



SOLAR MODULES



ROOF TOP

MW SCALE PROJECTS



SOLAR PUMPING SOLUTIONS

**Powering
Green Energy**



BI FACIAL MODULES



SOLAR EPC SOLUTIONS



ON / OFF-GRID SOLUTIONS

SOLAR STREET LIGHTING SOLUTIONS



Why **Working** With Us?

IN HOUSE FACILITIES

In-house manufacturing of solar PV modules enabling optimal Costing, Quality & Delivery.

VALUE ENGINEERING

Industry leading innovations system design & construction to optimize energy production & system reliability.

SPEED OF EXECUTION

Record time project commissioning credentials.

PROVEN EXPERIENCE

Dedicated Team of professional for more than 10+ years of proven experience.

ROBUST BACKGROUND

Leading corporate conglomerate minimizing the risk associated with any size of project.

RIGOROUS QUALITY CHECK

Most stringent acceptance criteria and tightest tolerance.



Powering Green Energy

ECHO Modules are manufactured at the highest levels in Dubai, UAE with state of art highly automated manufacturing facility having elevated feature and unsurpassed performance.

ECHO SOLAR 4 & 5 bus-bar crystalline silicon PID free modules rated output ranging from 40W - 400W with variable voltage ratings. ECHO SOLAR sources high performance multi/mono-crystalline silicon solar cells from leading international suppliers to provide maximum energy throughput & long term reliability. ECHO SOLAR PV modules are produced with high quality materials which promise the efficient use of sunlight. This sufficient use of sunlight allows our modules to have superior capability and reliable power.



Vision

To become the leading manufacturer of renewable energy products in the world for affordable and innovative technological solutions to places that have limited energy.

Mission

To promote sustainable development through the use of environment friendly and tailored solar Photovoltaic and power backup solutions.

We believe in innovative, affordable & green energy for sustainable future.

Energy is an indispensable necessity....

Solar energy is one of the many renewable energy sources that give an enormous promise to insure mankind with a secured life. With almost no environmental impact and high Economical benefit, it offers a considerable opportunity to the sunniest Location of the world. Solar energy has been proven to be a reliable source of power in ever -Growing number of applications.

Solar Energy is an Investment which gives high value of internal rate of return (IRR) and short payback period. The saving is swift and the return is immense as it pays itself many times over. Due to technological advancement followed by continuous Research & Development, the prices of solar cells are going competitive at today's market and the same time cell efficiency is getting higher by overcoming its theoretical limitation resulting to price de-escalation of Solar Energy.

The "Irreversible" world leaders` Paris Agreement on Climate and Energy Action Plan is a step forward in Future on Enactment of Green and affordable Energy, which focuses on phasing out fossil fuels subsidies and shifting to Green Energy as soon as feasible and sets out tangible stepladders to accelerate the world's transitions to low carbon Energy Systems.

Solar Energy is a Global Green Energy Revolution. It is a movement of a sustainable, affordable and innovative solution in the combat against Climate Change of fossil fuel subsidies. Solar Photovoltaics is the best way to produce carbon- and nuclear-free Energy, as first step towards sustainable vigorous where the global Economy is fast transforming into main stream usage of renewable Energy solution provider. Echo Solar Panels Manufacturing LLC decided the base to locate in Dubai, U A E, an ideal logistical location for global market mainly sunbelt countries as governing body of U A E is looking to change the future by providing innovative renewable energy solutions to the masses.



The sun is shining the sky is blue go for Green and Economical Energy.....

A handwritten signature in black ink that reads "Kahsai Haile Futur".

Kahsai Haile Futur

Chairman & CEO

Echo Solar Panels Manufacturing LLC

Our Manufacturing Core Competencies



Tabber & Stringer

Fully automatic Tabber & Stringer machine with patented innovative hybrid soldering technology which allows to solder the solar cells without thermal stress.

