

PV Port & Store

Managing Procurement, Supply and Commissioning Along With Performance and Upscaling Field Test for Up-To 40 PV Port Pilot with Selected Indian DISCOM/Agencies

New Delhi, 15th July 2020



Implemented by



In cooperation with:



PV Port & Store for Grid connected Solar Rooftop (GCRT)

To achieve 40 MW targets for GCRT in the country

- Government of India through its Nodal Ministry MNRE has observed that the advantage of solar rooftop is when the installation have happened in premises of residential household consumer
- Solar is distributed across the network of distribution company
- Standardized GCRT solution should be available to address the concerns of consumer
- Demand Management for DISCOM is catered through Solar Rooftop Solutions

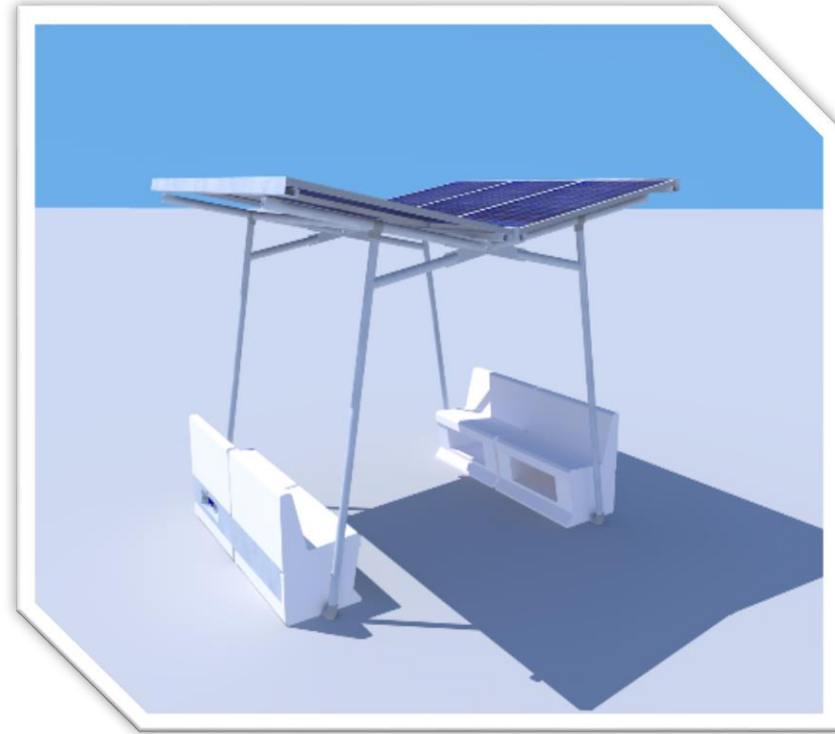
Address the Challenges

- **“PV Port & Store” – Portable – Grid Interactive Plug n Play Solar Rooftop System**
- **New custom designed Solar Rooftop System**
 - Residential load applications within consumer premises
 - Provide Maximum saving on Electricity Bill
 - High Quality of the System with Good performance
 - Provide Easy transportation & assemble without any installation & civil Work
 - No Net metering process
 - Develop Public awareness & interest for consumers



PV Port & Store

- PV Port & Store is a 2 kWp DC capacity (solar) with battery storage (Lead Acid & Li-ion) designed for 100% self-consumption with no power being fed back to the Grid.
- 1st Portable Solar Rooftop System in India which is primarily designed for residential consumers.
- The entire system can be assembled and can be made fully operational within 1 day.
- It comes in boxes which has simplified the transport and can be assembled easily without the need of rewiring and civil work.
- Area under the PV Port is usable as compared to conventional PV system
- 100 % Self-Consumption similar to conventional UPS System
- 5 years warranty on the Entire system
- Withstand 200 km/h wind (cyclones) without fixed connection to the house terrace



