



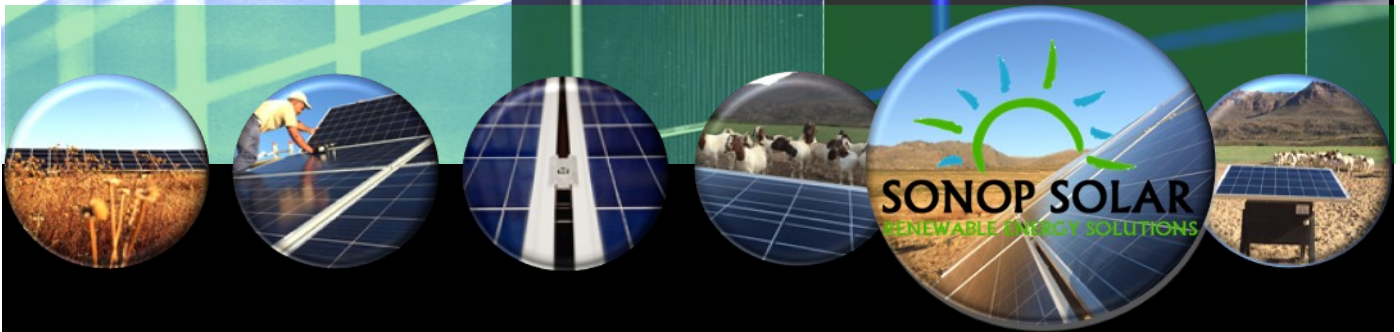
SONOP SOLAR

RENEWABLE ENERGY SOLUTIONS

SOLAR SYSTEM SOLUTIONS

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SOLAR SYSTEM SOLUTIONS



Our mission is to help people generate their own electricity in way that is cleaner, affordable and safer for us, and for future generations.

Sonop Solar provide 5 different solar systems solution .

- 1 Grid- Tie System
- 2 Off- Grid System
- 3 Hybrid System
- 4 Battery Backup System
- 5 Solar Pump System

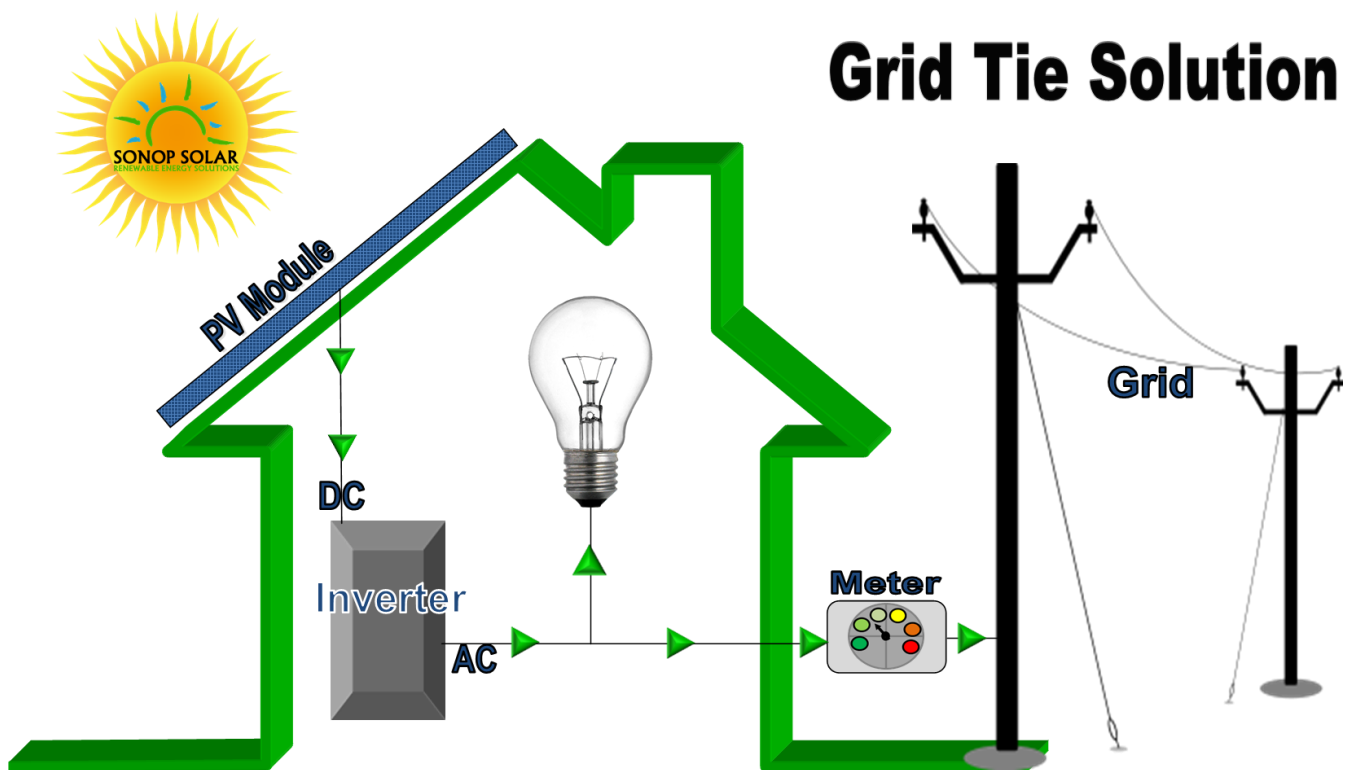
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Grid-Tie System

