

# Implementation of Government Schemes and Programmes

## 6.1 Suryamitra Skill Development Programme

Launched in 2015 by MNRE, the Suryamitra Skill Development Programme is a visionary initiative aimed at bridging the skill gap in the renewable energy sector, with a special focus on solar PV systems. This programme is designed to train technicians at the grassroots level in the design, installation, operation, maintenance, and repair of solar PV systems.

NISE has been entrusted with the responsibility of coordinating and implementing this programme, ensuring a structured and impactful training approach to support the rapid expansion of India's solar energy ecosystem.

### Achievements of the Suryamitra Programme

**Skilled Workforce Developed:** 60,685 individuals have successfully completed the training.

**Job Creation:** 30,386 trained Suryamitras have been placed in employment within the solar energy sector, reflecting a placement rate of approximately 50%.

**Nationwide Coverage:** Training has been delivered through a wide network of Training Partners/ Training Centers across the country, promoting regional inclusivity and accessibility.

### Implementation Strategy for FY 2025-26

The program has strategically decentralized Training Centers to extend its reach to rural and semi-urban areas, enabling local communities to actively participate in and benefit from the renewable energy transition. Currently, the initiative is operational across 30 states. In FY 2024–25, a total of 3,937 Suryamitras successfully completed their training, while training and assessment for 8,863 Suryamitras is currently underway for FY 2025–26.

**Table 6.1: Details of Employment Generated by NISE through the Suryamitra Skill Development Programme**

| Sl. No. | State                                       | Total No. of Suryamitra | Total No. of Placed |
|---------|---------------------------------------------|-------------------------|---------------------|
| 1       | Andaman and Nicobar Islands (UT)            | 0                       | 0                   |
| 2       | Andhra Pradesh                              | 2269                    | 1240                |
| 3       | Arunachal Pradesh (NER)                     | 60                      | 21                  |
| 4       | Assam (NER)                                 | 1650                    | 970                 |
| 5       | Bihar                                       | 2066                    | 1157                |
| 6       | Chandigarh (UT)                             | 291                     | 175                 |
| 7       | Chhattisgarh                                | 2357                    | 1240                |
| 8       | Dadra and Nagar Haveli and Daman & Diu (UT) | 0                       | 0                   |
| 9       | Delhi (UT)                                  | 702                     | 336                 |

| Sl. No.      | State                  | Total No. of Suryamitra | Total No. of Placed |
|--------------|------------------------|-------------------------|---------------------|
| 10           | Goa                    | 321                     | 202                 |
| 11           | Gujarat                | 3417                    | 2051                |
| 12           | Haryana                | 1649                    | 716                 |
| 13           | Himachal Pradesh       | 564                     | 182                 |
| 14           | Jammu and Kashmir (UT) | 1112                    | 293                 |
| 15           | Jharkhand              | 906                     | 487                 |
| 16           | Karnataka              | 2041                    | 870                 |
| 17           | Kerala                 | 1005                    | 561                 |
| 18           | Ladakh (UT)            | 30                      | 16                  |
| 19           | Lakshadweep (UT)       | 30                      | 0                   |
| 20           | Madhya Pradesh         | 5953                    | 2902                |
| 21           | Maharashtra            | 5118                    | 2655                |
| 22           | Manipur (NER)          | 150                     | 50                  |
| 23           | Meghalaya (NER)        | 30                      | 22                  |
| 24           | Mizoram (NER)          | 0                       | 0                   |
| 25           | Nagaland (NER)         | 60                      | 0                   |
| 26           | Odisha                 | 2867                    | 1234                |
| 27           | Puducherry (UT)        | 121                     | 61                  |
| 28           | Punjab                 | 642                     | 388                 |
| 29           | Rajasthan              | 4999                    | 2904                |
| 30           | Sikkim (NER)           | 0                       | 0                   |
| 31           | Tamil Nadu             | 4028                    | 2210                |
| 32           | Telangana              | 3897                    | 2214                |
| 33           | Tripura (NER)          | 208                     | 57                  |
| 34           | Uttar Pradesh          | 6430                    | 2366                |
| 35           | Uttarakhand            | 1150                    | 607                 |
| 36           | West Bengal            | 4562                    | 2199                |
| <b>Total</b> |                        | <b>60685</b>            | <b>30386</b>        |

