

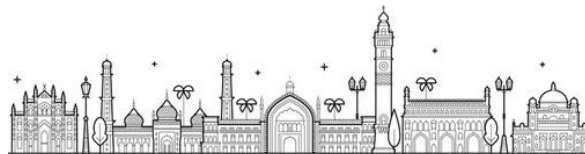
Session : RE, EV AND GRID STABILITY AND CHALLENGES OF 10 MILLION ROOFTOP SOLAR PV SYSTEMS

Challenges in Scaling up of Rooftop PV in DISCOMs

Presented By

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Distribution Utility Meet | 14 - 15 November 2024 | www.dumindia.in



Context – National Solar Mission and Target

Total installed capacity – 453 GW

Total installed RE capacity – 201 GW

Total installed Solar Capacity – 91 GW

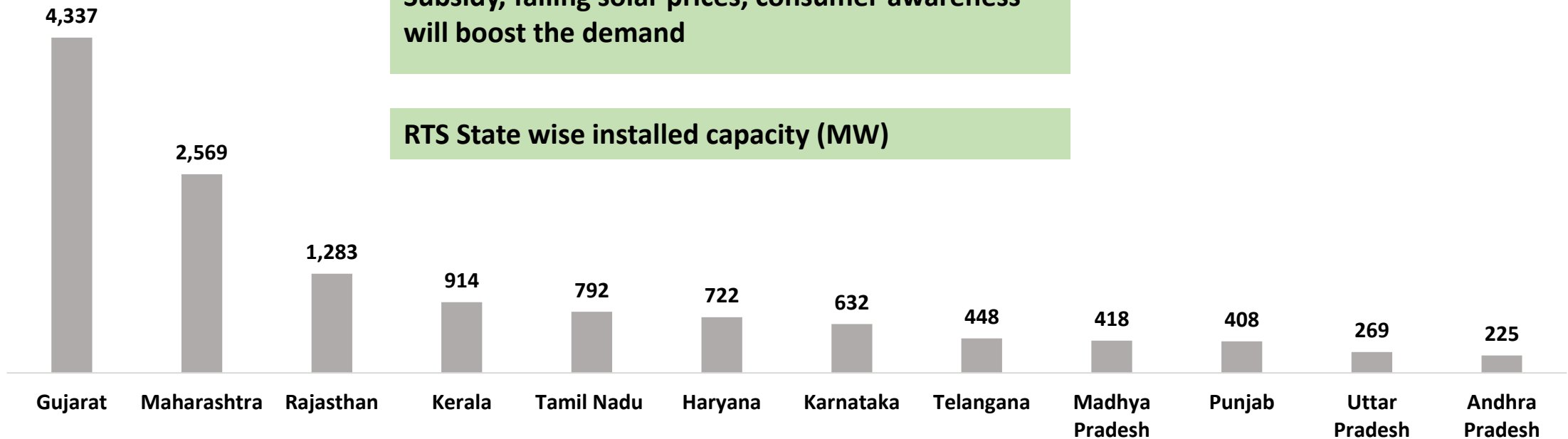
National Solar Mission Target – 40 GW

Total installed RTS capacity – 14 GW

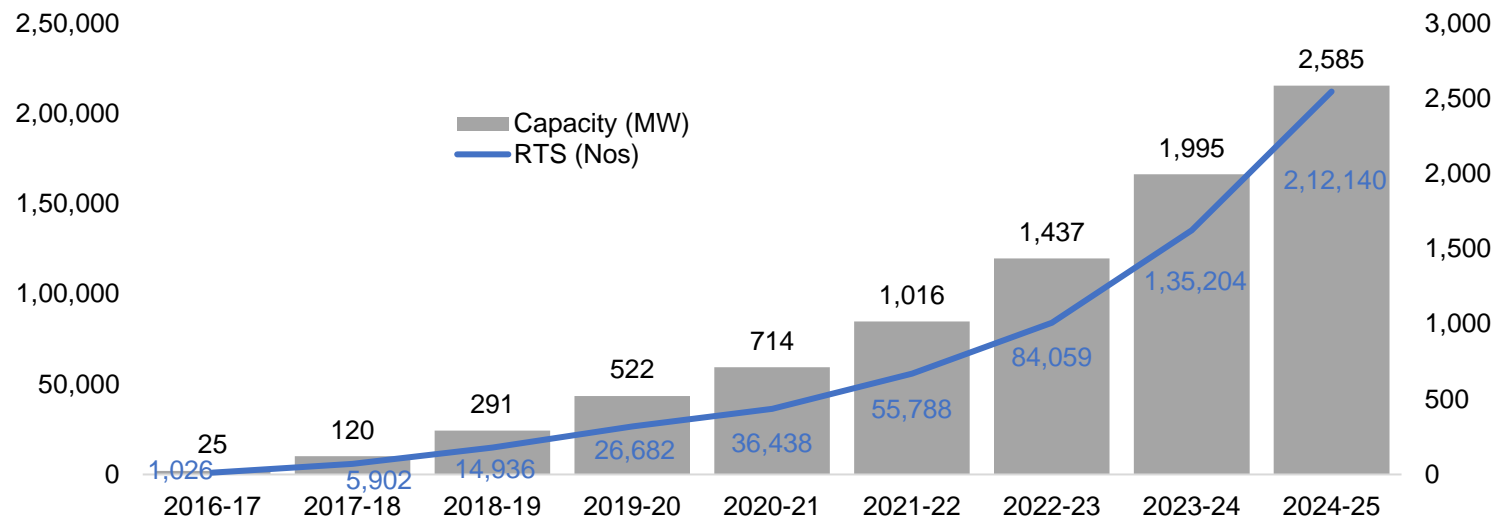
1cr RTS installations on Households throughout The Country by FY 2026-27

Subsidy, falling solar prices, consumer awareness will boost the demand

RTS State wise installed capacity (MW)



Roof top solar progress in Maharashtra



PM Surya-Ghar Yojna – Progress

Financial Year	PM Surya Ghar Scheme (Nos)	Capacity in MW
2023-24	607	2.73
2024-25	59,790	237.82

Category	Total Consumers (Nos Crore)	Total RTS Installed (Nos)	Capacity (in MW)	% w.r.t the total Category
Residential	2.27	1,73,035	917	0.76
Commercial	0.22	23,383	379	1.05
Industrial	0.04	6,732	957	1.6
Other	0.52	8,990	332	0.17
Grand Total	3.05	2,12,140	2585	0.69

as of November 2024

- [Cumulative progress](#) so far - ~ 0.69 %
- Upward trend in RTS progress
- PM Suryaghar Yojna will attract at large residential consumers
- DISCOMs need to address challenges of grid security and revenue management while promoting RTS as high value consumers are opting for RTS

- MSEDCL set target of installing RTS on 20 lakh household i.e. around 9% of residential consumers.
- The progress of RTS in MSEDCL, Maharashtra 212140 nos & RE capacity 2585.36 MW upto Nov-24
- PM Surya Ghar: MBY progress 59790 nos & RE capacity 237.82 MW achieved upto Nov-24.
- Cumulative progress so far achieved 0.76 % considering all schemes.
- 100% Solarization of 100 villages: Saur Gram Yojana

Challenges in scaling up of rooftop solar

- 1 **Creating awareness** among the consumer
- 2 Creating **large vendor database** to reach last consumer
- 3 **Training to vendors** to develop skills among them
- 4 Making available **low interest rate loan** with the help of bank to needful consumer
- 5 Making **web portal & mobile app** user friendly
- 6 Adoption of **simplified procedure for RTS** application to commissioning of RTS plant
- 7 **Remove bottleneck** affecting progress of RTS