Grid-Tie Solution

This is a system where you are connected to the grid. DC power from the PV modules is converted by the grid-tied inverter to AC power to feed your consumption during the day and feed excess power back into the grid. There are no batteries involved – the utility is the battery. So when the utility is off, your system is also off. This system offers massive savings on your electricity bill. Batteries can be connected at a later stage with an additional inverter.

Grid Tie Solution



Example: Average house uses 1000 units per month

$1000 \text{ units} \div 30 \text{ days} \div 5.5 \text{ sun hours} = 6.06 \text{ kW/h}$

6 kW grid-tie inverters

24 x 255 W polycrystalline solar panels

Railings, cable, connectors, breakers, fuses, etc.

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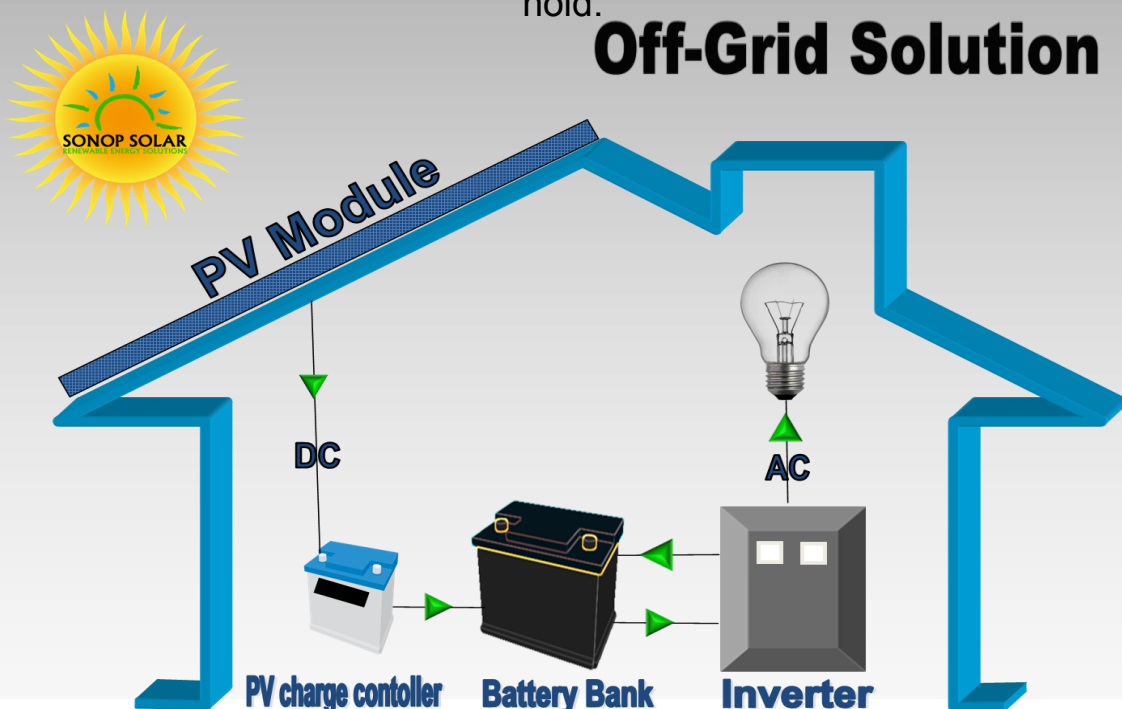
Off-Grid System