- Breakage rate less than 0.2%
- High soldering peel strength
- Vision camera to detect the defects
- Automatic lay-up for string placement on the glass



Foil Cutter

- It is a fully automatic machine for EVA & Back sheet cutting.
- Capacity 50MW per annum
- Cutting accuracy 0.2%
- Cutting speed of 12 meter/minute



EL Inspection

- 100% EL pre-lamination & post lamination



Laminator

It is a fully automatic lamination machine with automatic loading & unloading belt conveyor with fan cooling to enhance lamination reliability.

- Equipped with extra booster pump to boost the vacuum during lamination process to laminate the bubble free modules.
- Excellent temperature uniformity of $\pm 2^{\circ}\text{C}$



Silicon Dispensing

It is a fully automatic machine to dispense silicon in even & proper uniform way in the frames.



Framing

Fully automatic machine with robotic arms for loading & un-loading of solar modules with high throughput of 50MW per annum.



Sun-simulator

We have AAA class LED sun simulator to evaluate the electrical characteristics of solar modules.

- Uniformity 2%
- Capacity 50MW per annum
- Repeatability >99.50%
- Temporal stability <0.1%



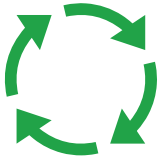
Stringent Quality systems

- 40 steps quality control and inspection process.
- Continuous line monitoring & record for each cell and panel.
- The most advanced quality & latest technology assurance devices.
- Comprehensive QC information management system in place to allow quality data flow constantly.
- Intelligent alarm and stop mechanism in case of any deviation or errors.
- Most stringent acceptance criteria and tightest tolerance.
- "Zero" defects objective.



Incoming Quality Control

We use high class raw material to produce our modules. To determine the quality of raw material we do rigorous incoming quality control for every raw material followed by their checklist. We follow ISO:2859, General Inspection Level III, AQL 2.5.



In-process Quality Control

We follow a stringent in-process quality control during manufacturing process to ensure the solar modules we are producing are as per international norms.



Glass Transparency

To evaluate the transparency of glass to generate more power in the field.



Gel content Test

To evaluate the lamination strength & reliability of the modules.



Adhesion test(Glass-EVA)

To determine the lamination strength between EVA & Glass.



Adhesion test (Back sheet-EVA)

To determine the lamination strength between EVA & Back sheet.



Shrinkage Test of EVA

To evaluate the lamination performance of modules.



Soldering peel strength

To determine the soldering strength of solar cells to evaluate reliability of solar modules.



EL inspection

100 % electroluminescence test before and after lamination.



Zero micro crack

100% "zero" micro crack monitoring and optimal test before shipment.



Final Quality Control

- 100% final quality check for each & every solar module.
- 3 times visual inspection during manufacturing process to ensure the solar modules
- we are producing must be defect free.
- 100% electrical testing of modules on AAA class sun-simulator.
- Ground continuity test.
- Wet leakage test.
- Insulation resistance test.

Solar energy is eco-friendly

Cut your carbon footprint

Get paid to generate

Protect against rising energy costs

Lower your house hold bills

Sell electricity back to the grid

AAA Class
German Technology
Clean Room Production
Highly Automated Machines

BOOK A FREE
CONSULTATION
TODAY
04 880 0733

*Powering
green energy*

why rent electricity, when you can **produce your own.**

Residential system | Commercial system | Off-grid system | On-grid system

OUR MAIN AIM

Review & propose means for reducing your current power consumption

Echo Solar Panels Manufacturing LLC
DIP 1, Community 598 - 1212, Street 55, # 5, P.O. Box: 454429, Dubai, UAE
Tel: +97148800733, Fax: +97148830042
Email: info@echosolarae.com, Website: www.echosolaruae.com

info@echosolarae.com

Ploy-Crystalline Modules

ECHO SOLAR poly-crystalline modules deliver more than average energy yields. Our technology know how, ensures quality you can rely. Currently, we are one of the few manufacturers in U.A.E to provide High Efficiency solar modules manufactured in fully automated production process. Due to our high efficiency panels you can minimize installation costs & maximize output.

