THE SOLARWALE
...plug-in to the sun

LET'S BUILD A BRIGHTER INDIA, FOR THE STARS OF TOMORROW

www.thesolarwale.com

ABOUT US

We are all stakeholders in the country's solar power vision with keen investments in its awareness and solution process.

Green Solarwale India Pvt. Ltd., founded in 2016 is a high-tech enterprise primarily functioning in the fields of detailed and accurate analysis, implementation and maintenance; and conclusively academic and applied training in the fields of solar energy harnessing and utilization. This is achieved through a distinct and controlled timeline of activities custom designed to suit the requirements and restrictions specific to each site. Solar energy is one of the most abundant yet under-utilized sources of universally accessible energy, and we believe in becoming a key stakeholder in this development process across urban and rural India in harmony with the Jawaharlal Nehru National Solar Mission.

Working under the guidance of a global community of developers like The United States Agency for International Development (USAID), The Ministry of New and Renewable Energy (MNRE), The Skill Council for Green Jobs (SCGJ) and The National Institute of Solar Energy (NISE), this pool of knowledge in engineering and construction experience paves the way for a unidirectional focus towards benefitting equally both, the end customer and the environment as a whole.

Our array of solar advisory includes complete engineering, procurement and construction services at par with international standards. Not just limited to providing turnkey solutions, The Solarwale also provides Indian Green Building Council (IGBC) and Green Rating for Integrated Habitat Assessment (GRIHA) certifications to a host of structures ranging from new buildings to existing ones, across Green Homes, Schools, Factories, SEZ's, Townships, Interiors and Residential Societies.

Determined on building a greener world for a better future for all members of the society, we, The Solarwale are stepping into the Indian markets with our global expertise and an experience in power generation of over forty years. Adding to that the high-value engineering solutions from Gujarat Energy Research & Management Institute (GERMI), we have your tomorrow covered, today.

OUR VISION

We intend to make solar energy the reality of today rather than that of the future

If humanity is to maintain the lifestyle we enjoy, whilst spreading prosperity among emerging societies, it needs to make drastic changes in its resource consumption habits and switch to healthier and more renewable sources of energy. On one side where energy is still principally dependent on traditional non-renewable resources, the other side is exploring the unconventional renewable resources. Solar energy is the transitional point for us to change the way we produce and consume energy. We envision a world where every community and an individual has easy access to the knowledge and products required to construct and maintain a green footprint in terms of energy utilization.

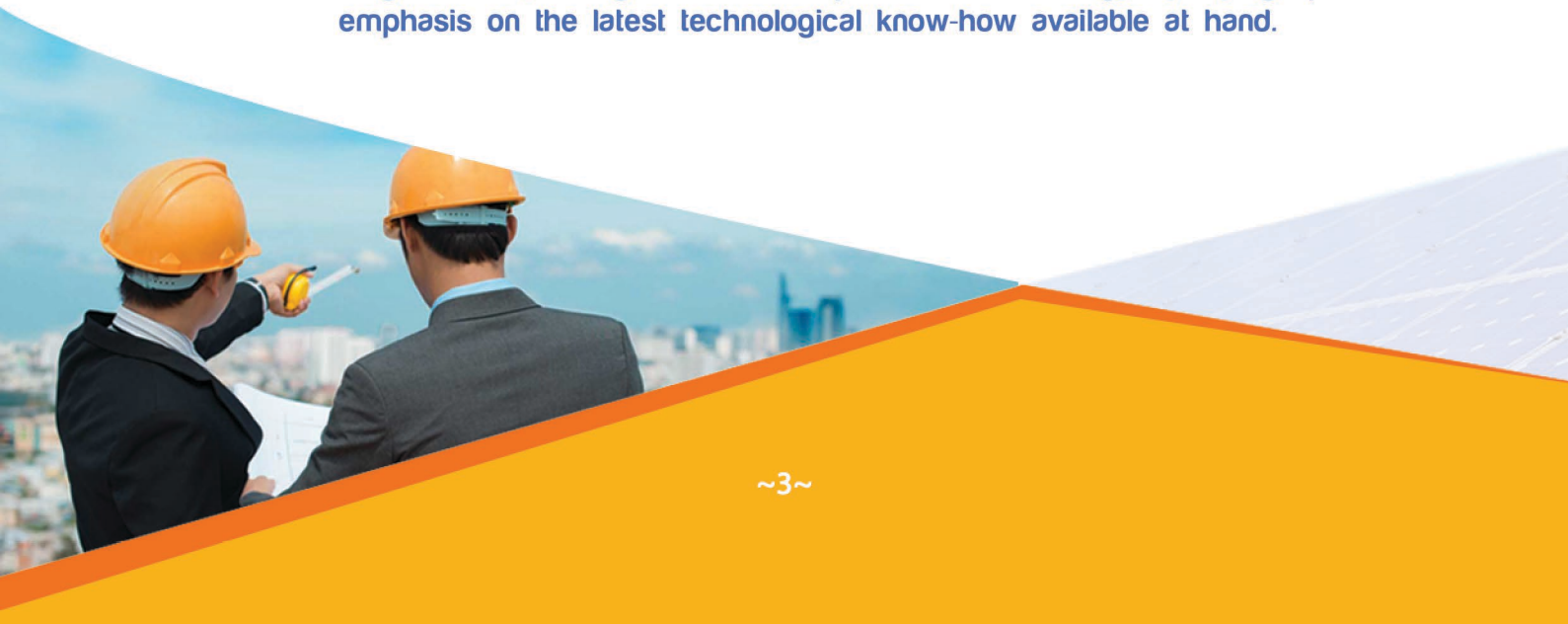
With about 300 clear, sunny days in a year, India's theoretical solar energy incidence on land area alone is about 5000 trillion kilowatt-hours (kWh). In simple terms, the solar energy available in a year exceeds the possible energy output of all fossil fuel energy reserves in India. We, The Solarwale, believe in shortening the time it would take for us to become a solar-powered nation, and therefore seek to introduce solar awareness, technology and products in India at faster rate with greater quality and affordability. By providing everything in the field of green energy to every customer pan India, laying special emphasis on ease of access and cost effective means of production, we look to increase solar energy output which in turn means a decrease in risk of depleting fossil fuels; thus effectively acting as a catalyst for a better India across all fronts.

