

Rooftop Solar Power Project

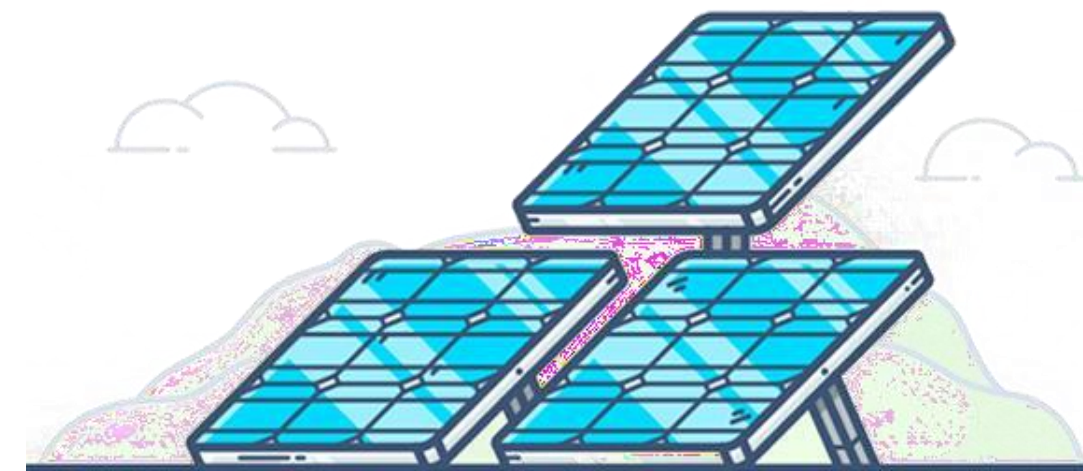


EPC - Turnkey Solar Projects

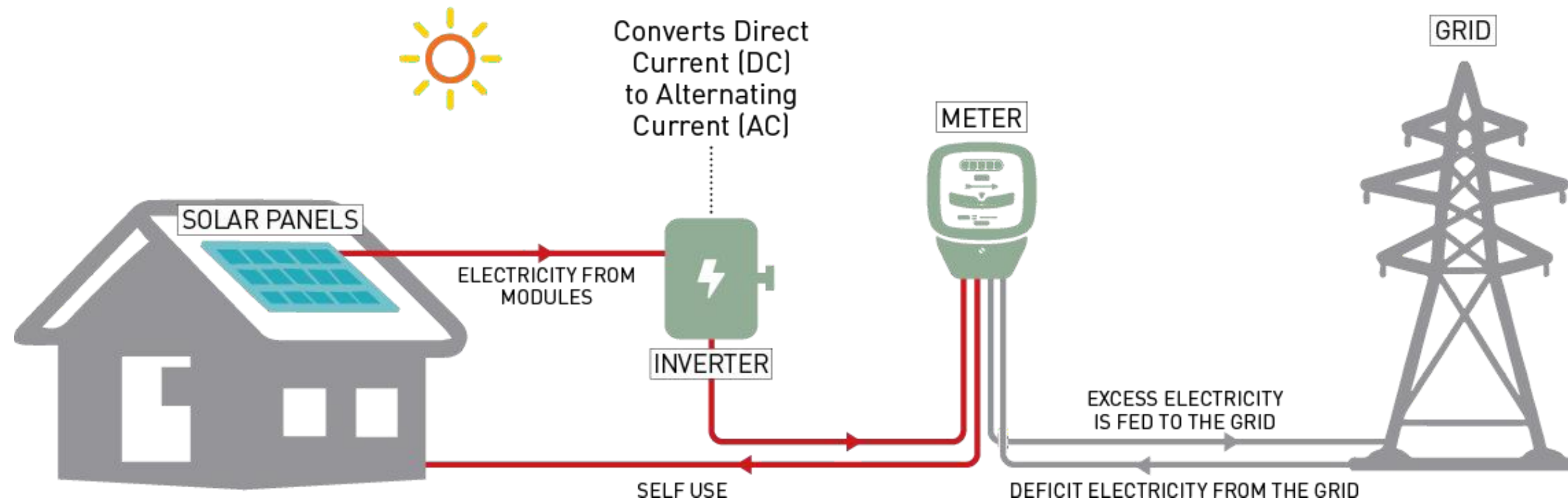
Our projects spread across North India and our wide-ranged EPC experience in building solar plants in difficult terrains, high altitudes, areas is testimony to our prowess in the domain. Our involvement ranges from concept, engineering, execution and commissioning, to operations and maintenance of completed solar array systems. Our dedicated teams work in strong cohesion to deliver customized solutions to our customers keeping a delivery focussed approach and excellence as the crux of our initiative

QUALITY

- Use of high reliability modules: Best-in-Class efficiency at NOCT (OST Energy)
- Selection of Best in Class technology with high efficiency and warranty solar string inverters
- BOS (Balance of systems) : procuring the right components to successfully install PV power plants



How it Works?



