



RAMCO INSTITUTE OF TECHNOLOGY

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Department of Electrical and Electronics Engineering Energy Conservation Quality Circle and Industry - Institute Interaction Training Report

Name of the Training: Training of Trainers – Solar Roof Top Training Program for Vendors (PM Surya Ghar)
Date: 21.07.2025
Resource Person: 1. Mr. Srinivas Ethiraj, Assistant Manager (Energy Transition) Vasudha Foundation, Bangalore
2. Mr. Bala Ganesh, Senior Policy Officer (Climate Policy) Vasudha Foundation, Bangalore

Trainers for Vendor Program:

1. Dr. P. Prem, ASP – EEE
2. Mr. E. Thangam, AP-III / EEE
3. Mr. S. Meenakshisundaravel, AP(SG) – EEE
4. Dr. S. Jeyanthi, AP-III / EEE

Student Coordinators for Bootcamp:

1. Arulkumar U
2. Baskar G
3. Maheswaran P
4. Naveen Saravana Kumar B
5. Ravisankar M
6. Gokulakannan M

Report:

The resource person, Mr. Srinivas Ethiraj, explained the technical content to be taught in the vendor training. The details are given below:

Recommended Soft wares

PVsyst

- Used for in-depth simulation and performance prediction of PV systems.
- Helps vendors design optimal rooftop layouts, considering shading, orientation, and losses.
- Generates technical reports including energy yield, system losses, and financial analysis.

Google Earth Pro

- Used to assess rooftop availability, shading, and nearby obstructions using satellite imagery.
- Vendors use it for preliminary site feasibility without needing a physical visit.

- Helps estimate roof size and azimuth for planning panel placement and orientation.

PVWatts (by NREL)

- A free web-based tool that estimates solar energy production based on location and system size.
- Vendors use it to quickly assess expected energy output and economic returns.
- Useful for generating basic energy simulations during client consultations.

Google SketchUp

- A 3D modeling tool used to visualize rooftop solar panel layouts on buildings.
- Vendors use it to create realistic designs showing panel placement, tilt, and shadows.
- Helps in client presentations and for verifying physical fit before installation.

Also he explained the technical content as given below.

Introduction to Rooftop Solar PV Systems, Basics of solar energy and photovoltaic effect, Types of PV systems: Off-grid, On-grid, Hybrid, Components: PV modules, inverters, mounting structures, net meters

Site Assessment and Feasibility

Use of tools: PVsyst, Google Earth Pro, PVWatts, Google SketchUp, Roof orientation, tilt angle, shadow analysis, Load assessment and sizing the PV system based on consumption

System Design and Simulation

Designing string configuration and inverter sizing, Calculating energy yield and system losses, Preparing bill of materials (BOM), Software demo: Simulation with PVsyst and SketchUp models

Standards and Compliance

MNRE / BIS standards for solar equipment, ALMM and DCR compliance, Safety codes: IS/IEC standards, electrical safety, fire safety, DISCOM/TANGEDCO approvals and documentation

Installation Procedures

Pre-installation checklist (roof condition, electrical inspection), Mechanical installation of modules and mounting structure, Electrical wiring, earthing, and inverter connection, AC/DC cable routing, MCBs, SPD, junction boxes

Net Metering and Grid Synchronization

Understanding net metering policies in Tamil Nadu, Coordination with TANGEDCO for net meter approval, Synchronizing inverter with the grid and commissioning,

Testing, Commissioning, and Troubleshooting

Testing tools: multimeter, insulation tester, IV curve tracer, Functional tests: voltage, current, inverter sync, safety cut-off, Troubleshooting common issues: underperformance, grid faults, inverter errors

O&M and After-Sales Service

Routine inspection schedule and cleaning best practices, Remote monitoring using inverters and data loggers, Customer support, warranty handling, AMC contracts

Financial and Documentation Support

Cost estimation and subsidy calculation, Loan and EMI options for clients, Uploading documents on national portal for subsidy claims

Soft Skills and Client Engagement

Effective client communication and site presentation, preparing system handover documents and user manuals, Building trust for long-term service and referrals

The resource person, Mr. Bala Ganesh, explained the PM Surya Ghar Policy with respect to the state of Tamil Nadu. The details are given below:

Launch & Objective

- Launched on February 15, 2024, aiming to install rooftop solar systems on 1 crore homes nationwide

Subsidy Structure

- Rs. 30,000 per kW for 1 kW systems, Rs. 60,000 for 2 kW, and Rs. 78,000 maximum (3 kW+)

Eligibility

- Must be an Indian citizen, homeowner with a suitable rooftop, valid utility connection, and must not have availed any previous solar subsidy

