system.
- x. Develop time bound grievance redressal mechanism.

### **9. Responsibility of SECI**

SECI would also float an annual tender for equipment with rates being either common nationally or separate for each state. An individual would be free to either buy equipment from vendor selected through SECI tender or vendor selected by DisComs through State tender and no preferences should be shown by DisComs to direct the consumer to any specific vendor.