PV Port & Store System

End User Benefits

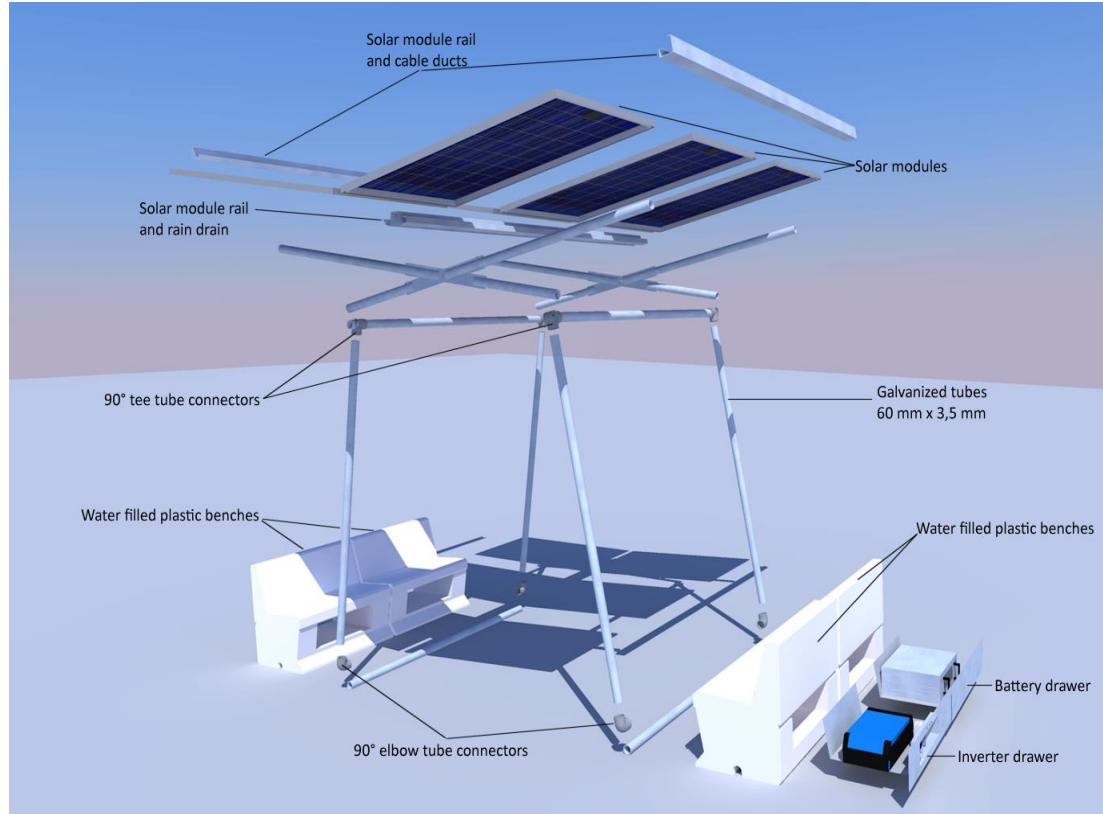
Features	PV-Port	Traditional system
Type of Installation	Portable	Fixed
Installation time	3 Days	45-90 Days
Interconnection with grid	Direct Plug into 16 Amp socket	Separate Electrical wiring
Back-up power	Critical load can work during Grid outage #	No backup power
Permission required from DISCOMs	Not required	Required
Meter	No change in meter required	Net meter (Bi-directional)
Cleaning	Self-cleaning (Sprinkler)	Manual cleaning
Space required for installation	10 sq. m	20 sq. m
System Quality	Standardized Quality	Quality not assured
Monitoring & Communication	Through PV Port App	Net monitoring or Manual

Backup support not applicable for version 1

PV Port & Store Version

PV Port Version	Description			Backup Loads
	Solar Module (in W)	Battery (in kWh)	Battery Technology	
1	2100	0	No Battery	None
2	2100	2.4	Lead Acid (1.2 kWh useable) Battery Life – 2-3 years	Fans and lights
3	2100	4.8	Lead Acid (2.4 kWh useable) Battery Life – 2-3 years	Fans and lights
4	2100	2.4	Lithium Ferro Phosphate (2.2 kWh useable), Battery Life – 7-10 years	Lights, Fans, Refrigerator, AC, etc.
5	2100	4.8	Lithium Ferro Phosphate (4.3 kWh useable) Battery Life – 7-10 years	Lights, Fans, Refrigerator, AC, etc.