- ✓ Modules are assembled using high-quality components sourced from reliable international suppliers.
- ✓ Modules are manufactured in state-of-the-art, automated manufacturing facilities guarantee consistent high-quality and electrical performance.
- ✓ Modules are certified by TUV as per international standards: IEC 61215, IEC 61730-I&II, IEC 61701 and IEC 62716
- ✓ Modules ensure Positive power tolerance to the customer.

ECHO SOLAR[®]

Mono-Crystalline Modules

ECHO SOLAR Mono-crystalline modules are High energy density modules because these modules deliver the highest power output in least amount of space comparing to other solar panels.

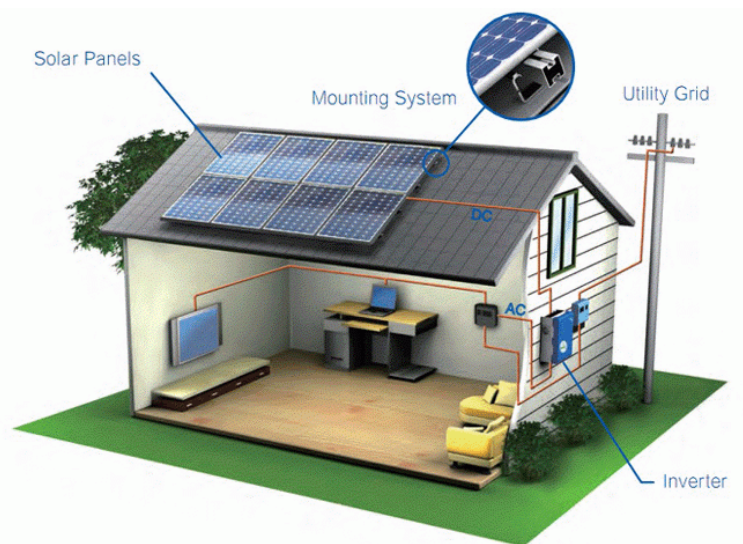




Solar EPC Solutions

ECHO SOLAR is a full solar EPC solution provider, with everything you need to power your home with clean solar energy. It has installed so many solar power systems for customers. We have a full in-house technical team that will plan out your installation and coordinate all team members, including the engineering design team & installation crew.

Our technology approach allows us to efficiently manage solar installations from beginning to end, and that saves time and money on your project. ECHO SOLAR is established to make a big difference in the fight against climate change. Our aim is to revolutionize the global energy market.