On-grid Rooftop Solar means your solar system is tied to your local utility's GRID. This is what most residential homes will use because you are covered if your solar system under or over-produces in regard to your varying energy needs. This entire means for you is that your utility system acts as your battery space. If you are producing more energy with your solar panels or system than you are using, the excess energy is sent to your grid's power company, allowing you to build credit that you can cash out with at the end of the year, in a process called net metering.

Solar Module Selection



MONO PERC HALF CUT- Crysta line

Size : 5 0-670 Wp

Efficiency : 21-22.4%

MNRE | IEC | BIS | TUV | UL | CE | ISO | QMS Certified

IEC 61215 Ed2, IEC 61730, UL 1703, IEC 61701, IEC 62716, IEC 60068-2-68, IEC 62804, MCS, CE, CAN/CSA 61730, IS 14286, IEC/IS I61730

Warranty: 25-27 yrs linear power output warranty | 12 yrs product warranty

Solar Inverter Selection

Solar PV String Inverter

Without Optimizers



5/7/10/12 years warranty

Solar PV String Inverter

With Optimizers



12 & 20 years warranty

MNRE | IEC | BIS | TUV | UL | CE | ISO | QMS Certified

IEC 61215, IEC 61730, IEC 61701 & UL 1703 certified | MPPT Efficiency : 99%+ Overall Inverter Efficiency : 98%+

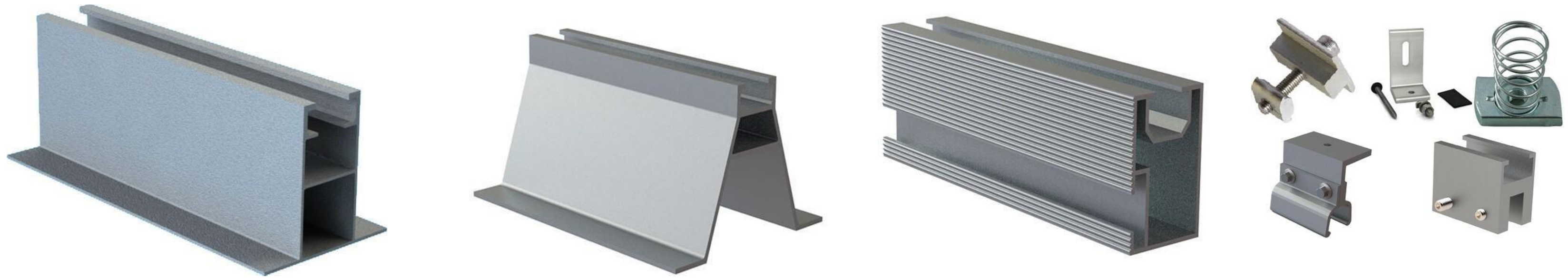
Solar Mounting Structure Selection

For Metal / Tin Shed Rooftops

We have been successfully delivered so many projects for our industrial rooftop customers and Our penetrating and non- penetrating solutions are engineered to provide maximum flexibility in both design and installation for various trapezoidal-profile metal roofs. Requiring very few components for installation, they are both economical and efficient to install at a rapid pace.



Mounting Structure Accessories



Innovation in Structure Design & Executions



We have experienced that industrial rooftops are designed in a such way that it cannot hold so much load and pressure of heavy structure with keeping in mind of wind speed. So we have developed many options to cater all types of challenges by giving perfect solutions for industrial customers who wants to adopt solar energy as an energy option **Custom Designs | Light Weight | Strong | Reliable |Long Life**
For all types of metal & non-metal and sloped & non sloped roofs with south, east west racking options

Our Installed Structures comprises :

FRP Walkway Mesh : Proper walking arrangements will be provided to walk around projects to do the cleaning, maintenance work & operations.

Structure Capacity: Proper designing & structure analysis makes our structure to withstand 180km/h wind speed so that your rooftop solar investment helps you to save on your electricity bill

Cleaning Mechanism: We design our structure in such a way that cleaning process becomes easy to everyone.



Cable Selection

In every solar power project cables play a vital role in transmission of power generated through solar panels to the final grid or utility. In every solar project there are two types of cables used: one is for DC and another used for AC applications.