The first and foremost advantage of solar energy is that, beyond panel production, it does not emit any greenhouse gases; and post initial installation and maintenance, solar energy is free. Solar cells provide cost effective silent and non-intrusive solutions to energy problems in places where there are otherwise no means of electricity. Lacking any moving parts, they require little maintenance and have a long lifetime. Solar PV System can easily be installed on roofs which means no new space is needed either in most installations. Taken in the Indian scenario, solar power generation can serve as a major bridge between the urban and the rural communities, enabling the latter to become independently functional in a non-harmful manner. Another essential force behind prosperity, water is essential to all forms of life. We, The Solarwale are commited to providing the best quality, ease of availability, service, innovation and value by using our proven system technologies in powering submersible pumps and motors.

SITE CONSULTANCY

The consultancy procedure will provide the consumer with an essential high level options appraisal of the various key considerations to address when installing a solar PV system at a particular site and whether the proposed system(s) will be building integrated or ground mounted. This study will include advice on the possible array size, electrical performance and financial payback while also identifying barriers to the scheme development. The objectives of the final report will be to:

- Identify site options for potential array configurations by means of end to end site surveys and feasibility studies.
- Gather site specific details to enable all technical documents to be produced to complete the installation (For example, planning applications, grid connection applications, applications for finance, hardware procurement.)
- Identify any issues that may compromise the installation of a solar PV system or limit its performance, whether these issues are technical, financial or logistical in nature.
- Develop a roadmap for the particular site in order to determine how to go maximize efficiency and minimize cost whilst continually providing post installation customer support and deliver to each customer's requirements.
- Maximize output by means of determining the most cost effective means of generation, storage and consumption of solar energy by laying special emphasis on the latest technological know-how available at hand.



DESIGN & ENGINEERING

The design phase caters to identify and implement suitable grid infrastructure based on individual site characteristics, assessment of roof conditions and taking into account a structural engineer's report if the need be. This will further be followed up by minimizing risk factors and maximizing output by means of numerous potential solar models keeping in mind the location, scale, cost and suppliers to be called to action. The step will include:

- Liaise with building control through the design process to ensure the project complies with building regulations and to secure all necessary building warrants.
- Prepare a full design of the solar PV system (including electrical diagrams, module mounting system details etc.)
- Approximate project initiation date and installation duration, highlighting any site access requirements that the owner needs to be aware of.
- Risk Assessment of developing a solar PV scheme at the site(s), and how these risks are best mitigated.

EPC SERVICES

ENGINEERING, PROCUREMENT AND CONSTRUCTION

The Solarwale provide all-inclusive Engineering, Procurement and Construction services across a range of roof surfaces including flat, inclined, RCC or metal sheets. Derived after a planning and development process unique to each site, our expert engineers ensure the best quality standards through intensive management and utilization of resources.