**Huge Electricity bill makes today
the best time to invest in KW
Rooftop Systems.**

KW Roof Top Solutions

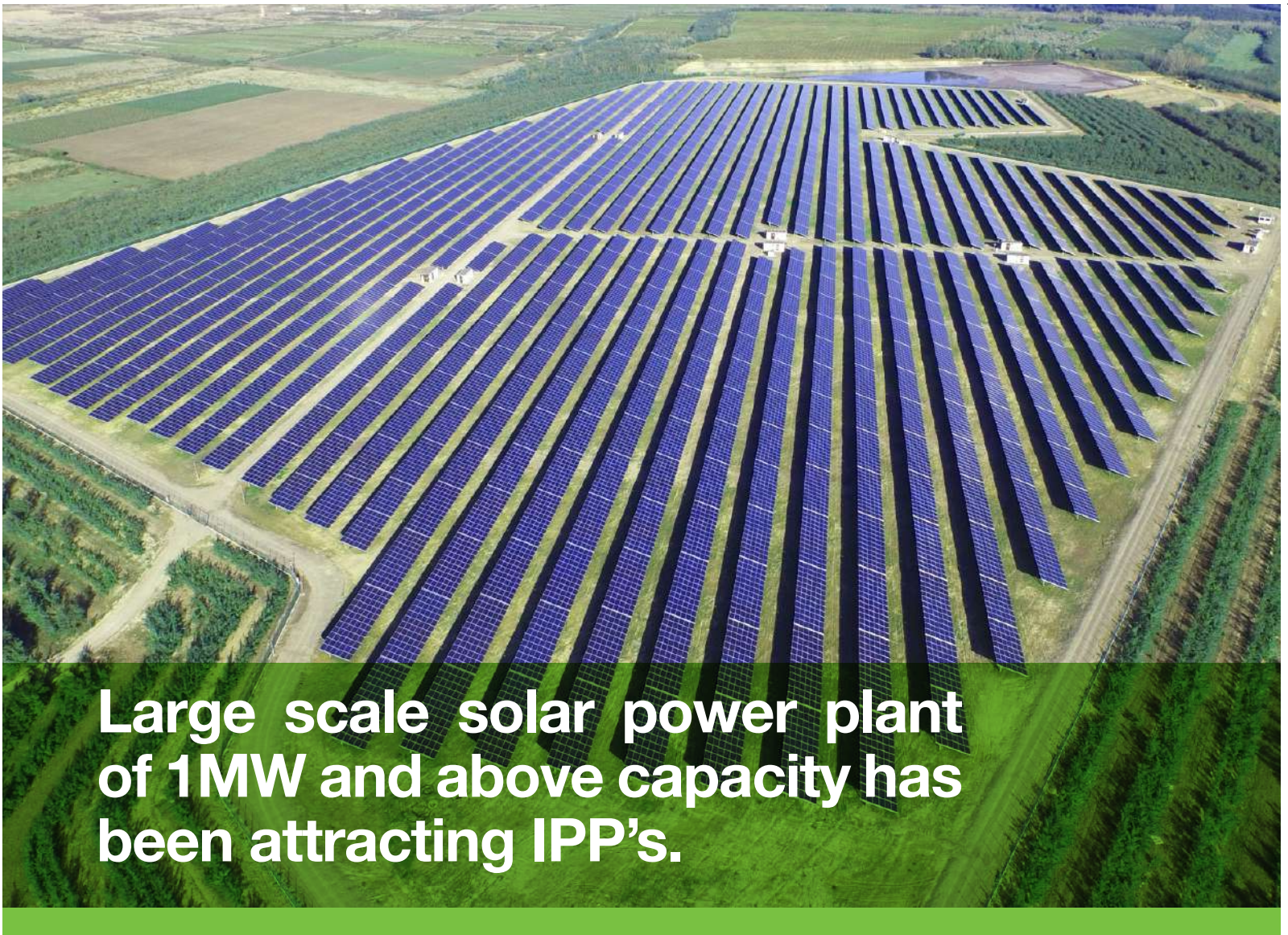
Grid connected Rooftop Solar power plants within the capacity range of 1 to 500 kilowatts are simple to install and easy to maintain. The rising demand of these systems amongst the residential and commercial rooftops is due to reliable power supply, thereby replacing the DG sets.

Be an Independent power producer, not only does a system pay itself off via Subsidies and lower, or no electricity bills, your investment further attracts Tax Benefits for a commercial establishment.

A standard KW system installation is affordable for almost anyone to get started on a Greener, Cleaner and Cheaper way to forward. Installing a solar power KW system will instantly add to the value of your residential or commercial establishment. Your most Profitable investment ever!

We provide complete roof top solutions from Design till Commissioning of Project.





Large scale solar power plant of 1MW and above capacity has been attracting IPP's.

EPC Mega - Watt Grid Projects

We act as a principle and lead EPC solution provider for ensuring the completion of each solar plant from concept to commissioning including operation & maintenance the complete life of a solar power plant.

We design, build and commission with utmost sophistication and provides real time operational support & maintenance to large

scale solar power plants with a proven experience of more than 2MW. Our design team ensure a robust & sustainable design for proper execution of project.

We ensure reliability, risk-free yields and durability by using quality multi-system products complementing each other.

..... **”**
Our main objective in the EPC is to provide top end quality service, from the initial conceptualization and design stage to the installation & commissioning stage.

..... **”**



Solar Street Lighting System

Our lighting systems are designed for a wide range of physical and operating environments and are perfect for rural, suburban and metropolitan areas.



