

ECOLUS ENERGY
ENERGY FOR THE LONG RUN

ECOLUS ENERGY COMPANY PROFILE

Table of Contents

ABOUT US

MISSION, VISION & CORE VALUES

DOMESTIC SOLAR SYSTEMS

COMMERCIAL SOLAR SYSTEMS

OUR SUSTAINABLE PACKAGES

SOLAR PANELS

INVERTERS

BATTERIES

PUMPS

GEYSERS

CONSULTANCY

LIGHTING SOLUTIONS

OUR CORPORATE CLIENTS



About Us

Ecolus Energy (Pvt) Ltd is an energy company with a drive to transform the energy industry into providing cost effective and environmentally friendly power generation solutions. The company takes its strength from well-researched market knowledge that enables excellent customer focus. Ecolus Energy (Pvt) Ltd pays special attention to the source market, on one hand, to get the best quality at the right price and on the other attracting talented and experienced engineers that make quality installations.

Ecolus Energy (Pvt) Ltd supplies all equipment needed for the installation of a customized photo voltaic power station, which includes PV modules, electronic components such as inverters and racking systems. The company also supplies solar water heaters, solar powered fridges and freezers and solar consumer goods like lighting and cell phone chargers.



Vision

To be the chosen company by our stakeholders as their preferred Renewable Energy In Zimbabwe And Beyond our Borders.



Mission



To give the Citizens of Zimbabwe and Sub Saharan Africa access to renewable energy at a reasonable cost.

Values

Customer Education
Innovation
Absolute Integrity
Professionalism
Teamwork



We Provide unique Solutions and Techniques to ensure the successful delivery of renewable and sustainable energy projects promptly. We deliver a value for our clients with creative, experienced and highly skilled engineering team in the design, installation, operation and maintenance of high quality sustainable energy solution. We produce solar photovoltaic power plant in various application such as residential, industrial, commercial and agriculture. Due to the current dilemma of power source generation all over the country we encourage everyone to GO GREEN. Zimbabwean Government has started to really encourage and direct investments in this sector which is an effective solution to the shortage in power sources in Zimbabwe.

Domenstic Solar Systems

Domestic Solar System Components.

Solar panels produce DC electricity from sunlight. Then the inverter converts the generated electricity into AC, so that it can be used in the household.

The computerised controller manages the solar system and ensures optimal performance. If you want battery backup system or an off-the-grid solar system, a battery is required.

Solar Panel Maintenance

You should have your system examined every 2-3 years by Ecolus Energy. It is also a good idea to ask us about specific maintenance requirements for your solar system.

Since there are no moving parts, solar panels require very little maintenance. Once you have covered the installation cost of solar panels, there are not many costs associated with maintaining it.



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Our Solar System Installation Process.

1. Set Up Scaffolding. Firstly, you have to erect scaffolding to ensure safety during the whole installation process when being on the roof.

2. Install Solar Panel Mounts. Then, the solar panel mounting system has to be set up. This will support the base of the solar panels. The whole mounting structure must be tilted and have an angle between 18 to 36 degrees to have maximum sunlight exposure.

3. Install the Solar Panels. When the mounts are set up, the solar panel itself has to be installed on the mounting structure. Make sure to tighten up all the bolts and nuts so that it stays stable.

4. Wire the Solar Panels The next step in the installation process is to install the electrical wiring. In most cases, MC4 connectors are used because they are suited for all types of solar panels. Make sure to shut off the household's electricity supply during the wiring installation.



5. Install Solar Inverter, After that, the solar inverter must be connected to the system. It is typically installed near the main panel and it could be both indoors and outdoors. Inverters are more efficient if kept in a cooler place. If the inverter is outdoors, it should be kept out from the afternoon sun. If it is installed indoors, the garage or utility room are usually the best places, since they stay cool for most of the year and have ventilation.

6. Bond Solar Inverter and Solar Battery. Thereafter, the solar inverter has to be connected to the solar battery. The solar battery storage can save you from worrying about the lack of usable energy during cloudy times, it can also lower the solar battery storage system costs during installation.

7. Connect the Inverter to the Consumer Unit. The inverter should be connected to the consumer unit to generate electricity. A generation meter should also be connected to monitor the amount of electricity the solar panels actually produce. You can use your computer or other device to check your solar system's performance. For example, you can check how much electricity you generate at different times and decide what time is suitable for using your washing machine or other utilities.