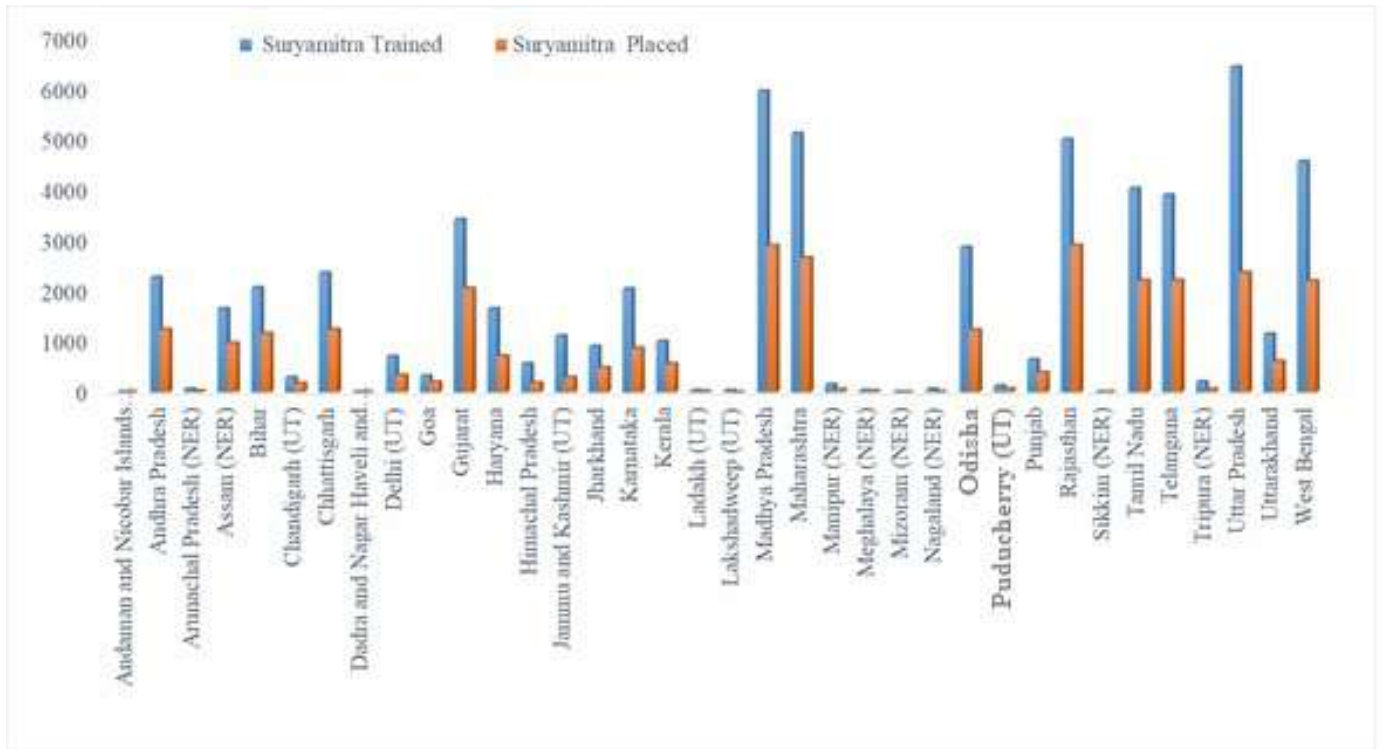
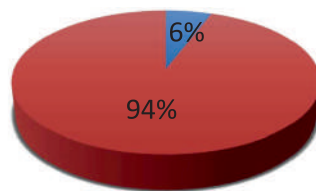
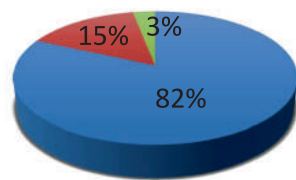


Figure 6.1. State-wise Graphical Overview of Trained and Placed Suryamitras

## FY 2015-16 to FY 2024-25

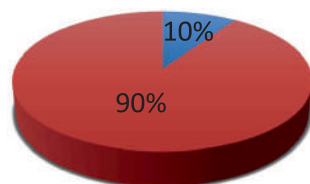


■ Female ■ Male

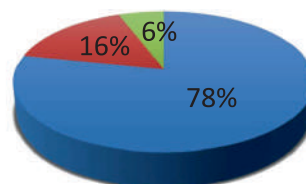


■ General ■ SC ■ ST

## FY 2024-25



■ Female ■ Male



■ General ■ SC ■ ST

Figure 6.2: Graphical representation of trained Suryamitras by Gender and Category



Figure 6.3 (a) Glimpse from various Suryamitra trainings



Figure 6.3 (b) Participants in the Networking Event with Suryamitra Training Partners, Solar PV Developers and EPCs

**Nationwide Reach:** To bridge the skill gap and enhance the employability of trained Suryamitras, a “Networking Event with Suryamitra Training Partners, Solar PV Developers, and EPCs” was held at NISE on 17<sup>th</sup> December 2024 (Figure 6.3(b)).