Our stringent quality standards, coupled with close ties with our suppliers allow precise selection of every system component across all installations of PV systems and solar pumps. Allowing for more efficient and reliable solutions with secured long term savings. All the equipment used, the photo-voltaic module, the solar charge controller, the solar inverter, batteries, MC4 connectors, Array Junction Box, Module Mounting Structure, solar cables, Lightning Arresters and the Weather Monitoring System are tested under strict conditions both individually and together as a unit to ensure a perfect fit and maximum system efficiency. We monitor every step of the process personally, coordinating all construction phases and controlling the quality of installations. Post installation, we further operate and maintain all our installations including water pumping systems and energy generation mechanisms as per the need of the hour, whilst enabling the costumer to avail government subsidies and tax benefits wherever applicable.

TRAINING

Nationally Recognized Training Personnel

Recruited on a national scale, to yield a holistic training crew; the program is developed through the training sector for providing skills and knowledge to prepare individuals with on hand training and experience with acclimatization to the latest developments. This innovative form of academic training makes the participant industry ready and allows for him to reach his full potential.

Software Training

Technology is the coming field of power and opportunity, keeping the same as our belief, this training course concentrates on providing the facilities and tools to expose young professionals to the possibilities and work trends prevalent in the industry and how the same can be utilized for fast, cost effective and innovative project development further specialized to suit every unique project site and its characteristics.

Shadow Layout Training

Extensive training is provided in order to enrich the student with scientific and geographical know how in optimization of array layout and prevent reduction in the efficiency of layout design. This allows for a more holistic and effective energy harnessing over longer durations of time, maximizing the output and drastically limiting resource wastage.

Operations and Management Training

This skills based course introduces you to the world of operations management and is useful to those who wish to learn and understand more about the role it plays in Green Building initiatives. Using an interactive presentation style, the lessons go through the role of operations management in both planning and implementation aspects of the aforementioned process. It also covers strategies used, such as capacity planning, facilities location planning, aggregate planning and scheduling, as well as inventory management techniques and quality management.

OPERATIONS AND MAINTENANCE

Our comprehensive Operations and Maintenance packages include complete solutions right from periodic cleaning and equipment check to fluent management of any forthcoming issue or loss due to unforeseen circumstances.

Preventive Maintenance Packages

Especially suited to each individual site, our comprehensive packages aim to keep every unit in a system spick and span, in turn facilitating maximum production output for the user. Periodic cleaning, regular diagnostics and circuit testing ensure the fastest detection of any malfunction at its root and enforce reconciliatory measures at the earliest. We also employ techniques like thermal imaging and data acquisition system checks to ensure only the most optimal operating conditions for each PV system.

Uptime Management

A vital means of monitoring the proper functioning of any solar installation, we provide up time management services in real time, which helps in detecting equipment malfunction at the earliest and minimizing down-time. Following clearly defined protocols, The Solarwale maintain a detailed data record for each PV system on a regular basis, utilizing real time data to interpret, infer and apply the gained information for maximizing solar resource management and energy production. Our team ensures minimal reaction time, undertaking both critical and non-critical reactive repairs with our ready spare inventory stock for all probable system errors.

State-of-the-art Network Operations Centre

To monitor proper operations & maintenance of solar rooftops, The Solarwale has set up a state of the art network operations center with comprehensive warranted repairs and service checks across our customer database; providing instant business insights as a value added service to our customers. We also audit energy production and evaluate network voltage and frequency, also specializing in monitoring and maintaining rooftop solar projects for corporate clientele.

PHOTO-VOLTAIC MODULE

We provide complete Photo-voltaic module installation and maintenance solutions across a range of terrains and foundations. Consisting of many PV cells wired in parallel to increase current and in series to produce a higher voltage, our module cells can convert sunlight directly into electricity sans any other additional energy conversion. Photo-voltaic modules are collections of individual PV circuits sealed in weatherproof encasing designed specifically to suit individual projects. Also varying on project basis, every component of the structure is put through meticulous quality checks in sync with industry standards before installation. Rated by its DC output under standard testing conditions, the efficiency of each module determines the area of a module given the same rated output.