8. Start and Test Solar Panels. The final step is to switch the power on and test the newly installed solar panel system. After that, the solar panel installation process is completed.



Commercial Solar Systems

Commercial Solar Systems Installations

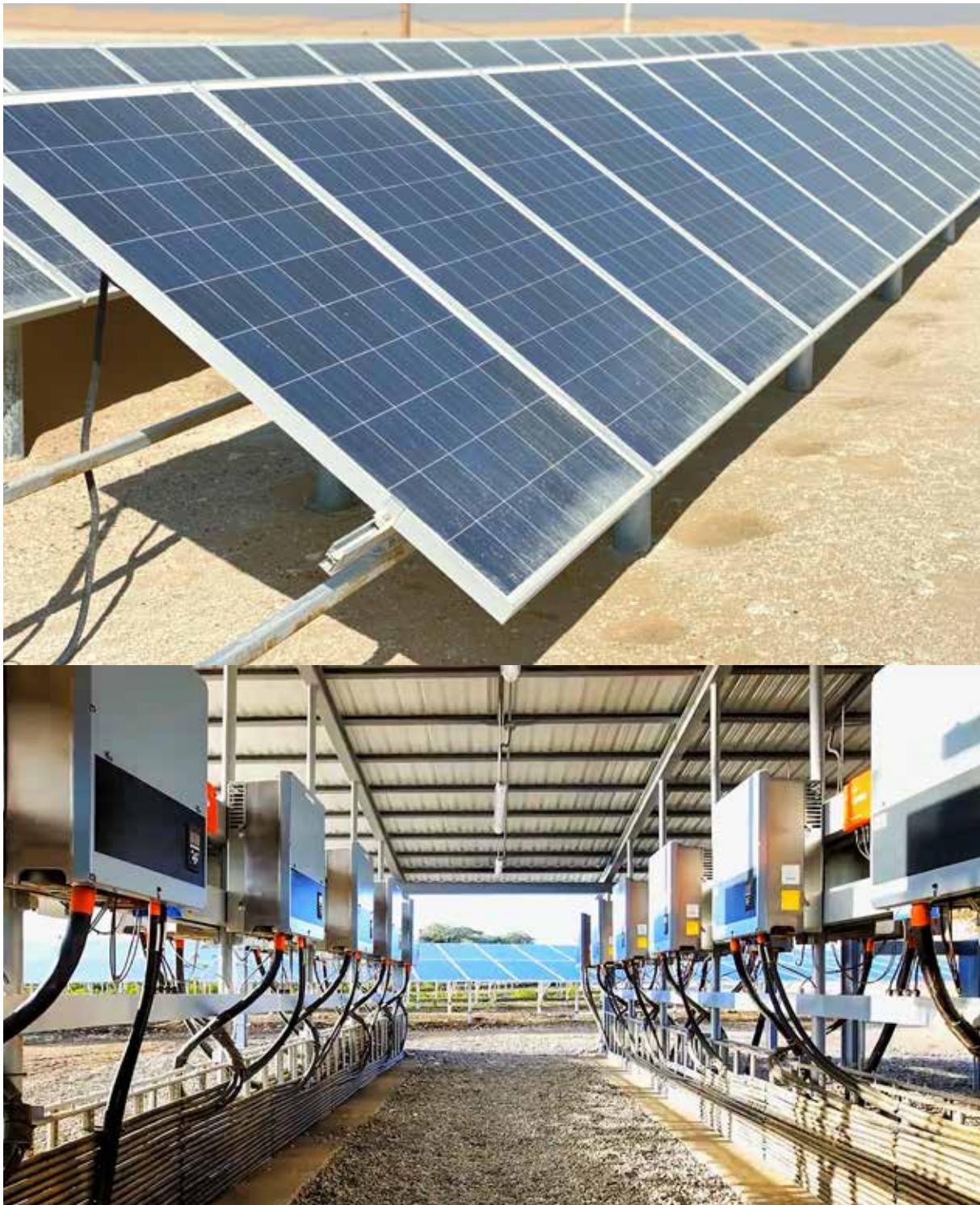
We design & supply solar systems for commercial PV applications at low wholesale prices. Commercial solar systems by Solar Electric Supply (SES) are custom solar panel grid-tie power systems for commercial buildings using Phocos, Growatt, Victron Energy, Kodak, Huawei, Must and Rebel solar panels. Grid-tie inverters include: SMA, Fronius, SolarEdge, PV Powered, Schneider Electric and GE. We offer below factory direct pricing with factory technical support available and can assist with the solar system design, return on investment calculation, and solar system financing. Solar system rebate application assistance is also available. Ecolus Energy designs and integrates utility-scale solar systems, solar farms, solar tracking systems, municipal systems, and industrial solar systems.