## 6.2 PM Surya Ghar: Muft Bijli Yojana – Workforce Development and Training Initiative

The Government of India’s approval of the PM Surya

Ghar: Muft Bijli Yojana on 29<sup>th</sup> February, 2024, marks a pivotal step in accelerating rooftop solar adoption in the residential sector. With a substantial budget allocation of ₹75,021 crore, the scheme aims to:

- **Enhance Rooftop Solar Capacity:** Expand the share of rooftop solar in India’s renewable energy mix.
- **Empower Households:** Enable families to generate their own electricity, reduce reliance on grid power, and promote energy independence.

## Skill Development for Solar Growth

To support the goals of the PM Surya Ghar initiative and meet the rising demand for a skilled solar workforce, NISE developed Upskilling and Reskilling training modules. These were officially approved by the MNRE on 9<sup>th</sup> October 2024, and are now being implemented nationwide.

This initiative spans all expertise levels from installers to supervisors ensuring regional inclusion and widespread access to solar training.

### Training Modules Approved by MNRE: Implementation Plan for FY 2025-26

#### 1. Solar PV Installers

- Target: 20,000 candidates
- Objective: Equip individuals with the skills to safely and efficiently install solar PV systems.
- SIDH Portal On-boarding: 10<sup>th</sup> February, 2025
- Status: A total of 200 Training Centers have been on-boarded on the SIDH portal, and 8 batches have successfully completed their training.

#### 2. Rooftop Solar Supervisors

- Target: 10,000 candidates
- Objective: Train professionals in project oversight, compliance, troubleshooting,

and effective management of rooftop installations.

- SIDH Portal On-boarding: Under Progress (Expected Jun 2025)

#### 3. On-the-Job Training (OJT) for Trained Installers/Suryamitras

- Target: 25,000 candidates
- Objective: Provide hands-on experience to previously trained installers, enhancing their practical skills for real-world scenarios.
- SIDH Portal On-boarding: Under Progress (Expected Jun 2025)

### Program Rollout and Capacity

- Training Centers Allotted: 405 across India for the three training modules.
- Total Training Capacity: 55,000 candidates targeted for workforce development in the rooftop solar sector.

### Expected Impact

- Skilled Workforce Development: Comprehensive training across multiple levels ensures a ready and capable solar workforce.
- National Accessibility: Training Centers enable regional inclusivity and broad reach.
- Support for National Solar Goals: Contributes to the government's target of 1 crore rooftop installations by ensuring skilled implementation.



Figure 6.4: Participants in the Master Trainers Training Programme

- **Employment Generation:** Creates significant job opportunities, empowering individuals to play an active role in India's clean energy transition.

During the year, NISE organized a Master Trainers Training Programme on Solar PV Installation for faculty members of the National Skill Training Institutes (NSTIs) from 24<sup>th</sup> to 25<sup>th</sup> June 2024 (Figure 6.4). The programme was conducted to enable the participants to carry out training activities under the PM Surya Ghar - Muft Bijli Yojana scheme.

### 6.3 Approved List of Models and Manufacturers

To ensure reliability of Solar PV products and

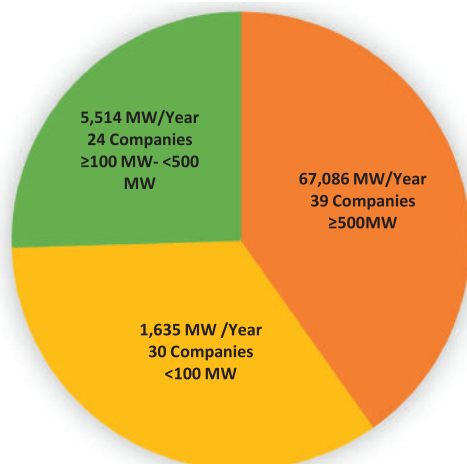


Figure 6.5: Capacity-wise distribution of ALMM listed module manufacturers (on 31<sup>st</sup> March 2025)

to protect the consumer interests and ensure better energy security of the country, MNRE on 02.01.2019, has issued “Approved List of Models and Manufacturers (ALMM)” of Solar Photovoltaic Modules (Requirements for Compulsory Registration) Order, 2019. The order provides for the enlistment of eligible models and manufacturers of solar PV cells and modules complying with the BIS Standards and publishes the same in a list called the “Approved List of Models and Manufacturers”. Only the models and manufacturers included in this list will be eligible for use in Government/ Government assisted Projects/Projects under Government Schemes & Program, installed in the country, including Projects setup for the sale of electricity to the Government. NISE has been designated as an implementation support agency for processing applications and carrying out inspections, verifications, and quality checks on behalf of MNRE.