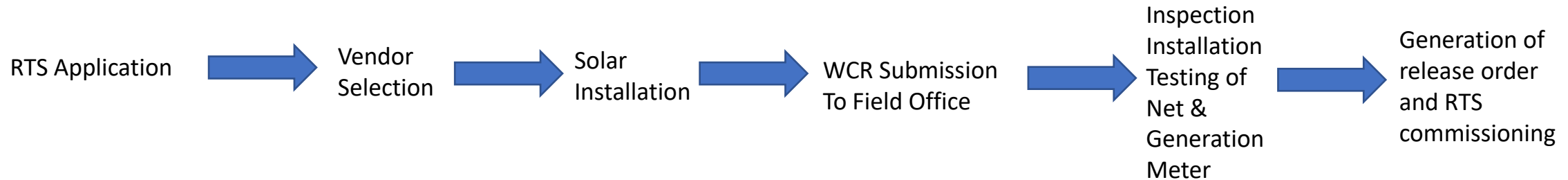
- Celebrated 15th August as **SAUR GRAM DIN** under state of Maharashtra.
- Selected 100 villages throughout all circle offices under MSEDCL for **100% solarization**
- **Manyachi Wadi & Tekwade** village declared as Solar Village.
- **Explore all possibilities** for 100% solarization such as:
 - DPDC fund from local bodies.
 - CSR funds from Companies under MSEDCL.
 - Campaign with Bank officials to make available loan @ low interest rate.



- Total **1,800 vendors empaneled** on National Portal for Maharashtra
- **Training schedule** in co-ordination with **MITCON Institute** appointed by MNRE
- In-Charge of Small Training centers trained **to train MSEDCL's staff**
- All changes as per **MoP guidelines** implemented such as:
 - Deemed approval to RTS having PV capacity up to 10 KW & Deemed approval for 10 KW above, if no action within 15 days
 - Auto creation of RTS & additional load applications and processing thereof further
 - Real time updating of additional load and Change of name
 - One time payment of Registration Fees, additional load estimate charges etc.
 - Complete Integration with National portal by implementing bidirectional API
 - Solar Net Meter provided by MSEDCL
 - Bulk testing / on site testing of Generation meter for minimizing delay implemented

Apart from above implemented “Faceless & Paperless” initiative to accelerate RTS progress under PMSGMBY

Process for RTS Application by Consumer & Commissioning



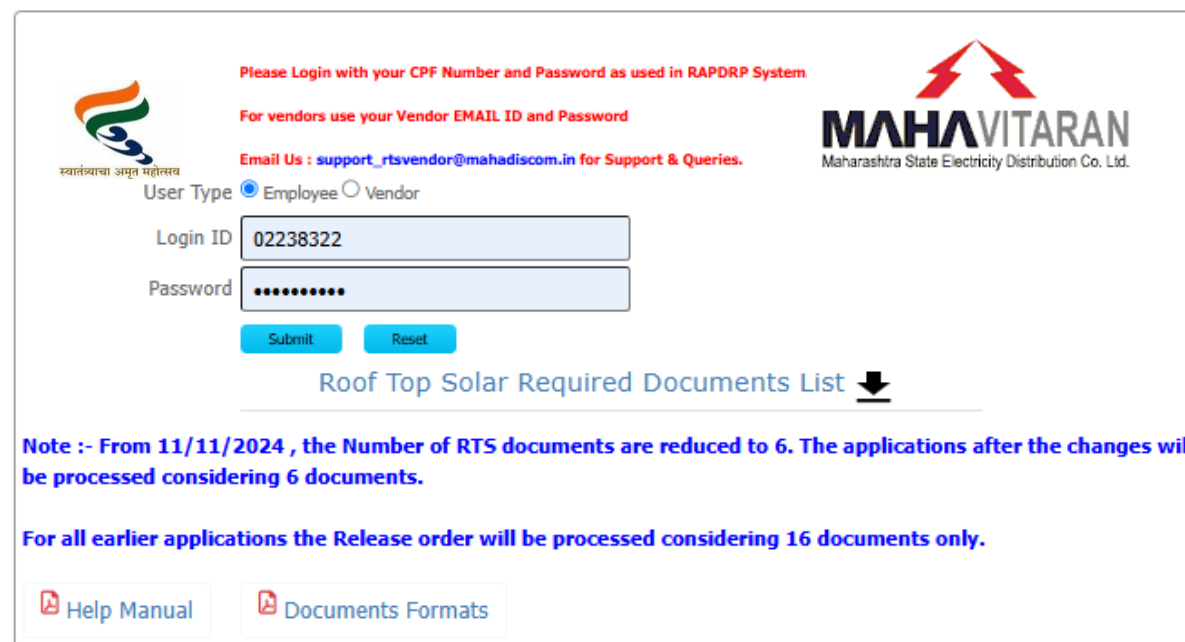
- Time taken for the complete process : 30-35 days
- Time for WCR submission to RTS commissioning : 10-15 days.
- The physical movement of documents incurred above delay.