Our Commercial Solar Systems include:

- Solar modules or panels
- Solar system grid-tie inverter
- Solar panel mounting system
- Balance of system components
- Single and three-line electrical drawings
- Design assistance and technical support

Real Solar Installation



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Sloped Roof System

Sloped roof systems with many mounting and solar stanchion options for flashed or non-flashed composition, tile, metal, virtually any sloping roof.



Flat Roof System

Complete solar systems for membrane or torch down roofs, standing metal seam, corrugated steel, concrete, ballasted solar systems, all types of flat roof solar mounting structures.



Ground Mount System

Robust ground-mounted solar systems use aluminum and stainless steel components for strength and corrosion resistance. Low-profile, multi-pole adjustable, low-penetration and self-ballasted are popular system options.



Solar Carport

Our Commercial Carport Mount Solar Systems come from trusted manufacturers like Schletter, Upsolar and Orion. Each solar carport we provide comes with on-site project management and installation service options to ensure quality customer satisfaction and customer focused solutions.



Our Sustainable Packages

Our Solar Packages includes installation & accessories.

1KVA Basis Backup	1kv Inverter 1X 330 watts Solar Panel 1X 12v 100Ah Gel Battery	Lights T.V Decoder Wi-fi Router Mobile Phone charging
3KVA Home Access	3 kva 24v (pwm) Inverter 2 X 330 watts Solar Panels 2 X 12v 100Ah Gel Batteries	Lights T.V Decoder Upright Fridge Laptop Phone charging Wi-fi Router
3KVA Home Compact	3 kva 24v (mppt) Hybrid Inverter 4 X 330 watts Solar Panels 1X 24v 100Ah Lithium ion Battery	Home Lighting Fan Entertainment Set Upright Fridge
5KVA Home Premium	5 kva 48v (mppt) Hybrid Inverter 6 X 370 watts Solar Panels 48v 100Ah Lithium ion Battery Incl. Installation & Accessories	Home Lighting Fan Ent.Set Gate Motor Upright & Deep Freezer 1 hp Borehole Pump



Solar Panels



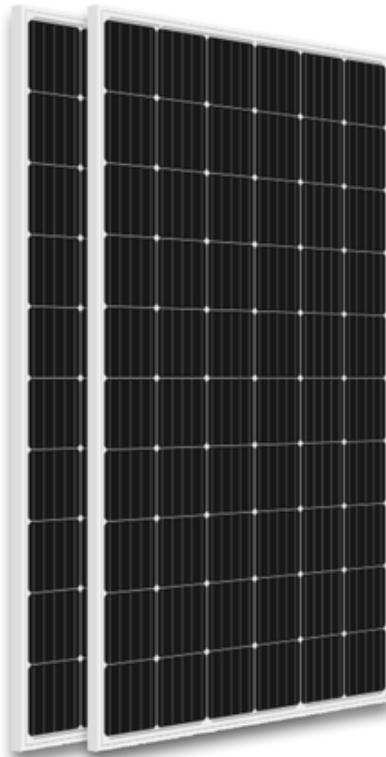
Monocrystalline Solar Panels

These monocrystalline solar panels are made from about 40 of the monocrystalline solar cells. These solar cells are made from pure silicon. In the manufacturing process, a silicon crystal is placed in a vat of molten silicon.

The crystal is then pulled up out of the vat very slowly, allowing for the molten silicon to form a solid crystal shell around.

Monocrystalline solar cells appear black because of the way sunlights interacts with pure silicon. While the cells are black, there's a variety of colors and designs for the back sheets and frames.