DC Cable Selection



LEONI
Siechem
Wires & Cables

To connect solar modules array
in strings to DC Junction Box

SIZE : 6/10 sqmm Single Core Cu

DC Main cables will be used for
connecting DC Junction Boxes
to Inverter

SIZE : 50/75 sqmm Single Core Cu

DC Cable Loss caping : Upto 2% Only

UV and weather resistant | 1000V DC | 15 A

AC Cable Selection



AC Cable will be used to connect
all interconnection of inverter to
the main LT Panel

SIZE : 240 sqmm 4Core XLPE
(3 Run - 150 Mtr)

Voltage Drop <2% only

 **HAVELLS**  **POLYCAB**
Connection Zindagi Ka

Design & Engineering

We will atek acre of everything



Site Audit

Site Visit
Project Mapping
Feasibility Analysis
Project Sizing
Input Collections



2D Layouts

PV - Cable Layouts
Civil Layouts
Structure Layouts
Electrical SLD's
Overall Layouts



3D Drawings

Building Layout
Structure Layout
Modules Layout
Overall 3D Look
Shadow Analysis



Consultaion

Site Analysis
Product Selection
Calculation & Sizing
Planning & Execution
Delivery & Monitoring



Reports

Generation Report
Shadow Analysis
Structure Analysis
BOQ & BOM Reports
Project Report (DPR)

Site Details

Proposed Site - Satellite images with panels placement



Balance of System



DC Junction Boxes (DCDB)

IS/IEC 60947 (Part 1, 2 & 3) 61643-11:2011 / IS 15086-5, EN 50521 Standard IP-65 Enclosure Boxes with best in class DC fuses & DC SPD's(for working voltages up to and including 1100 V, and UV resistant for outdoor installation)



ACDB & LT Panel

IS/IEC 60947 (Part 1, 2 & 3) 61643-11:2011 / IS 15086-5, EN 50521 Standard IP-65 Enclosure Boxes with best in class DC fuses & DC SPD's(for working voltages up to and including 1100 V, and UV resistant for outdoor installation)



Electrical, Piping & Accesories

IS 9537-(Part 1, 2 & 3) BIS | ISO | MNRE Standard
Best in Class Electrical Conduits are used : ASTRAL | Supreme | Prakash Etc. We would be using high class CPVC for Module cleaning system



MC4 Connectors & Others

IS/IEC 60947 (Part 1, 2 & 3) 61643-11:2011 / IS 15086-5, EN 50521 Standard | BIS | ISO | MNRE Standard IP65 MC4 Connectors and Other Accessories | UV Protected & Weather resistant



Cable Trays & Accessories

IS 9537-(Part 1, 2 & 3) BIS | ISO | MNRE Standard | Hot-Dip GI Cable Trays (Perforated with Cover & Accessories



All Hardware & Accessories

IS 9537-(Part 1, 2 & 3) BIS | SS-304 Grade Fasteners, Nut Bolts & Accessories



Earthing Kits

Copper Plated Electrode Chemical Earthing Compound & quantity of chemical compound with accessories



Lightning Arrestors

High Quality and High range LA for protections from iightning.

Scope of Service

Operate : We operate the facility in accordance with applicable safety, occupational health and environment regulations

Verify and Report : We verify and record all information on electricity generation, loss in generation due to grid disturbance, and consumption of electricity within the facility

Monitor and Supervise : We offer SCADA enabled Remote Monitoring Facility for all the operational units. Photovoltaic monitoring systems (SCADA) are software-driven devices provide real-time and historical data, performance-based alerts, web-based (or cellular) monitoring

Preventive and Corrective Maintenance : Inspection, testing, cleaning, and preventive maintenance and/ or corrective repairs and replacement are carried out, if necessary, as a part of good manufacturing practices

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Infrastructure & Training : We provide all necessary Operations and Maintenance training and required set of onsite testing instruments and equipment. We also provide associated power evacuation arrangements to the clients' staff for successful takeover of the plant in due course of time

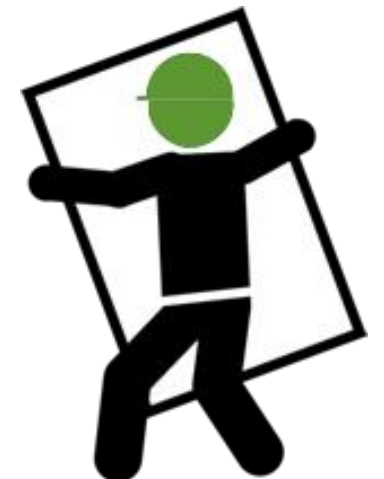
Know safety, no injury!