Off-Grid Solutions

If you are living in a remote area where you are not connected to the main electricity grid or want to be 100% independent in your power use, installing an off-grid solar power system for your electricity needs could be the best solution.

If you decide to go off grid, you will need solar panels, a charge controller, an inverter and batteries where you can store excess power. These batteries will supply you with energy even when there is no sunshine. The sun shining onto your solar panels will generate DC (direct current) electricity, which is fed into a charge controller. Once your batteries are charged, the DC electricity will be converted by the inverter to AC (Alternating current) and can be used to supply power to your household.

Off-Grid Solution



Example: 5 kVA Stand-alone system

5 kVA inverter/charger
100 Amp charge controller
12 x 255 W polycrystalline solar panels
24 x 1660 Ah 2 V batteries
Combiner box, fuses, breakers, cable, railings, connectors.
Backup power : 40 kW @ 4kW = 10 hours

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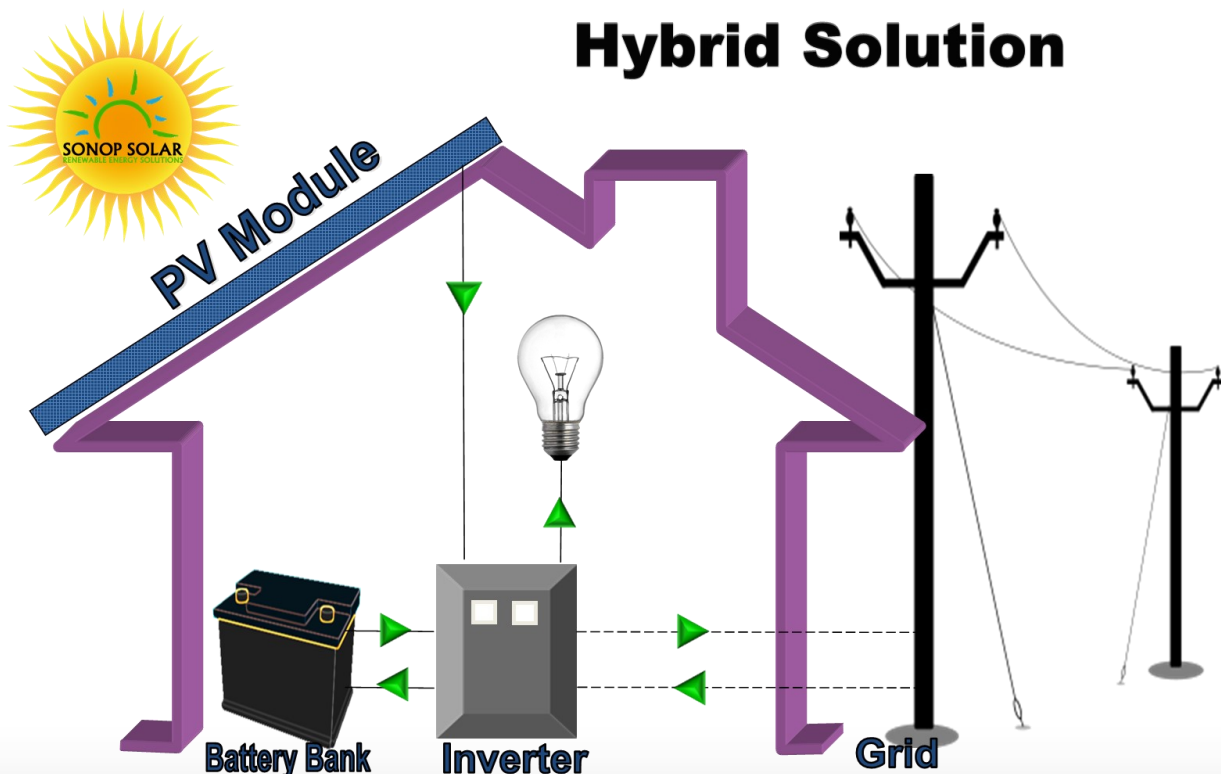
Hybrid System

