UPNEDA RMI

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Scaling Rooftop Solar in India

Driving PM Surya Ghar Yojana* in Varanasi

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Varanasi, a key district in India's most populous state of Uttar Pradesh (UP), has been performing exceptionally under the PM Surya Ghar Muft Bijli Yojana — the government program to provide low-cost solar electricity to households in India launched in February 2024. As of December 2024, more than 60,000 residents have registered and the number of rooftop solar (RTS) systems installed in the city increased more than 15 times to nearly 10,000 in less than a year under the program. Varanasi aims to solarize 75,000 households under the PM Surya Ghar Program.

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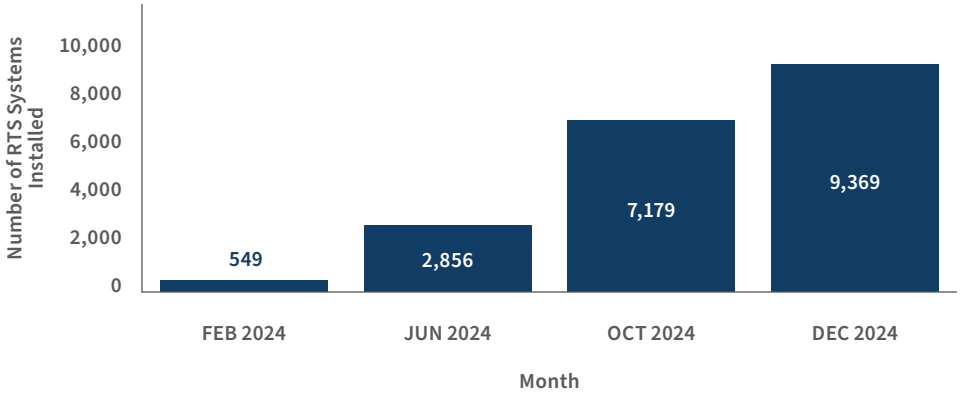
* "Yojana" is a Hindi word that implies a scheme or program, often government-led.

Background

The PM Surya Ghar Program is aimed at solarizing 10 million households, making it the Government of India's (GoI) most ambitious program for promoting RTS thus far. The program offers households a capital subsidy of over 50% for RTS systems up to a capacity of 3 kW. UP offers an additional state subsidy of ₹15,000 (US$178) per kW up to 2 kW for households. Hence, consumers deploying RTS systems up to 3 kW in UP are eligible for a capital subsidy of over 60% — the highest offered by any Indian state.

Exhibit 1 **Nearly 10,000 households in Varanasi have rooftop solar under the PM Surya Ghar Program**