Common uses for our lighting systems and power systems are:

- ✓ Highway lighting, parking lots.
- ✓ Portable Emergency lighting and power.
- ✓ Hazard warning lights at stop signs, cross-walks and on met-towers.
- ✓ Permanent and Temporary - Government and Military Applications.





Solar Powered Telecom Solutions

Most of the telecom antenna systems which are located in off-grid areas are powered by Diesel generators. Not only the fuel consumption is expensive but also the maintenance and logistic is a challenge.

Echo Solar offers a reliable solar power solutions based on efficient solar power and a high-quality energy storage system which need no cooling and thus reduce power consumption. By

Challenges

- Unreliable/ poor quality of grid power.
- Continuously rising fossil fuel costs.
- Manpower for refilling, maintenance, reconciliation & back office.
- Less control on remote and local human dependencies.
- Long running hours of DG requiring diesel in large consumption.
- Climate change & increased social pressures to go green.

using outstanding products and Technology know-how we offer you the most reliable and independent power supply available on the telecom market today.

Echo Solar system can be designed to meet initial power generation and can be easily increased if the power consumption rises because of new equipment or technologies.

Challenges

- Fuel consumption can be reduced to bare minimum.
- Running cost almost ZERO.
- Huge reduction in operational costs.
- No dependency on on-grid supply.
- Availability of cellular network in remote areas.
- Zero maintenance.
- Reduce carbon foot print & environment friendly.
- Attractive payback period.
- Corporate social responsibility.



Bi-Facial Solar Modules

ECHO SOLAR BI-FACIAL module takes the additional light and converts it into electricity. The ECHO SOLAR BI-FACIAL solutions are especially useful when modules are mounted over a reflective background, such as a white roof or light ground surface covering

ECHO SOLAR BI-FACIAL modules are built to outlast the competition, because they are manufactured using tempered glass-on-glass design and are hermetically sealed to protect the cells from external damage. Thus, the effects of PID are negligible due to the use of high quality materials, double glass structure and hermetic sealing of the module. Our unique production process allows modules to be mounted in fully water/weather proof systems.

- ✓ Provides the lowest cost of energy
- ✓ Provides backside collection of reflected direct and diffuse light
- ✓ Boosts by 10 % to 30% energy in inclined installations, such as flat rooftops & open-field installations.
- ✓ Generates 30% to 50% energy in vertical installations such as facades, sound barriers and form of BIPV.





Solar Powered Irrigation Solutions

Solar Pivot Irrigation System

It is a system in which is a pump running on electricity generated by solar panels as opposed to grid electricity or diesel run water pumps. The operation of solar pivot irrigation system is more economical mainly due to the lower operation and maintenance costs and has less environmental impact than pumps powered by an internal combustion engine. Solar pivot irrigation systems

are useful where grid electricity is unavailable and alternative sources do not provide sufficient energy. Solar pivot irrigation system converts solar energy directly into AC power. The power produced is feed into A.C pump that pump water into sprinklers through pivot.

Benefits of Solar Pivot Irrigation System:

- Placing the solar array at the center of the pivot takes care of cleaning the PV modules, resulting in even higher efficiency of the system and less operating costs for maintenance.
- Solar water pumping systems require no fuel. This removes the energy bill plus the time and cost of filling fuel tanks and having costly fuel deliveries to remote areas. Also, cuts of subsidies are no longer an issue.
- Solar pump systems have few moving parts which makes maintenance unnecessary and gives them a long life. These elements give this solution a good return on investment and a best quality/price ratio in comparison to conventional pumping systems, especially for systems in remote areas.
- Solar energy is a clean and inexhaustible energy source. Solar provides a long term reliable supply of energy without producing any emissions. Use of solar energy preserves the environment and has no impact on human health.
- Adjusting the pivot's speed and, if used, the fertilizer pumps' performance to the flow of water allows precise irrigation and fertilization of the irrigation area, all on solar power only.