The monocrystalline cells are shaped like a square with the corners removed, so there are small gaps between the cells.



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CanadianSolar

Jinko Solar
Building Your Trust in Solar

SUNPOWER®

YINGLI SOLAR

TrinaSolar

Polycrystalline Solar Panels

Polycrystalline solar panels are a newer development, but they are rising quickly in popularity and efficiency. Just like monocrystalline solar panels, polycrystalline cells are made from silicon. But polycrystalline cells are made from fragments of the silicon crystal melted together. During the manufacturing process, the silicon crystal is placed in a vat of molten silicon. Instead of pulling it out slowly, this crystal is allowed to fragment and then cool.

Then once the new crystal is cooled in its mold, the fragmented silicon is thinly sliced into polycrystalline solar wafers. These wafers are assembled together to form a polycrystalline panel.

Polycrystalline cells are blue in color because of the way sunlight reflects on the crystals. Sunlight reflects off of silicon fragments differently than it does with a pure silicon cell. Usually the back frames and frames are silver with polycrystalline, but there can be variation. The shape of the cell is a square, and there are no gaps between corners of cells.



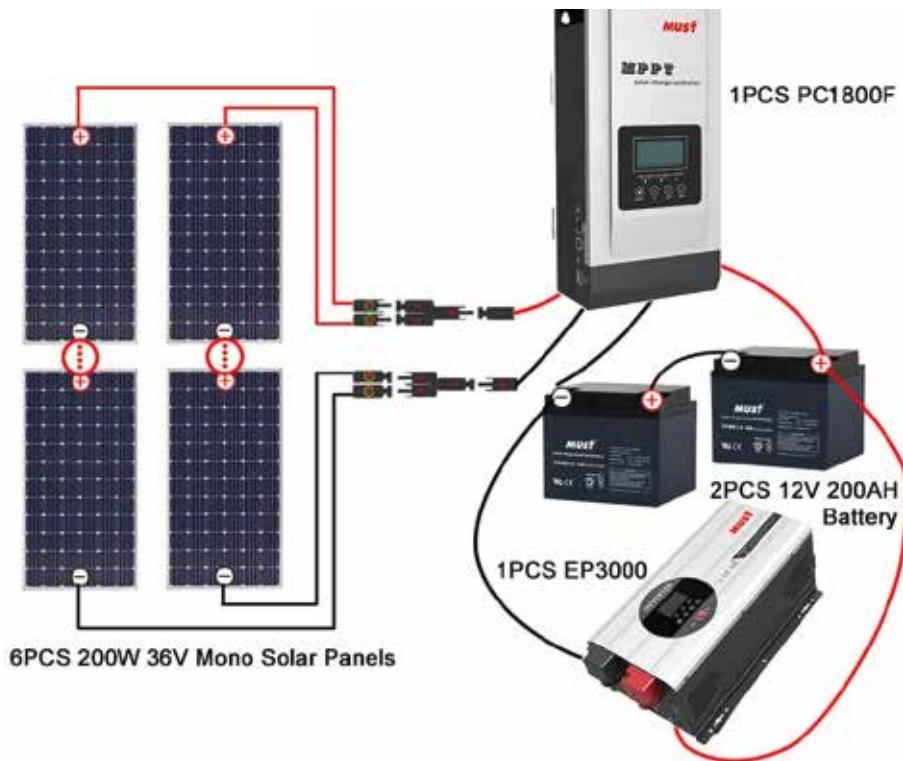
Thin-Film Solar Panels

Thin-film solar panels are an extremely new development in the solar panel industry. The most distinguishing feature of thin-film panels is that they aren't always made from silicon. They can be made from a variety of materials, including cadmium telluride (CdTe), amorphous silicon (a-Si), and Copper Indium Gallium Selenide (CIGS).

As their name suggests, thin-film panels are easy to identify by their thin appearance. These panels are approximately 350 times thinner than those that use silicon wafers. But thin-film frames can be large sometimes, and that can make the appearance of the entire solar system comparable to that of a monocrystalline or polycrystalline system. Thin-film cells can be black or blue, depending on the material they were made from.