PV Port & Store Exploded View



Project Implementation

Objectives

To meet the objective for specific conditions & requirements by GIZ in India
GIZ has planned to hire an Engineering consultant firm for end to end services

- To reduce the risk associated with the quality of product manufactured by vendors
- To provide easy transportation and assembling
- To select suitable customer
- Performance evaluation (Field Testing) of Indian manufactured System
- PV port portal and Mobile app is being developed concurrently
- For Implementation of training of Qualified Suryamitra for installation of solar rooftop system

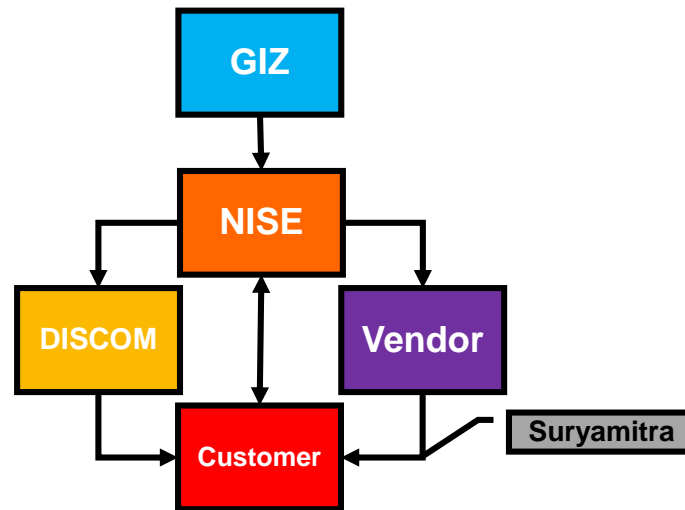


Project Implementation

Steps for Implementation – Role of NISE

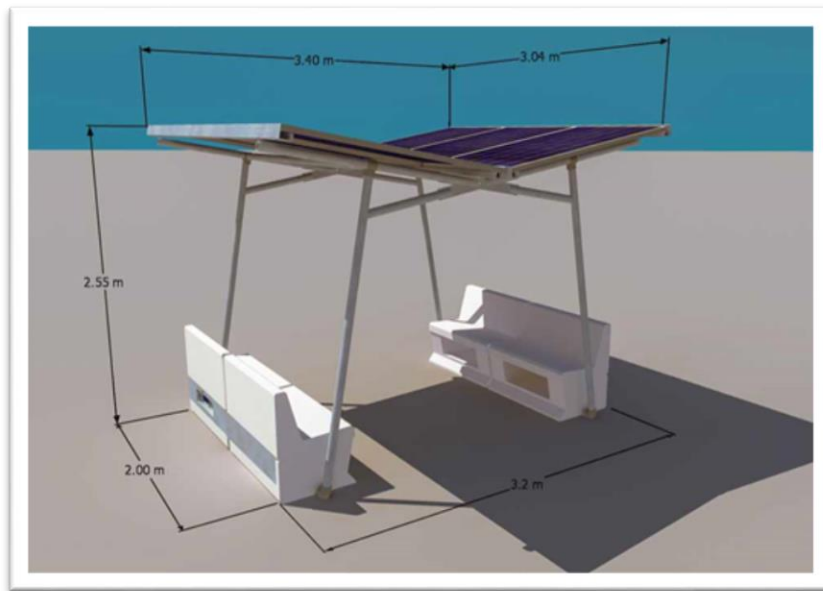
National Institute of Solar Energy (NISE) – Selected as Consultancy Firm for End Services & the major roles and steps for implementation of this project are:

1. Validation of Design
2. Monitor the Process of Manufacturing
3. Field test of PV Port
4. Training of Suryamitra for Site Survey of customers & assembling of PV Port
5. Selection of residential consumers who are willing to participate in the pilot
6. Transportation of PV Port to the consumer premises
7. Performance monitoring of PV Port under actual field condition
8. Support in operationalising of PV Port portal & App – coordinating the process among vendor, customer, Suryamitra.
9. Cost Discovery of PV Port according to the Indian Market Scenario & Upscaling report of PV Port System