Solar Pumping System

ECHO Solar water pumping system is a stand-alone system for, residential, commercial irrigation and wildlife watering systems and water supply for remote homes and commercial buildings.

Surface Pumps / Submersible pumps:



Village Water Supply



Livestock Watering



Water Supply to Remote Homes / Agriculture



Micro Irrigation



Operation & Maintenance

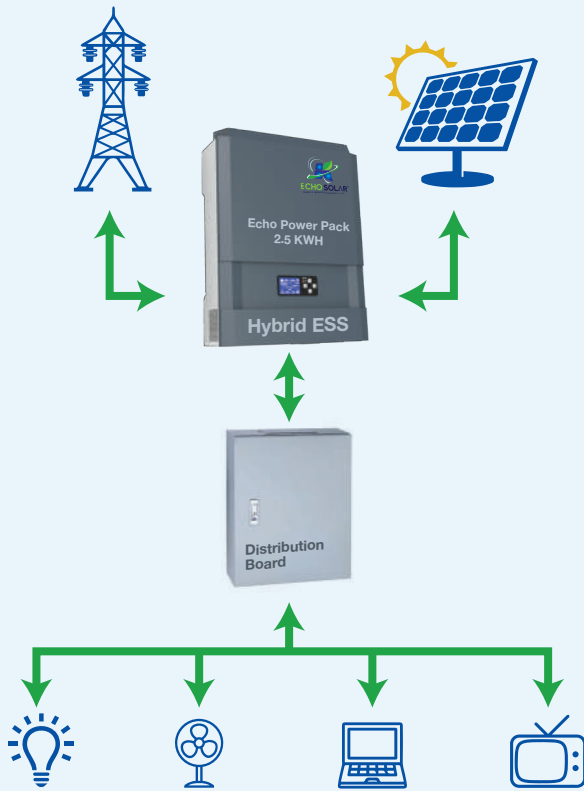
Operate the Facility in accordance with applicable regulations (particularly on safety and occupational health and environment)

Verify, record and report information to the Owner on the generation of electricity, loss in generation due to grid disturbance, and consumption of electricity within the facility. Monitor and supervise the operation of the facility and communicate in the form of monthly reports in writing to the Owner.

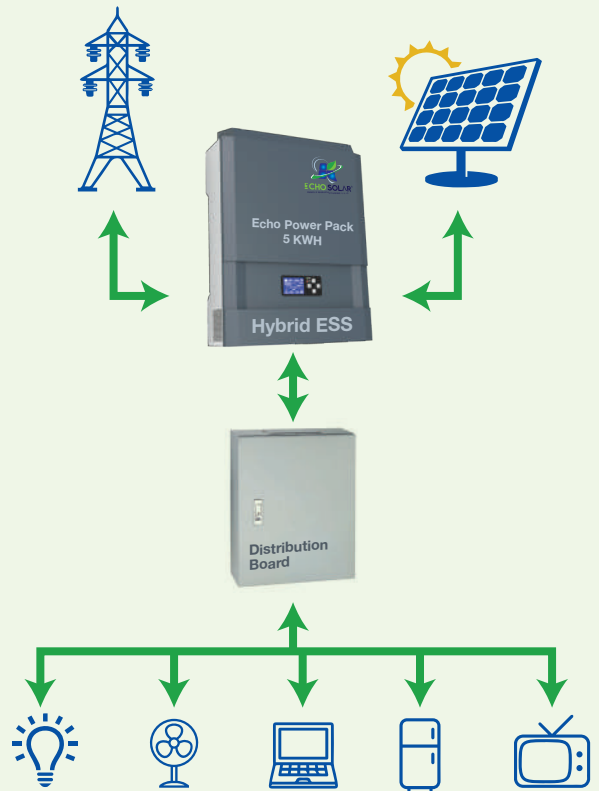
This monthly report will contain information regarding the evacuation of electricity to the grid; tasks performed preventive and corrective maintenance, as well as electricity consumption of the Facility. Carry out all tasks of inspection, testing, cleaning, and preventive maintenance and/ or corrective repair, replacement if necessary under the Good Manufacturing Practices.