During FY 2024-25, NISE conducted 131 ALMM inspections of various manufacturing plants against applications of New enlistment, Renewal, Model Addition, & Capacity Addition. During the FY 2024-25, NISE inspected a cumulative manufacturing capacity of 72.40 GW/Year.

As on 31<sup>st</sup> March 2025, a total of 93 manufacturing plants are enlisted in ALMM with a total installed manufacturing capacity of 74.23 GW/Year.



Figure 6.6: Glimpse from ALMM Factory Inspections

## 6.4 Production Linked Incentive (PLI) Scheme: National Programme on High Efficiency Solar PV Modules

Solar Energy Corporation of India (SECI) is the implementing agency for Setting up Manufacturing Capacities for High Efficiency Solar PV Modules in India under the Production Linked Incentive Scheme (PLI Tranche-II). NISE extends technical support to SECI for qualitative & testing requirements under Production Linked Incentive Scheme (Tranche-II) which includes, throughput assessment, Commissioning Checks, testing of Module Efficiency and Temperature Coefficient as per relevant BIS/IEC standards. In 2024-25, NISE has also hosted a technical workshop to disseminate the various technical resources and information's related to the implementation of the PLI project. The workshop was attended by representatives from SECI, and representatives from manufacturers identified under PLI (Tranche II).

## 6.5 National Green Hydrogen Mission Testing Scheme

NISE is the Scheme Implementing Agency (SIA) for the National Green Hydrogen Mission (NGHM) Testing Scheme notified by MNRE on 04<sup>th</sup> July 2024, titled "Funding of testing facilities, infrastructure, and institutional support for development of Standards and Regulatory framework under the

National Green Hydrogen Mission," with a total cost outlay of Rs 200 crores for 2024-2026. As the SIA, NISE, on 15<sup>th</sup> August 2024 floated a Call for Proposal (CfP) seeking Proposals for upgradation or setting up of new testing facilities for components, technologies and processes being used in the value chain of Green Hydrogen and its derivatives. A total of 43 Proposals were received at NISE and were scrutinized according to the Scheme guidelines for further evaluation by MNRE. As on 31<sup>st</sup> March 2025, three Proposals were approved and the remaining are under evaluation.

## 6.6 PM-KUSUM Scheme - Inclusion of Solar-Based Reciprocating Pumps

As part of efforts to expand the scope of the PM-KUSUM Scheme's Innovative Solar Pumping Program, NISE has aligned its initiatives with MNRE's latest specifications and testing guidelines issued on 22<sup>nd</sup> March 2023, which now include positive displacement (reciprocating/piston) pumps. This marks a significant step toward diversifying pump technologies under the scheme and enhancing efficiency across varied irrigation scenarios.

### Key Updates in the Draft Guidelines:

1. The SPV pump controller must have IP68 protection (or be housed in a cabinet with IP68 protection) for submersible applications—an upgrade over the IP65 requirement for centrifugal pumps.

**Table 6.2: Details of Proposals approved under NGHM Testing Scheme as on 31<sup>st</sup> March 2025**

| Sl. No. | Institution Name                                                | Type of Testing   | Testing Title                                                                                                         | Approved Fund  |
|---------|-----------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|----------------|
| 1       | Bharat Heavy Electricals Ltd. (BHEL)                            | New Test Facility | Development of Test Facility for PEM Fuel Cells                                                                       | ₹ 30 Crores    |
| 2       | Gujarat Energy Research and Management Institute (GERMI)        | New Test Facility | Establishing a Centre of Excellence in Hydrogen Testing                                                               | ₹ 26.96 Crores |
| 3       | Sardar Swaran Singh National Institute of Bio Energy (SSS NIBE) | New Test Facility | Establishing a Hydrogen Purity Testing Laboratory at Sardar Swaran Singh National Institute of Bio-Energy, Kapurthala | ₹ 5.08 Crores  |

2. Indicative technical specifications for solar deep well submersible positive displacement pumps are outlined below:

**Table 6.3: Indicative PV Array Capacity Comparison**

| Sl. No. | Pump Capacity (hp) | PV Array – Reciprocating ( $W_p$ ) | PV Array – Centrifugal ( $W_p$ ) |
|---------|--------------------|------------------------------------|----------------------------------|
| 1       | 3 hp               | 2100                               | 3000                             |
| 2       | 5 hp               | 3300                               | 4800                             |
| 3       | 7.5 hp             | 4500                               | 6750                             |
| 4       | 10 hp              | 6300                               | 9000                             |

**Field Visit Observations:**

- A total of 8 field sites were visited in Mysore.
- Systems have been operational for over 2 years.
- Used for multiple purposes: drip irrigation, flood irrigation and sprinkler
- Operated efficiently even at low irradiance levels ( $160 \text{ W/m}^2$ ).
- No major O&M issues reported by users and field staff.