Aggregating the demand of PV Port & Store for Upscaling

1. Develop an optimised version of PV Port & Store with high quality
2. Liaison with implementing agencies like DISCOMs/SNA/other agency for developing the upscaling concept of PV Port
3. Provision of Central Financial Assistance (CFA) by MNRE under Solar Rooftop Programme
4. Selection of Vendors
5. Training of 1000 Suryamitra for PV Port & Store Installation
6. Registration of Consumers, Suryamitra, vendors through Online Portal



Suitable Selection of Consumer with Suitable PV Port Version

➤ Online registration - www.home-pv.com



Parameter	Description
Type of accommodation/ premises	<ul style="list-style-type: none">- Individual households- Consumers living in an apartment with access to rooftop, excluding group housing societies
Ownership status	Self-owned or rented
Profession/industry	<ul style="list-style-type: none">- Service class preferable- DISCOM and other sectors related to electricity/Solar preferred
Average monthly energy consumption	400 to 800 units
CA No.	CA number should be registered to the consumer
Connected Load	Up to 6 kW
Electricity Meter	Smart meters preferred
Connection Type	Single phase (preferred) or three phase
Consumption pattern	For version 1: Minimum day load of 1.5kW; No night load For versions 2 to 5: Ideal load of 2-3 kW along with night loads

Feasibility Study

Parameters	Description
Installation site	<ul style="list-style-type: none">• Flat RCC terrace or garden/flat surface• Shadow free area• Available installation area of 3x3 m• Availability of an electrical connection near installation location• Ease of access
Age of building	For rooftop installation, the age of the building or premises should be less than 25 years to ensure structural integrity of the roof
Electrical wiring	<p>The electrical wiring in the premises should be proper with the following</p> <ul style="list-style-type: none">• Easily identifiable wiring,• Functional fuses & MCBs• Provision of suitable Earthing• Incase of backup loads, presence of existing parallel backup loads wiring• Distance between installation site and premises distribution board to be less than 30 meters

Saur Swavlambhi Scheme

- **Discount Scheme @ First Serve Basis**
- **Opportunity to the consumers to own the PV Port & Store system at a reasonable price under Pilot Implementation**
- **The Scheme provides financial assistance for purchase of this product within a short period from the date of Installation of product**
 - **Purchase within 1-3 months @ 80 % Discount**
 - **Purchase within 3-6 months @ 70 % Discount**
 - **Purchase within 6-12 months @ 50 % Discount**
- **The PV Port systems that are available to the consumers are currently under the ownership of MNRE.**



***Months for Purchase is calculated from the Date of Installation of PV Port in Consumer premises**

Terms and Conditions:

1. PV Port System is installed under the ownership of MNRE and assets may be transferred as per MNRE terms and conditions.
2. The Discount is applicable on the total cost of the system.

PV Port & Store Project Focus

Benefits

- Standardised plug n power Solar Rooftop grid interactive photovoltaic System – Low Cost Solution for every consumer
- PV Port & Store system is an indigenous clean technology product for Residential sector – Domestic Manufacturing
- Demand aggregation of Grid connected Solar Rooftop Programme

Technical

- High Quality with Good Performance
- Easy to Transport & Install
- Safety Compliance
- IEC/BIS Certified
- Appealing Design
- Efficient Electronics

Capacity Building

- Training of Qualified Suryamitras for Installation of PV Port System
- Public Awareness
- Skill Development
- Employment Opportunities
- Develop Entrepreneur

Support Infrastructure/ Finance

- Demand Side Management Functionality
- Peak Shaving
- Business Model for State wise Implementation & Scale up for Economic upgrade
- Good technology Investment with technology transfer





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Implemented by



In cooperation with:



**German Chancellor Angela Merkel visits solar PV project sites supported by GIZ
(Location: Dwarka Sec 21_November 2019)**