Invertors



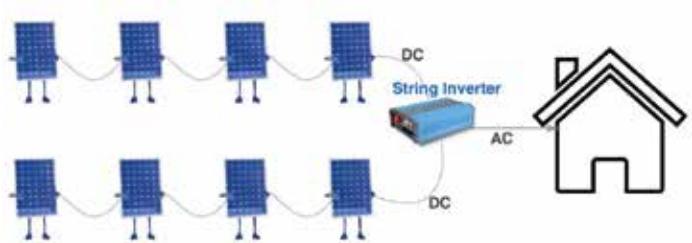
Solar inverters, also known as PV inverters, play a crucial role in the solar energy system. They are mostly considered the brains of a project. The solar panel inverter is beneficial in changing the direct current to alternate current. Direct current is the power that flows in one direction in the circuit and assists in providing current when there is no electricity. What does a solar inverter do? A solar inverter is one of the most vital components of a solar structure. The inverter transforms the energy output from solar panels into consumable electricity form used in residential or commercial properties. Solar panel inverter technologies comprise three types, micro-inverters, power optimizers, and string inverters. String inverters are the most common option worldwide. Every home and residential property has different solar needs. A good way to determine what solar inverter you need is to calculate the amount of energy you would ordinarily require. With a quality inverter, there is almost no limit to what you can do with the power. It is always advisable to seek professional help if you need to consult or make a purchase.

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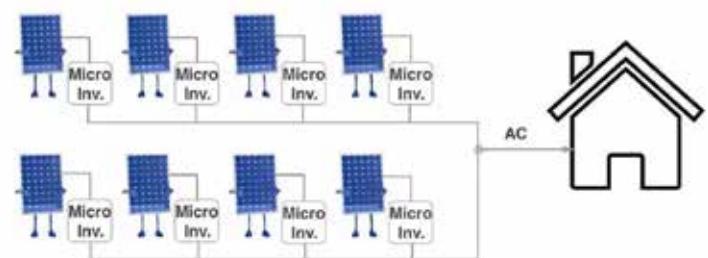


Types of Solar Inverters

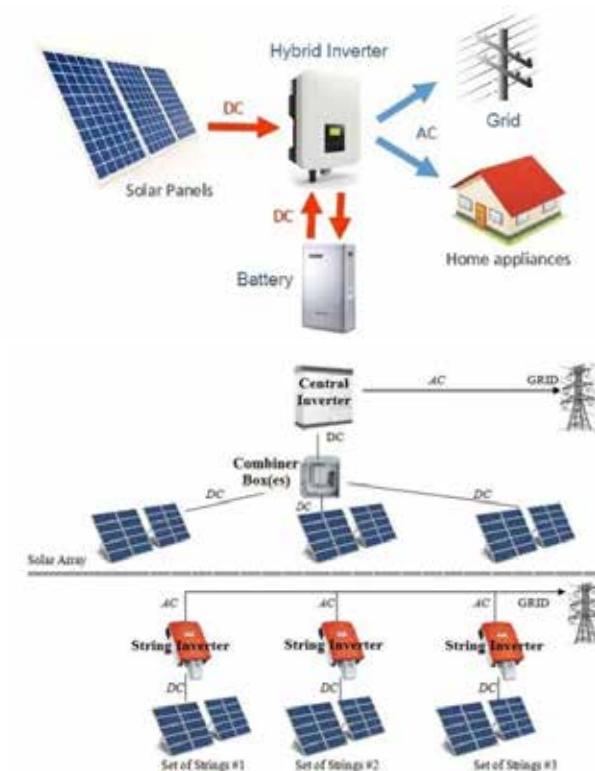
1. String Inverters As the name suggests, multiple strings originating from the solar panels are attached to the inverters, and the DC electricity produced in them are then transformed into AC current. This type of inverters is the main type of solar inverter for home.



2. Microinverters Power optimizer tends to send the collected power into a central inverter to convert DC to AC electricity, microinverters installed for each panel tend to optimize each panel's power in a module-level. So, the transformation of the DC current to AC happens in each inverter connected to each panel.



3. Hybrid Solar Inverters This is a multi-mode inverter which involves a battery installation along with the set-up of the inverters. Not only does the inverter supply the DC power to the battery, but also it provides power to the grid and your home's appliances in the form AC current.