Safety, as trivial as it may sound, is one of the most important factors for work at the site. Since the work happens at the off-takers site, it becomes a matter of concern for not just the developer/EPC player but also the off-taker. In many cases, people at the site are unaware of the specific and generic safety measures to be taken for solar power plant installations. We often tend to believe that actual safety measures are taken care of only during the installation process. But a large part of planning the work at site involves how to work in the safest possible manner and be highly efficient and prepared for emergencies. As one of the leading rooftop solar companies in India, we ensure that we adhere to safety measures over and above the customers' expectations.

It is important to ensure that work happens safely and effectively to prolong the life of the system and ensure the well-being of the workers operating the system.

Highlights

- Highly trained personnel are appointed for solar power installation. These technicians use personal protective equipment (PPE) of extremely high standards.
- A Job Safety Analysis (JSA) is conducted before executing any project.
- Even after solar power installation, the O&M work is carried out with strict adherence to safety norms at site.
- The solar power plant is monitored remotely for performance.
- VIMCO Solar provides 24X7 solar power system maintenance service.



Safety begins with personnel

During any solar power installation, the first step is to ensure the personnel are properly trained. It is not enough for staff to know how to carry out their operations safely, they must also be trained to handle emergency situations in a timely and effective manner. Other personnel considerations:

- Regular monitoring of the physical fitness of the staff for the strenuous tasks they are expected to perform
- Ensure they have valid medical certification suitable for the job on hand
- A stern policy on the use of inebriants on the job
- Personal Protective Equipment (PPE) such as safety shoes, safety helmets, reflecting jackets, gloves and safety belt, full body harnesses with permanent lifelines should be strictly mandatory for all workers and all jobs

Job safety analysis

VIMCO Solar prioritizes the safety of people as well as the system, hence we carry out a Job Safety Analysis (JSA) before every project. This is important to pinpoint potential safety hazards and address them accordingly. Accordingly, necessary precautions are taken to make sure that the PV systems run smoothly. Let's look at the measures we take for safety purpose. The pointers below have been extracted from our safety procedures manual, as a quick solar installation checklist.

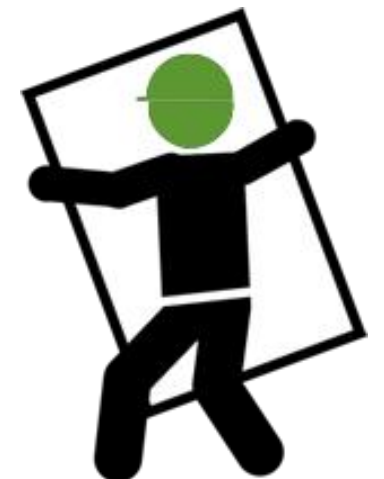
Solar installation checklist

Surveying rooftop for plot points

- High quality and well maintained Personal Protective Equipment (PPE) to be used during the solar power installation
- While the installation is in progress, use of mobiles and other electrical devices is prohibited to avoid all distractions

Unloading of modules, clamps, electrical panels and cables

- The attachment of modules to the crane or forklift has to be secured by a qualified person
- While unloading the modules, crane speed should be maintained below 10 km per hour



Lifting of modules by lifting operators

- To avoid accidents, lifting equipment is maintained at a safe pace from installation personnel
- The jack or boom of the lifting equipment should be oiled and serviced regularly to ensure smooth operations

Lifting modules manually by stairs

- If the modules are lifted manually onto the rooftop, the path is sanitised and cleared of any physical obstacles
- Adequately sized project teams are formed for easy handling of modules

Module installation

- During the solar power plant installation, instructions are laid out and to be followed diligently by one and all
- The entire installation staff is regularly trained to avoid any damage to the modules

Routing of cable

- During the routing of the cable, a thorough check is done to ensure the cable is not damaged
- The entire process should be carried out under stringent supervision of qualified engineers

Electrical panel installation

- Cut resistant quality hand gloves are used as and when modules are physically installed
- Utmost care is taken to not overload the panels

Routing the AC cable

- When the AC cable is routed, the tray is secured for any wear and tear
- Once the tray is clear of any damage, it is carefully positioned to keep it moisture free



Clamp fixing

The monkey ladder, which is used for installation, comes with a provision for attachment of safety lanyard
The ropes are also customised to suit individual projects

Earthing

During the process, the speed of the boring machine is always maintained below 10 km per hour
The team strictly adheres to the use of cotton, PVC, and leather gloves while fixing electrodes, handling backfilling compound and connecting the electrical panel
Welding goggles, face shields, and aprons are also used during the welding of the system

VIMCO Solar adopts a comprehensive approach to ensure solar power safety so that the solar power plant installation is carried out without any risk and runs smoothly for years to come.

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