Vendor & Employee portal deployed which reduced the time for RTS installation up to only 3 days

Modality of RTS Vendor & Employee Portal

- Separate login credential created for empaneled vendors on Utility Portal
- Vendor uploads the documents as per prescribed format on portal
- Verifying officer will check and approve/reject documents (with reasons)
- Re-check by the approving officer to approve/reject documents
- System generated release order for RTS commissioning forwarded to Section Officer, Consumer, Vendor and Solar net meter providing agency (AMISP)
- Real time updates on the portal for the vendor & employee regarding progress of individual application
- Time stamping observed for both of Employee & Vendor

RTS Vendor & Employee Portal



Please Login with your CPF Number and Password as used in RAPDRP System


For vendors use your Vendor EMAIL ID and Password

Email Us : support_rtsvendor@mahadiscom.in for Support & Queries.

User Type ☒ Employee ☐ Vendor

Login ID

Password

[Roof Top Solar Required Documents List](#) 

Note :- From 11/11/2024 , the Number of RTS documents are reduced to 6. The applications after the changes will be processed considering 6 documents.

For all earlier applications the Release order will be processed considering 16 documents only.

[Help Manual](#) [Documents Formats](#)

Reducing process time for energization of RTS is possible through IT interventions

Simplified process will help in proliferation of RTS systems

Innovative solutions required to meet the ambitious target

IMPACTS

- **Voltage quality:** Increased penetration of rooftop solar panels can cause voltage fluctuations, voltage unbalance, and overvoltage.
- **Power quality:** Variations in power factor, harmonics, and system frequency can affect power quality.
- **Reverse power flow:** High penetration of rooftop solar panels can cause reverse power flow.
- **Inverter disconnections:** Voltage limit violations can cause inverter disconnections.
- **PV curtailments:** PV curtailments can cause significant financial loss.
- **Fault current:** A 10% penetration of PV can increase fault current in the grid by 20%.
- Non-solar customers are also affected by the high rooftop solar PV penetration because of the solar customers in the same feeder.

Remedy

- **Modernize and expand grid infrastructure**

Upgrading transmission lines and distribution networks can help manage solar output variability and prevent voltage fluctuations.

- **Use smart grid technologies**

Smart grids use advanced communication and control systems to monitor and optimize electricity flow in real time.

- **Enhance grid resiliency**

Invest in grid hardening measures, deploy micro grids, and develop contingency plans for disaster recovery.

- **Use innovative control methods**

Use innovative methods to control on-load tap changers (OLTCs) to plan active power management, reduce energy consumption, or keep the voltage within certain limits.

- **Use a static synchronous stabilizer (STATCOM)**

Use a STATCOM to control the reactive power in the mains and regulate the voltage.

- **Use of IGBT technique for PF Control**

ORGANIZER

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India Smart Grid Forum



**DISTRIBUTION
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DUM 2024**

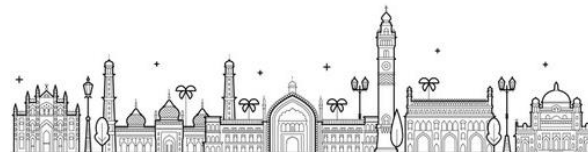
THANK YOU

For discussions/suggestions/queries email: dum@indiasmartgrid.org

www.dumindia.in

[Links/References \(If any\)](#)