Hybrid System

Hybrid solar systems combines the best from grid-tied and off-grid solar systems. These systems can either be described as off-grid solar with utility backup power, or grid-tied solar with extra battery storage.

Hybrid non-grid feed in, which is for backup and self-consumption, are connected to the PV modules, utility or generator, batteries and to the load. There is no need for a charge controller/regulator.

Hybrid Solution



Example: 5 kVA

5 kVA hybrid inverter

12 x 255 W polycrystalline solar panels

12 x 260 Ah 12 V batteries

Combiner box, railings, fuses, breakers, cable, connectors, etc.

Backup power : 18.7 kW @ 4 kW = 4.5 hours

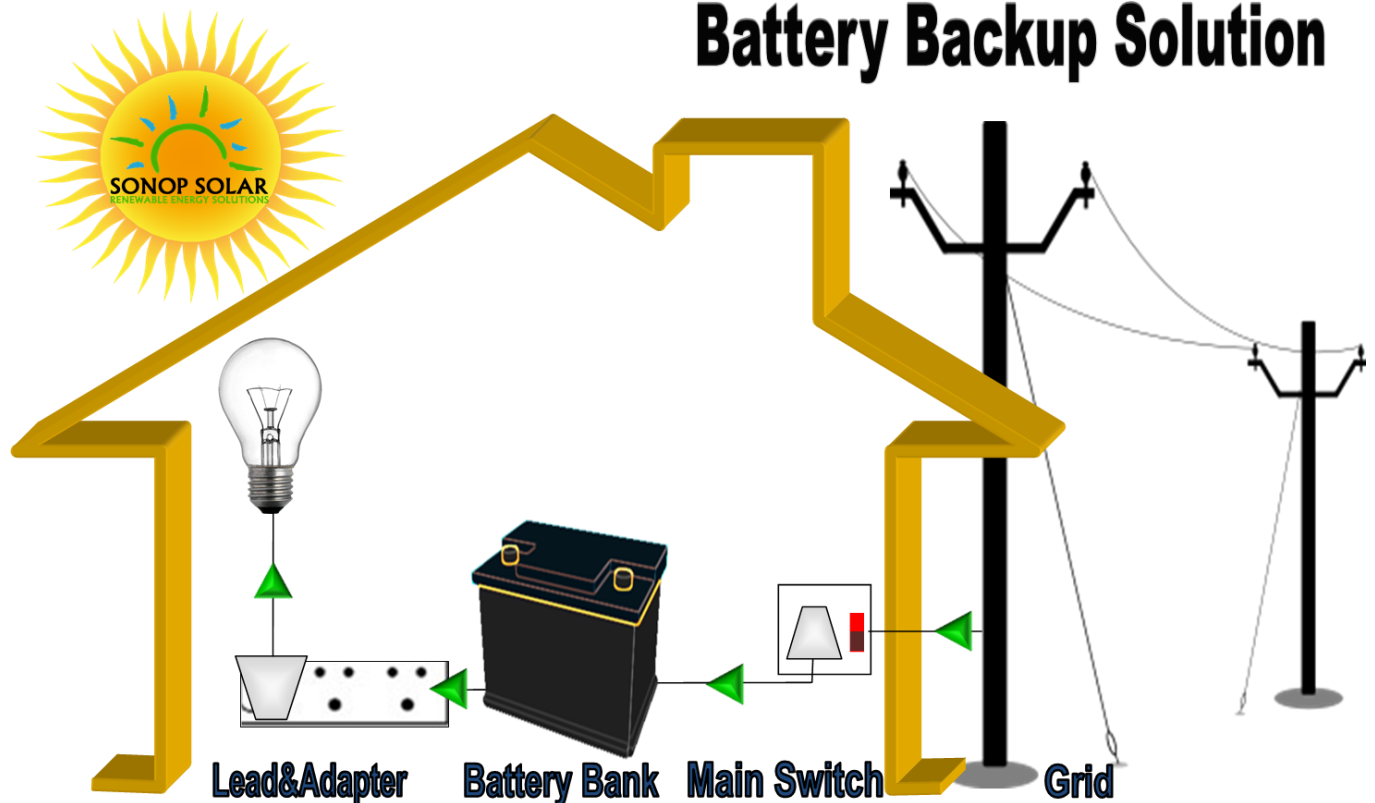
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Battery Backup Solution