SOLAR CHARGE CONTROLLER

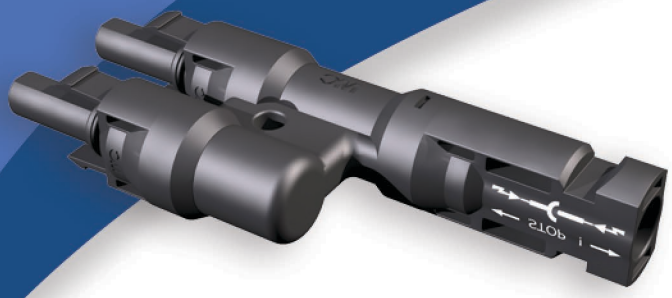
A solar charge controller (or regulator, as they are sometimes known) protects and automates the charging of the battery. It is responsible for reducing the voltage of the solar panel, monitoring the battery voltage, and preventing the reverse flow of current at night while also providing essential security measures against deep-charging and over-charging of the battery

SOLAR INVERTER

A solar inverter is a device that converts the electricity that solar panels collect from DC to AC utility frequency current which can then be fed into both a commercial grid or an off-grid electrical network. Utilizing maximum power point tracking (MPPT) to get the maximum possible power from the PV array, solar inverters are a critical Balance of System (BOS) component in a photo-voltaic arrangement, enabling the energy harnessed to be used in ordinary AC powered equipment. They also provide a number of other capabilities and services to ensure that the assembly can operate at an optimal performance level; such as data monitoring, advanced utility controls, applications and system design engineering. The inverters also include safety features like anti-islanding, is a way for the inverter to sense when there is a problem with the power grid, such as a power outage, and shut itself off to stop feeding power back to the grid.

SOLAR BATTERIES

Solar batteries are the blood inside the arteries of any self-sufficient solar PV system. Batteries store the energy produced by the solar panels, allowing the energy to be used as needed through an inverter. Our deep cycle batteries guarantee the most efficient and dependable storage option across a range of power requirements. Managing the energy harvest efficiently is the ultimate goal for any renewable energy system, and the configuration of the battery bank plays a critical role in the overall system efficiency.



MC4 CONNECTORS

Single-contact electrical connectors used for connecting solar panels, MC4 stands for the manufacturer Multi-Contact and a 4 for the [4mm squared] contact pin. Universal in the market, MC4's allow strings of panels to be easily constructed by pushing the connectors from adjacent panels together by hand. They are essential to the construction of larger systems, connecting individual panels together in series to form strings.

ARRAY JUNCTION BOX

Our Array Boxes include numerous safety features like photo-voltaic string protection, over-voltage protection and a DC output switch dis-connector and are well adapted for Power plants as well as for large buildings generating photo-voltaic electricity. For each string of panels, an individual array box realizes the DC current measurement (0 to 20 per string). The DC voltage (up to 1000 Vdc) is also measured and abnormal behavior, or failure is detected. The Array Boxes we supply can also propose safety opening control and remote control of the switch disconnector.

MODULE MOUNTING STRUCTURE

Photo-voltaic mounting systems are used to fix solar panels on surfaces like roofs, building facades, or the ground. These mounting systems generally enable retrofitting of solar panels on roofs or as part of the structure of the building. Our systems lay special emphasis on utilizing aluminum as the core material, which whilst adding structural strength, is also lighter and more resistant to the elements in the long run. Combining optimum structural dimensioning, short mounting times, economic efficiency and maximum durability, all at attractive prices, each system is customized to suit the particular job site which allows for full optimization of the system, maximizing the return on investment and creating a safe, code-compliant installation. We take into consideration, unique systems for tiles, corrugated fiber cement, trapezoidal sheet metal, standing seams, or flat roofs and offer special solutions for open-site systems.

SOLAR CABLES

Solar cable is the interconnection cable used in solar power generation, for use in all photo-voltaic systems for cabling of the solar modules and as a connection to the AC/DC inverter. Essentially designed for outdoor use, with special emphasis on UV and weather resistance, these cables can be used through a large temperature range and is specially designed to withstand erosive elements. Whether it is for local production, manufacturer or grid operator, we offer our customers products, systems and project management support in line with the market.