Source: UPNEDA

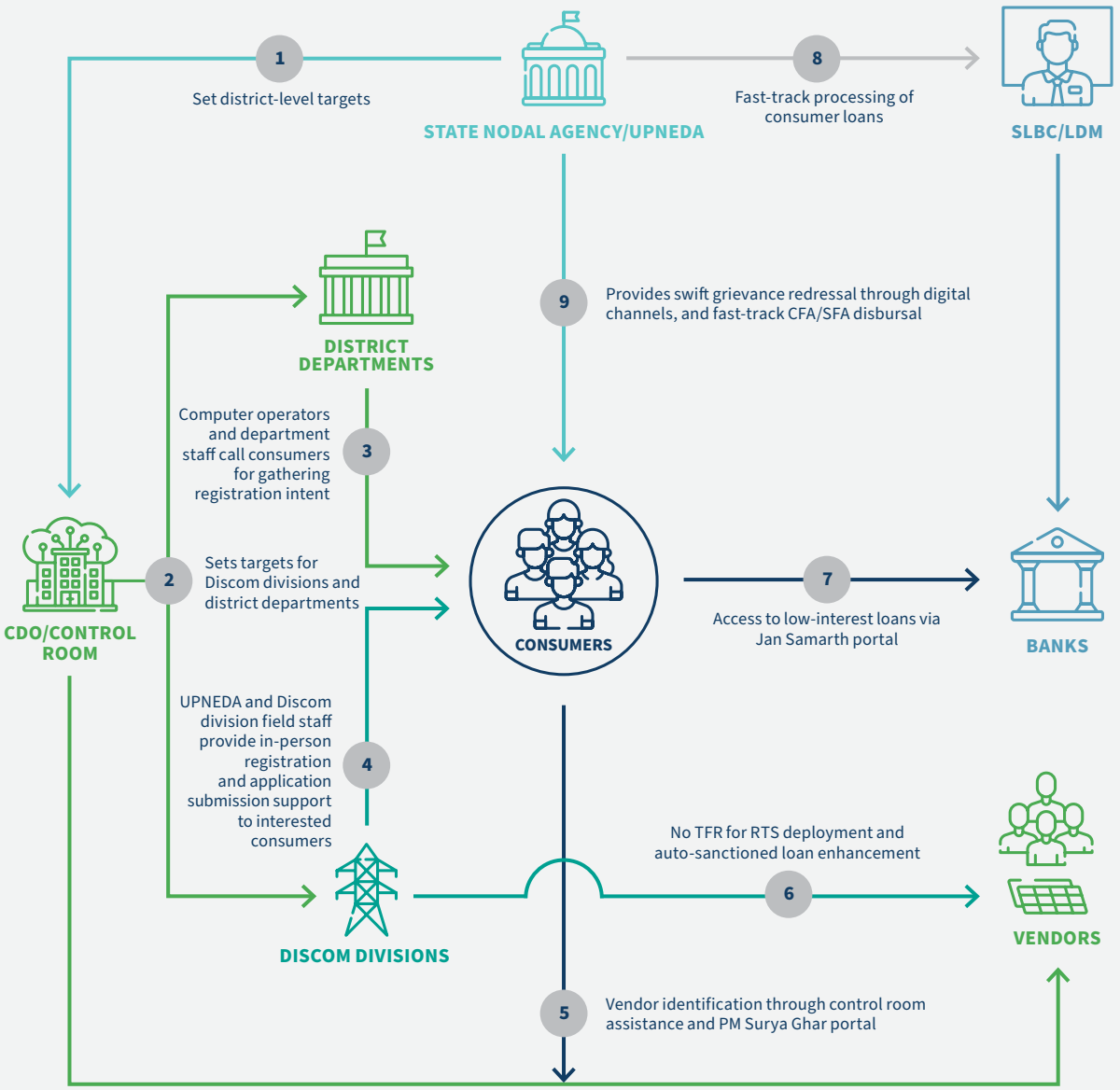
Following the launch of the PM Surya Ghar Program, UP New Energy Development Agency (UPNEDA) — the State Nodal Agency (SNA) for renewable energy — announced its goal to solarize 2.5 million households and set ambitious targets for each district within the state. Since then, Varanasi has made notable progress under the PM Surya Ghar Program, achieving the second highest deployment of RTS systems across districts in UP.

Varanasi's deployment model can be credited to the coordinated efforts of state, district, and city administrations, which collectively mobilized resources and implemented innovative initiatives to streamline RTS adoption in the district. This case study distils the Varanasi model, highlighting the best practices developed by the district that can be adopted by other districts and states across India.

The Varanasi Model

Exhibit 2 below entails the key initiatives undertaken by various stakeholders operating at the state and district levels to implement the PM Surya Ghar Program under the Varanasi model.

Exhibit 2 Innovations and best practices of the Varanasi model



CFA: Central Financial Assistance | **SFA:** State Financial Assistance | **TFR:** Technical Feasibility Report

These initiatives can be distributed across four major categories highlighted below:

1. Setting targets and monitoring progress

a. The chief development officer (CDO) of Varanasi assigns residential RTS deployment targets to each division of the Purvanchal Vidyut Vitaran Nigam Limited (PUVVNL) Discom in Varanasi district and every government department functioning in the district.

b. Project officers (POs) from UPNEDA are deployed in the district to oversee efforts in Discom divisions and assigned a daily target for registrations and application submissions. Under this division-wise approach, UPNEDA established a control room in the CDO's office with dedicated computer operators. The computer operators and the "1912" call center teams of PUVVNL connected with consumers in different Discom divisions to gauge their interest in the PM Surya Ghar Program and assisted interested consumers with registration.[i]

c. Government departments in the district delegate their targets across levels (blocks, villages) to gauge consumer interest.

d. UPNEDA's local team takes stock of progress via frequent video conferencing with vendors and nodal officials appointed for grievance redressal by PUVVNL and REC. The CDO attends these calls on a weekly basis to monitor the progress and identify and resolve bottlenecks.

e. UPNEDA computer operators frequently connect with active vendors in the district to assess the status of ongoing projects. This information is compiled and shared with UPNEDA.

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i. In India, the telephone number 1912 is specifically allotted to electricity call centers for handling power supply-related complaints.