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BACKUP SLIDES

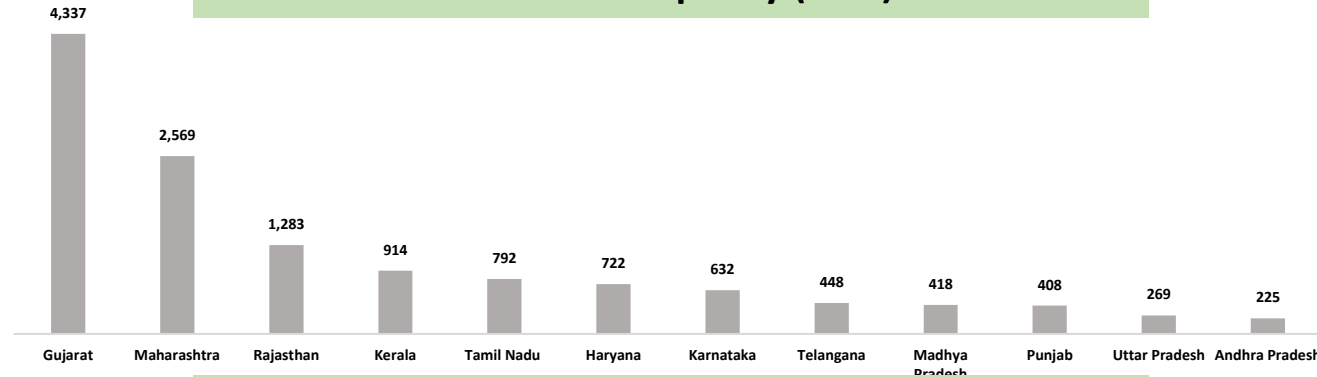
Scheme wise RTS released as on 11.11.2024

Sr. No.	Category	Nos	RE Capacity (MW)
1	PM-Suryaghar Muft Bijli Yojna	59,790	238
2	National Portal	38,933	188
3	MNRE-RTS-Phase -II-subsidy-25 MW	651	3
4	MNRE-RTS-Phase -II- subsidy - 50 MW	6,874	32
5	Subsidized total (1 to 4)	1,06,248	461
6	Regular non subsidize	1,05,892	2,125
7	Grand total (5+6)	2,12,140	2,585

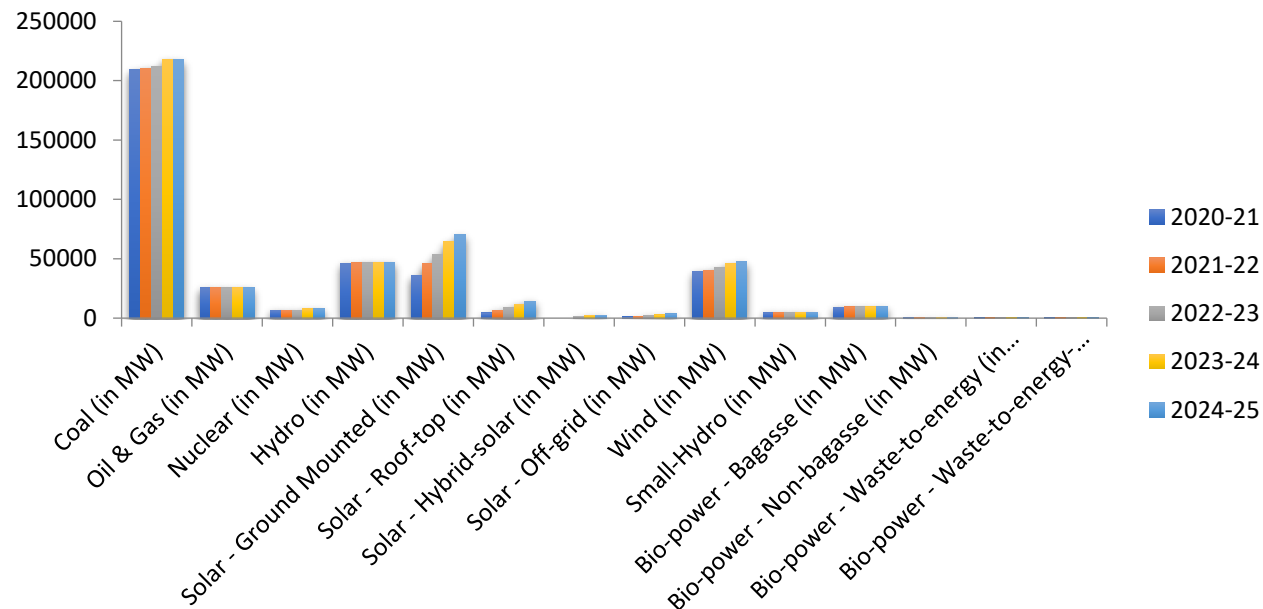


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Fossil & Non Fossil Generation Capacity



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