Battery Backup Solution

This Battery backup solutions is used when the utility fails. When the utility fails the UPS changes over automatic within milliseconds. The inverter is sized by your load you want to use and the batteries are sized to the backup time you want when the utility fails.

Battery Backup Solution



Example: 5 kVA (4000 W) load for 3 hours backup
Inverter/charger 5 kVA
8 x 12 v 260 Ah batteries
Cable, breakers, etc.

$12\,480\text{ kW/h} \div 4000\text{ W} = 3.1\text{ hours backup @ 50\% depth of discharge}$

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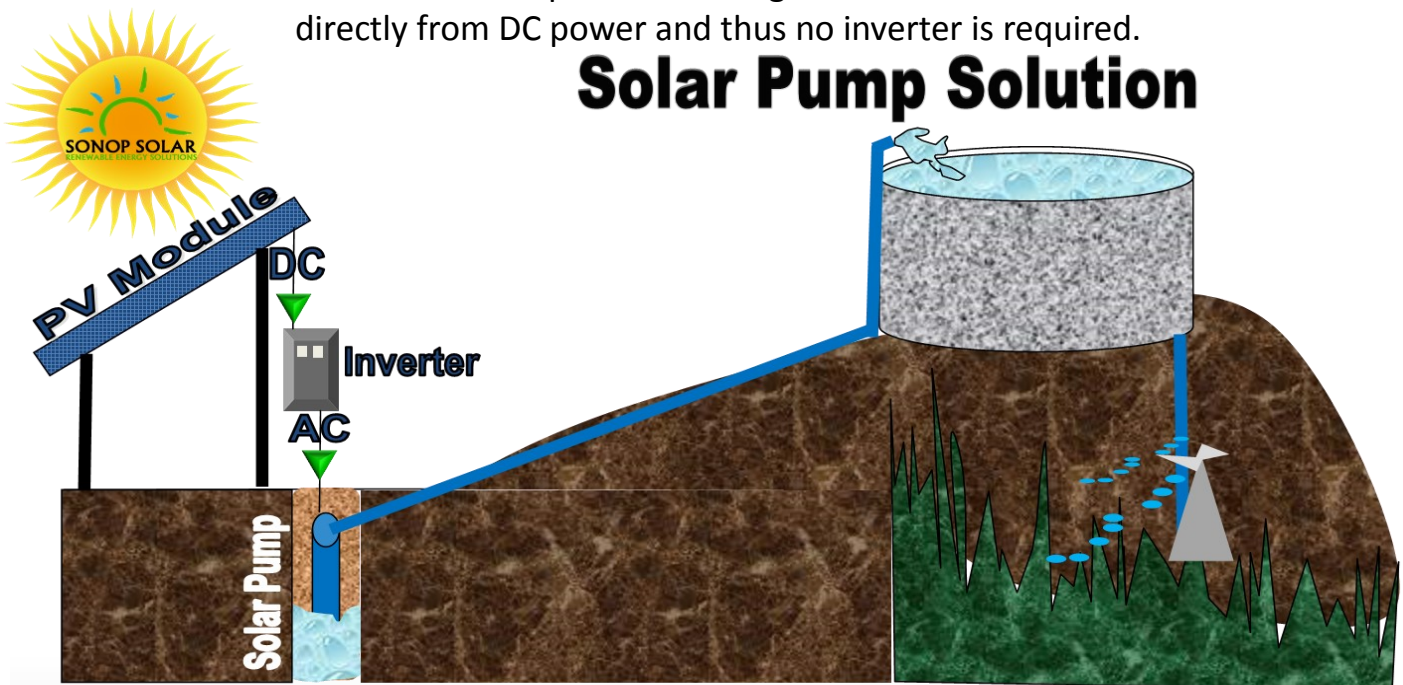


Solar Pump Solution

This pumping solution is used where there is no utility and is too expensive to get the utility on the site. A normal existing 230 V or 380 V pump can be used for pumping. A