Solar Energy Management System

- Design
- Supply
- Installation
- Maintenance

LightLeader™
New & Renewable energy

Collaboration with M/s Tetra West, Houston, USA for maximizing solar energy generation & consumption.

Areas of Applications

- Residential & Commercial Lighting
- Power source for Communication Towers
- Lighting & Power source at areas without electricity
- EV Charging station (Electric Vehicle)
- Industrial / Factory / Warehouse Premises
- Emergency power supply for Marine vessels
- Petrol station lighting

Technology Partnership by M/s Tetra West, Houston, USA

MI-GRID

Residential & Commercial Lighting

Communications Towers

Electricity for remote area

Educational Institutes & Hospitals

About Us

M/s Conceptia is an Engineering services company located in Bangalore. We provide Engineering services in the following areas: -

- Mechanical & Electrical Engineering design and manufacturing.
- Detailed design for Oil and Gas Platforms and Ships.
- Design of Piping systems for specialized applications.
- Detailed design of Structural steel buildings.

Conceptia Engineering Design Office is a Multi-disciplinary team creating basic and detailed design. Our Electrical team has developed an 18 kW Solar power plant in collaboration with M/s Tetra West under the brand name LightLeader and is now operational at Conceptia Office in Bangalore.

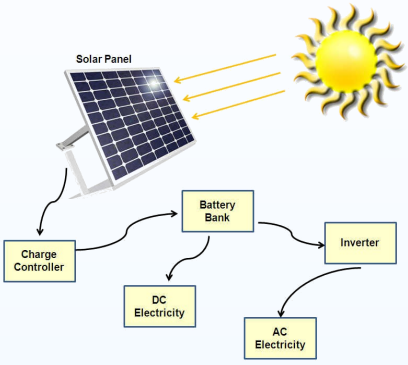
LightLeader is an energy management system for harnessing renewable energy sources. It stores energy harnessed from renewable sources like Sun, Wind etc and makes the same available to users. It also takes inputs from Grid and Generator as back up sources. It selects the cheapest energy source for supporting the loads as well as replenishing energy into the batteries.

LightLeader is an off-grid solution in the sense that it uses storage batteries. However, the LightLeader system can be connected to the Grid for export of power.

How Does LightLeader Work

LightLeader utilizes Solar panels mounted on available selected spaces to capture Solar energy. MPPT Charge controllers are used to maximize the current produced and the current is then stored in batteries.

When the battery is being charged, LightLeader uses Grid supply to support those portions of the loads that cannot be supported by Solar due to charging of batteries. As soon as the battery is charged and energy is available to support the loads, it switches automatically to supporting the entire load or partial load depending on the Solar energy available.



If the Grid fails, LightLeader automatically discharges the batteries to support the load in a fraction of a millisecond and the users will not suffer power loss. The level of battery discharge for eg. 50% of battery power or say when battery voltage reaches a certain value will be based on optimizing the life of batteries.

When the threshold value of battery capacity is reached, LightLeader automatically starts the generator (if auto-start facility is available in the DA) to support the loads that was being supported by the Grid in addition to Solar as well as replenish the batteries.

Types of LightLeader PV Solar Installation

- Grid Tied System : A solar system that is connected to the utility power grid . Grid energy storage system which links to the mains to feed excess capacity back to the local mains electrical grid.
- Off Grid System : These systems allow you to store your solar power in batteries for use when the power grid goes down or if you are not on the grid.
- Hybrid System : Hybrid systems provide power to offset the grid power whenever the sun is shining and will even send excess power to the grid for credit for later use .

Range and Scale

- The LightLeader system can support power requirements from 2kW up to 1 Mw.