Implementation Partners

- National-level by NPIA; state deliveries via DISCOMs/TANGEDCO in Tamil Nadu

Financial & Deployment Benefits

- Collateral-free loans up to ₹ 2 lakh at ~6.75% interest available from public sector banks
- Direct subsidy payment to bank accounts within ~15–30 days post-commissioning

Environmental Impact

- As of 10 March 2025: 10 lakh+ homes powered, 3 GW capacity installed, with ₹ 4,770 crore disbursed

Total Subsidy Examples:

1 kW	₹ 30,000
2 kW	₹ 60,000
3 kW +	₹ 78,000

Typical Costs After Subsidy (TN):

1 kW	₹ 40,000–80,000
2 kW	₹ 60,000–1,00,000
3 kW	₹ 92,000–1,32,000

Eligibility Requirements:

- Domestic electricity connection through TANGEDCO
- Use of DCR/ALMM-approved solar components
- Property and meter ownership align with applicant's name
- No previous central solar subsidy availed

Documents Needed:

- Aadhaar, proof of address, bank details (including canceled cheque)
- Structural certificate, site layout plan, latest electricity bill, NOC from TANGEDCO

Application Process

- Register via the national portal → select state DISCOM (e.g., TNPDC / TANGEDCO)
- TNEB Limited
- Portal login with OTP and details.
- Feasibility approval from TANGEDCO → choose an MNRE/TEDA-approved vendor.
- Installation & commissioning → net meter setup and inspection.
- Upload documents (bank account, cancelled cheque, commissioning certificate).
- Subsidy credited within ~30 days post-commissioning

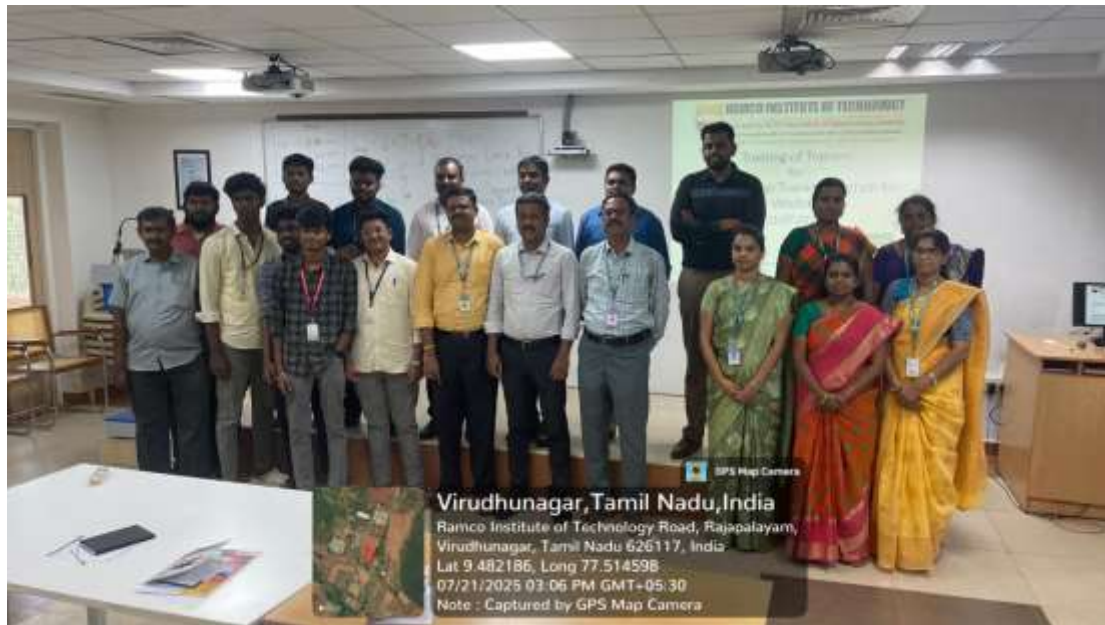
Progress in Tamil Nadu

- Target set: 2.5 million rooftop systems (Apr 2024 – Mar 2025).
- As of latest update: ~70,000 registrations, 18,000 applications submitted, and 13,000 installations completed.
- Indicates a gap in uptake, suggesting need for increased awareness and facilitation.

Summary

- Up-front subsidy: ₹ 30–78 k (central) + ₹ 20 k (state)
- Loan facility: ₹ 2 lakh at 7% interest
- Process: All online → national portal + DISCOM/vendor pathway
- Timeline: Subsidy within 15–30 days; system life expectancy 25+ years
- Current challenges: Low registration rate vs target—awareness needed

Photographs:





sd/-
Faculty Coordinator

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HoD – EEE

sd/-
Principal