2. Enhancing consumer outreach and support

a. After compiling the information on interested consumers, UPNEDA computer operators deployed in the field follow up with these consumers via calls to assist them with application submission. These computer operators are assigned a daily target for application submission.

b. UPNEDA POs, along with the Discom's junior engineers (JEs) and field staff such as meter readers and lineworkers, visit interested consumers in person and assist them with registration or application submission on the PM Surya Ghar portal.

c. These efforts are aided by UPNEDA's district-wide consumer awareness campaign to stem information asymmetry with implementation support from the district administration and municipal corporation. Various communication channels are utilized for this purpose:

- **i.** A vehicle/mobile information hub called the "Surya Rath" provides details of the benefits a customer gets under the UP Solar Policy 2022 and the PM Surya Ghar Yojana.
- **ii.** Door-to-door campaigns, pamphlet distribution, billboards at busy intersections with high foot traffic, and advertisement posters on autos and battery rickshaws.
- **iii.** Vendor canopies in different Discom divisions, sub-stations and wards for registration, and consumer registration mega camps through Discom and post-office staff for increasing registrations.

d. Provision of ₹100,000 (US$1,184) to all municipal councils and ₹50,000 (US$592) to all municipalities across districts for information, education, and communication activities on RTS.

3. Engaging vendors and banking institutions

a. UPNEDA's focused efforts to expand the vendor base are aimed at enabling rapid RTS deployment across the state and generating employment. Through vendor empanelment initiatives, the state's vendor base more than doubled from about 450 to over 1,000 in the past six months. These vendors are registered under the PM Surya Ghar portal, leading to an increased number of active vendors in Varanasi district and rapid rollout for households registered on the PM Surya Ghar portal.

b. UPNEDA also engaged the state-level banking committee (SLBC) to mobilize relevant stakeholders in the district to ease availability of finance for consumers. Notably, the SLBC worked with Varanasi's lead district manager (LDM) to ensure that individual bank relationship managers understand the provisions under the PM Surya Ghar Program and the work required herein to support consumers.

4. Streamlining processes and grievance redressal

a. UPNEDA highlighted the role of the Jan Samarth portal — a national portal for credit-linked government programs where consumers can access low-interest loans to purchase RTS systems. After submitting their applications on the PM Surya Ghar portal, consumers requiring loans must apply on the Jan Samarth portal. Consumer and vendor details are fetched from the PM Surya Ghar portal, and the approved loan is disbursed directly in the respective vendor's account.

b. Through SLBC, UPNEDA also liaised with banks to minimise the documentation required for loans of up to ₹200,000 (US$2,368) and exempt such consumers from any collateral requirement. This significantly fast-tracked the process of loan approval.

c. Households with capital cost constraints can easily adopt and benefit from this program. This is because they can purchase an RTS system with a 10% down payment, as the central and state subsidy covers 60% of the RTS cost and banks provide the remaining 30% as a loan for the system. Challenges in loan disbursal are monitored by the LDM and UPNEDA to ease consumer concerns.

d. UPNEDA also expedited state financial assistance (SFA) disbursal and conducts periodic follow-ups with the respective central agencies on the central subsidy disbursal. It also flags the technical hurdles faced by stakeholders on the PM Surya Ghar portal.

e. PUVVNL accelerates the RTS installation process by exempting technical feasibility reports (TFR) for systems up to 10 kW and enhancing the sanctioned load for consumers at no cost if the RTS system size is greater than the sanctioned load. In addition, the Discom has eliminated meter testing at its facility by making manufacturing test certificates an acceptable marker for quality.

f. The managing director of PUVVNL has directed its officials (SDOs, JEs, and lineworkers) to address vendor grievances. Vendors can contact UPNEDA's Varanasi team for resolution on pending cases. This not only fast-tracked the commissioning of RTS systems but also created an enabling ecosystem for vendors to operate in.

g. System bottlenecks faced by consumers are swiftly resolved through digital channels by relevant nodal officials from UPNEDA, Discoms, LDM, and REC Limited.

h. Consumers can reach out to UPNEDA on the state-wide solar-related grievance redressal Solar Samadhan portal.

The successful implementation of the Varanasi model has boosted the PM Surya Ghar scheme and the state's solar policy targets. By replicating the model across UP, the state can boost its progress in solarizing 2.5 million households. The Varanasi model sets an example of effective collaboration across state, district, and city administration with Discoms, vendors, banking institutions, and consumers. It serves as a blueprint that districts and cities across India can adopt to meet their respective renewable energy targets and help India meet its target to achieve 50% non-fossil fuel generation by 2030.

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