EV Charging station

Industrial / Warehouse Premises

Marine Vessels

Petrol stations Lighting

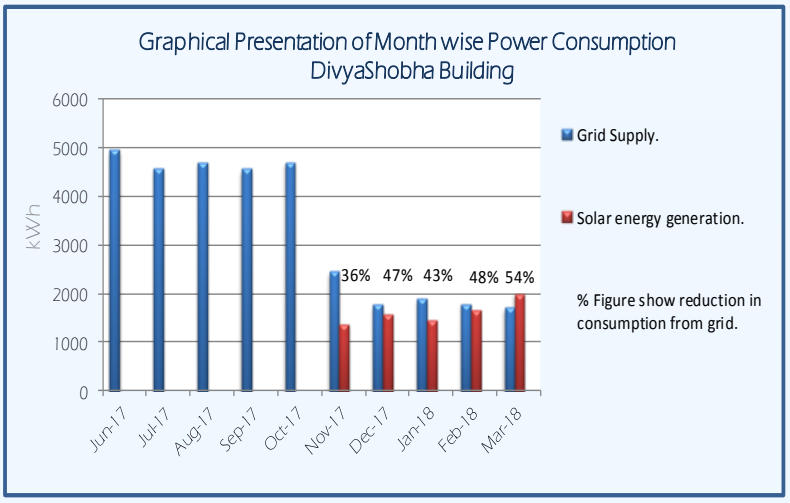
Benefits of LightLeader

- The LightLeader system helps users consume less from the grid.
- Enjoy uninterrupted power supply.
- Huge Savings on monthly electricity bill.
- Earn revenue by selling power to grid (Electricity supply company).
- Advanced technology allows you to store your energy and use it at night.
- Less maintenance in terms of time & cost.
- Low gestation period.
- Utilization of available vacant roof space
- Mitigate the dependence on fossil fuel based electricity generation.
- The quality of power output by LightLeader is superior to normal supply. It is a stabilized sine wave output. It insulates sensitive equipment from damage due to power surges.
- Long term energy and ecological security by reduction in carbon emission.

Reference

Mr. C.B.Raju, Building Owner, DivyaShobha, Banashankari 3rd Stage, Bangalore.

I got Conceptia to install their LightLeader Solar Power Plant on my building Divyashobha. I was in for 02 revelations. First I got a glimpse of the immense amount of solar energy that we are wasting and secondly the drastic reduction in my electricity consumption from the Grid.



Technical Details LightLeader MI-Grid 18Kw Off Grid Solar Power Plant.

LightLeader™ New & Renewable energy

MI-GRID

Solar Panel—63Nos
Panel Size : 1.97m(L)x0.99m(W)x0.035m(T)
Max Power per panel : 315Wp.
Weight per Panel : 21kgs.

Storage Batteries—36Nos Lead Acid.
Battery Capacity : 120Ah
Weight Per Battery : 35Kg including mounting supports.

Power Inverters: 06Nos 3Kw each.
Charge Controllers : 04 Nos. 80Amps
Power Conversion Equipment are all mounted on Plywood frame with total weight of 500Kg.

Diesel Generator : 36Kw, Self-Starting. Weight : 1250Kg.

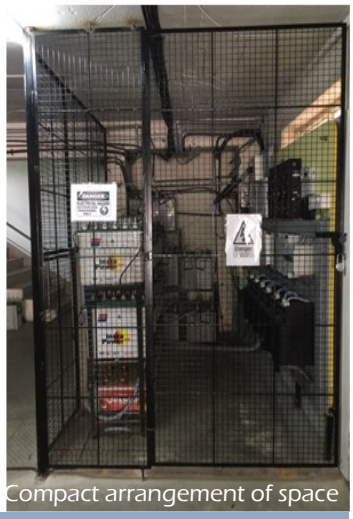
Space required: Well ventilated room or compartment admeasuring : 2.45m(L)x2.0m(W)x2.5m(H). DG to be housed in separate location.

Output Power : 240V, 50Hz.


Solar PV Panels


Power Conversion Equipment

Solar Log


Compact arrangement of space

New & Renewable Energy

Conceptia®

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