LIGHTNING ARRESTER

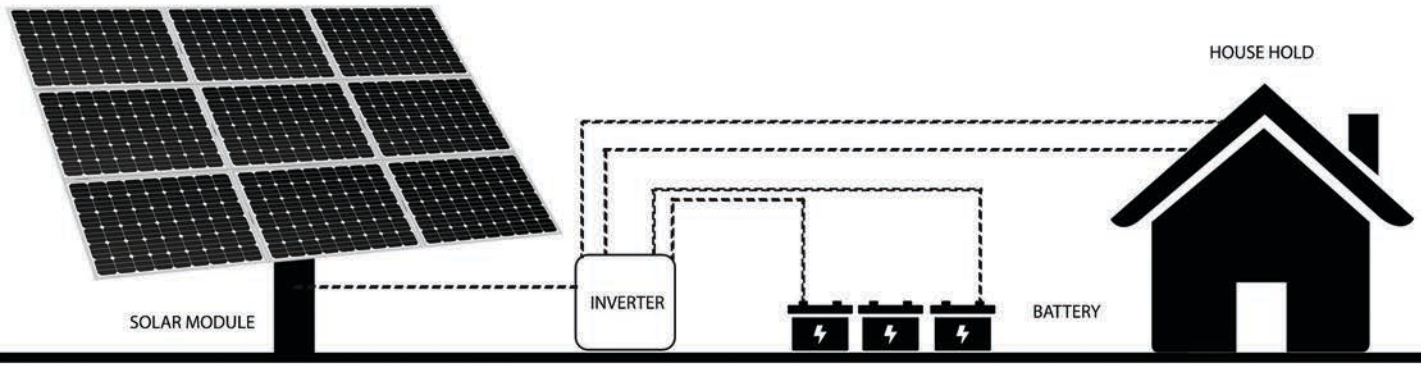
A lightning arrester is a device used on electrical power systems and telecommunications systems to protect the insulation and conductors of then system from the damaging effects of lightning. The typical lightning arrester has a high-voltage terminal and a ground terminal, used to protect the equipment against flashing of light or over-voltage by providing a low impedance path for current to ground.

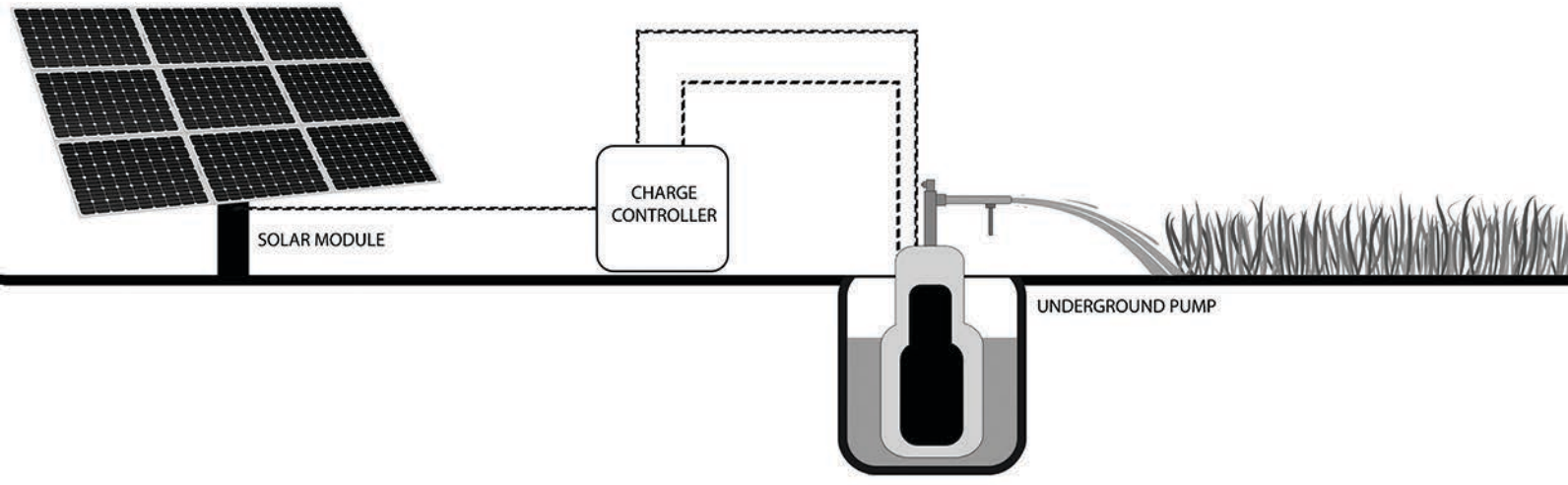
WEATHER MONITORING SYSTEM

The Weather Monitoring Systems we employ for monitoring site-specific areas to determine and manage micro-climates allow for maximum potential realization in a specific area. Numerous sensors are exploited to measure key parameters such as light, air temperature, relative humidity, rainfall, wind speed and direction, and degree days. All environmental data is logged at user-defined intervals for tracking trends over time, which is consequently used in determining the utmost capabilities of an individual site and developing a unique and efficient photo-voltaic energy production system.

SOLAR TOOL KIT

We also provide complete DIY solutions in the form of uniquely tailored solar tool kits. These toolkits have been assembled to equip individuals or local communities with the latest information regarding solar development in relation to planning, zoning, implementation and maintenance of solar power harnessing technologies. The purpose being to provide resources that will assist communities in addressing barriers to solar energy installations in a manner tailored to each community's specific needs.


HOUSE HOLD
SOLAR MODULE
INVERTER
BATTERY


SOLAR MODULE
CHARGE CONTROLLER
UNDERGROUND PUMP

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