4. Central Inverter It resembles the string inverter, but instead of putting the strings of panels in the inverter, it joints all of the strings of panels together and inserts it into a combiner box which is kept in a protected territory. Afterwards, the strings are then connected to an inverter which receives the DC electricity from the combiner box and then converts it to AC. Since the inverter involves using only a combiner box and a pad, its installation cost is very less.

5. Battery-based Inverter/Charger: Most of the off-grid solar systems tend to charge the battery on its own, but during winter or acute shading, it is often difficult for the solar system to fully charge the battery. Hence, the inverter/charger kicks in to meet the energy requirement of the system. This type of inverter is bi-directional, which means that it can work both as a battery charger and an inverter. In this system, an AC generator is required to trigger the conversion of the AC electricity to DC and vice versa.



Batteries

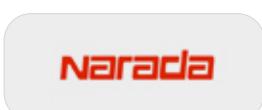


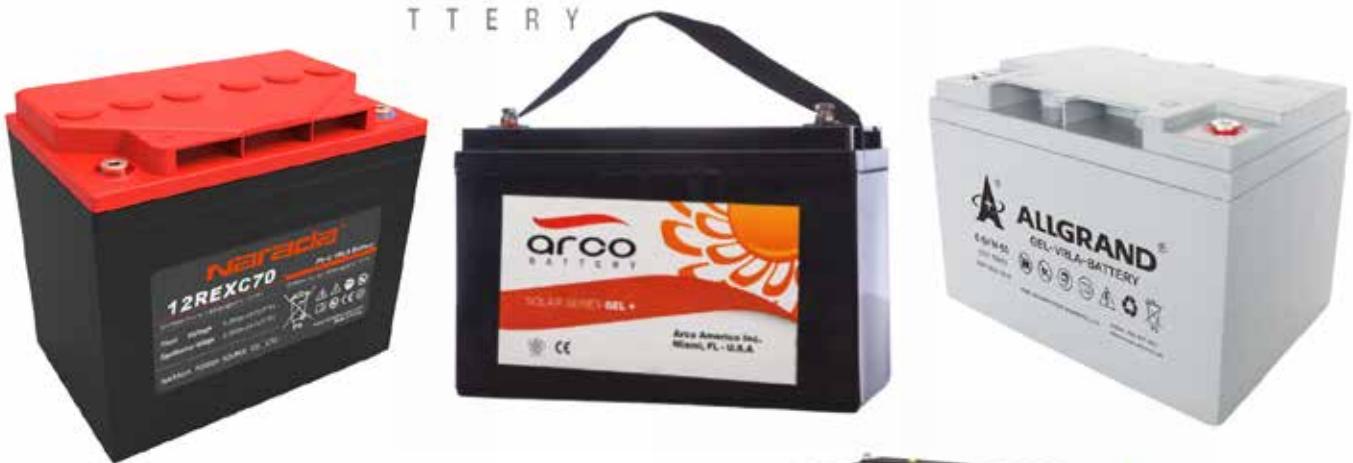
Most home power devices face a possible incompatibility with the main power source. Many homes have sometimes been hooked up to the electricity grid. If primary resources fail, you can build a battery bank that can provide your house with electricity. There are factors to be considered to know how many batteries are needed to power a house.

Power Usage

Electricity usage in households in kilowatt-hours is measured. The energy requirements of 1 kilowatt hour is equivalent to 1 hour of one kilowatt or 10 hours of a device of 100 watts. The monthly energy bill shows you how many kilowatt hours you have spent and the bill may also include previous month usage statistics.

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Gel Battery - A gel battery is a valve regulated, maintenance free, lead acid battery. Gel batteries are extremely robust and versatile. These type of batteries produce few fumes and can be used in places without much ventilation.

Lithium Battery - A lithium-ion (Li-ion) battery is an advanced battery technology that uses lithium ions as a key component of its electrochemistry. During a discharge cycle, lithium atoms in the anode are ionized and separated from their electrons. the battery is powered.



Period of time

Creating a battery bank that can meet the electrical needs of a household for several days is not feasible. Any disrupted primary energy system will be able to take account of a reliable system for a few days. You will decide how many days you plan to be helpless when planning your battery bank. For example, you might have three days of battery power in a countryside with severe storms periodically triggering power shutdowns.