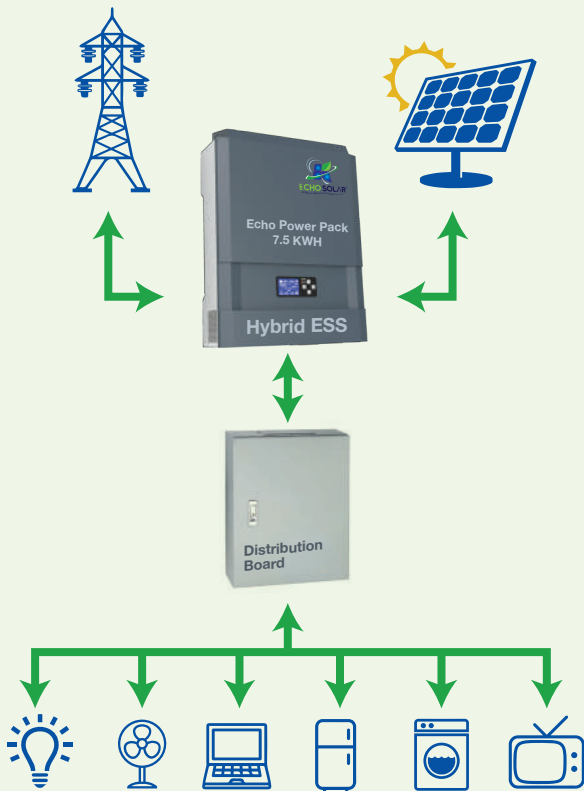
Echo Power Pack 2.5 KWH



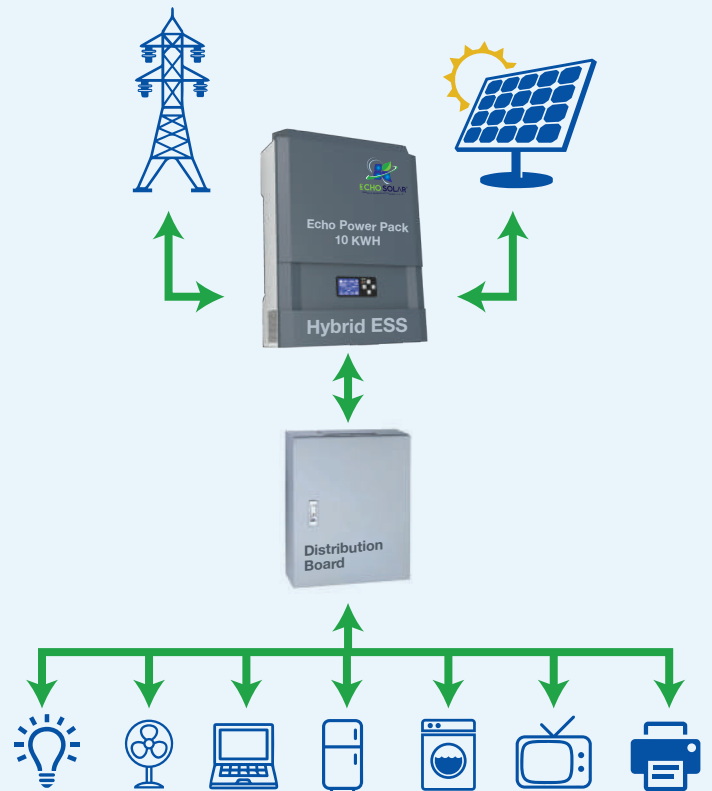
Echo Power Pack 5 KWH



Echo Power Pack 7.5 KWH



Echo Power Pack 10 KWH





Echo Solar Panels Manufacturing L.L.C.

P.O.Box: 454429, Dubai, UAE,
Dubai Investment Park - 1,
Community 598 - 1212, Street - 55, #5.

Tel : +971 4 880 0733 | Fax : +971 4 883 0042
info@echosolarae.com | www.echosolaruae.com