solar pump controller is used to convert the DC, of the solar panels, to 230 V or 380 V AC. The system runs only during normal sun hours. Applications from 0.75 kW – 250 kW can be used. The PV modules for this system is sized 1.8 – 2 times the size of the motor. Your pumping cost will be zero for 25 years.

We would recommend the Grundfos submersible solar pump which can pump between 2500 and 300 litres per hour during sun hours for +-100 meters. It work directly from DC power and thus no inverter is required.

Solar Pump Solution



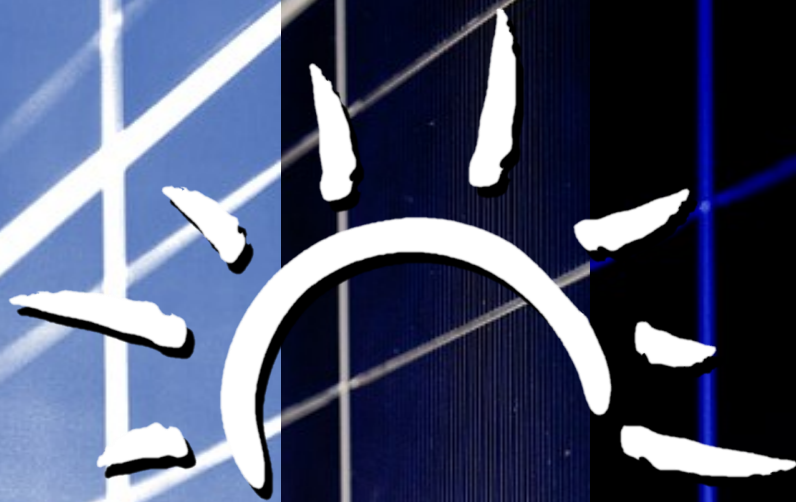
Example: 11 kW pump + motor

11 kW solar pump controller (solar VSD)

86 x 255 W polycrystalline solar panels

Railings, cable, connectors, etc.

And your pump is running for FREE!



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