Specifications of Battery

A certain number in amp-hours of batteries are designed to produce a certain voltage. A 400-amp-hour battery, for example, will supply 4 amperes for 100 hours of current. The battery voltage is known to be quite stable but the voltage falls slowly when the battery is powered. For order to measure battery energy capacity for kilowatt-hours, the standard working voltage is increased by the amp-hour value to 1,000. A 400 amp-hour 6 volt battery can provide around 2.4 kilowatt hours of power.

Water Pump

For irrigation

The need to irrigation agricultural land efficiently, economically and sustainably is critical for food security. Costs for irrigation using diesel power are rising every year. Solar irrigation solutions are a very attractive alternative to diesel powered pumping and support sustainable agriculture.



For recreational purposes

Recreational parks and homes with swimming pools circulation and filtration pump used to keep pools clean are typically the second biggest consumers of electricity. Pool pumps are a compelling proposition for home owners and commercial pool operators in a sector where operating costs needs to be minimized.



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Geyser



Why now is the right time to install a solar geyser?

Climate change is on the rise. Installing a solar geyser is one way to help make a difference. Not only does solar power save you money as it costs less, but most importantly, it reduces your carbon footprint. Here are a few reasons to why it's the best time to install a solar water heater right now.

How long does a solar geyser last?

A solar geyser has a lifespan of about 15 to 20 years. Regular maintenance and cleaning will ensure they give you optimum performance for the duration of their life. Here's a guide on how to clean your solar geyser.

How effective is a solar geyser in winter?

Days are shorter in winter and the starting temperature of the water is much colder. You will still get hot water, but the solar geyser has to work much harder. Most solar geysers have a backup electric element so you get hot water if there isn't enough sun.



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Nexus

AMeeN

e AE ELECTRICAL

Suntask®

Consultancy

Ecolus Energy has a key competency in solar consulting services. We work with clients across the country, providing full-service due diligence services, from feasibility analysis and design through to implementation, optimization, and management of photovoltaic (PV) systems.

Our team of experts can take you through the full development cycle of a project, starting with validation of a project's technical and economic feasibility and progressing to the design.

Solar Feasibility Study – Our team of experts can help you determine the feasibility of a solar system for your facility. This includes on-site visual observations of the building and surrounding property, as well as conceptual site plans, preliminary layouts, and economic analyses for the proposed PV system. Partner will model the expected production of the system.

Solar Due Diligence – We can perform due diligence assessments as appropriate, including Environmental Site Assessments, Wetlands Assessments, Topographic Surveys, Biological / Threatened and Endangered Species Surveys, Energy Yield Studies, etc.

Geotechnical Investigation – This investigation includes geotechnical analysis of subsurface conditions and a recommendation for the appropriate type of foundation for the proposed solar systems.

Financial Analysis and Modeling – We can generate an independent financial model for your project to verify all inputs and results in regards to income and expenses.

Energy System Design – We provide commercial solar system design and engineering services to meet your energy efficiency needs while also meeting all permitting requirements necessary for approval.





Lighting Solutions

- Solar lights
- Solar street lights



Our solar street lights are suitable for a range of applications including perimeters, front and backyards, pathways and driveways, as well as areas without easy access to AC power. They are also ideal for residential, commercial or industrial applications.

Solar-powered street lights are highly in trend these days as more and more people are now understanding their benefits. Not only are solar-powered street lights better than traditional lighting solutions, but they also save you a lot of money in the long run as they don't add up anything to your electricity bill.

Solar street lights use the power from the sun to provide simple lighting solutions for outdoor areas. We supply a range of out door solar lights including solar street lights, Solar flood lights, Solar garden lights, Wall lights, Bollard and post-top lights, Commercial and industrial lighting and more.

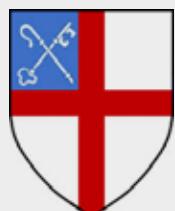


Our Corporate Clients

We have the privilege of being able to serve some of the most prestigious companies in the nation. We enjoy being responsible for guaranteeing that they have everything they need to continue to pursue excellence.



Change lives. **For good.**
act:onaid





GET INTOUCH WITH US TODAY!

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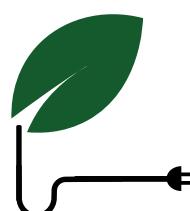
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