



SOLAR or UPS

Power.PACKS

System Selection Guide & Info Pack.



-  True bankability
-  Higher return on investment
-  Designed for reliability
-  Easy to service
-  Easy to install




AM Solar

PROFESSIONAL POWER SOLUTIONS

BASIC INTRODUCTION TO SOLAR PHOTOVOLTAIC (PV) SYSTEMS

Solar electricity or photovoltaic (PV) technology uses the **sun's energy** to make electricity. A complete PV system usually consists of one or more **panels connected to an inverter** that changes the PV's DC electricity to Alternating Current (AC) electricity to power your electrical devices and to be compatible with the electric grid (ESKOM/CityPower..).

The size of one's PV system is determined by the amount of watt-hours one uses or needs per day/month/year (Watts/h or W/h).

PV panels must have a clear "view" of the sun for most or all of the day – unobstructed by trees, roof gables, chimneys, buildings and other features of your home and the surrounding landscapes. Ideally they sit at a 30 degree pitch, but not always necessary.



Follow Our **3-Step** Process to select your RESIDENTIAL Solar Power Solution..

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TWO SOLAR POWER CONFIGURATIONS

Solar systems can be broken into two main configurations, namely:

1. Grid-Tied
2. Grid-Interactive or Off-Grid

The configurations are different in terms of what they can do and what they can be expected to achieve. Please select carefully....

GRID-TIED SYSTEM (**Power.SAVE**)

- Grid-Tie system are designed to **Save the building owner Money!**

Simply Put: Solar Power substitutes your Grid supplied Electricity. The PV Plant size determines by how much your electricity bill gets reduced by. **Many buildings achieve Nett-Zero Energy!**

Similar to a Financial Investment Option or Policy

- There is **NO Battery Bank**. In effect it uses the grid for storage.
- Generated solar power supplements your existing electricity grid connection and/or uses the grid as backup (i.e. during bad weather days). Primary power (for your load) will come from your solar power.
- Excess Power (i.e. what is not used in the load) will reverse (Nett-Meter) your elec. meters. **Subject to local municipality approval.*
- Generate **Free Electricity** during the day ~ *credit your electricity account in the daytime and debit it at night.*
- Achieve **Nett-Zero Energy** for your home or building ~ *by having enough solar panels to cancel your (Nett) electricity account (measured over a typical 12 month period).*
- Important: On a grid power outage, your solar power will also shut down. ** Unless CO-CONNECTED to a Stand-by generator.*
- Is a solid, low-risk & high-return **Financial Investment (typically: ROI 2 - 5 years, IRR 15% to 70%)** ~ the Solar panels are guaranteed for 25 years. Expected operating life of system is 30+ years.

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for more information

GRID-INTERACTIVE / OFF-GRID SYSTEMS (Power.SURE)

- Grid-Interactive and Off-Grid systems are designed to provide **Power Surety**.
*In Other Words: these systems offer **Full or Partial Power Independence!***
Similar to a Power Plan (insurance) for your home!
- These systems use **Battery banks** to store power for **night usage** and/or during **power outages**.
- True Off-Grid PV systems have battery banks that are large enough to store a day (or more's) total power (battery autonomy) requirement (in kW hours).
Off-Grid means: there is NO grid-connection. Backup is usually from a stand-by generator.
- Grid-interactive** system typically have battery banks sized to just power select circuits in the DB board just during power outages and/or for a defined periods (in hours). **Note: we use a *Loadsheets* to map this usage and then to design from.**
- Therefore: **Grid-Interactive system typically have smaller battery banks vs. Off-Grid systems.**
- Grid-Interactive systems can either use grid power for backup **and/or sell excess power back into the grid.**
- Primary source to charge the batteries can be Solar Power or Grid (for stand-by applications).
- Life-span of battery banks** is extended when only used in a stand-by application (i.e. less daily cycling ~ Charge/Discharge). In a true Solar Application the batteries get typically cycled *once per day*.
 - Savings guaranteed ~ **Power Independence ASSURED!**

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for more information



Power.PACKS AVAILABLE:

SYSTEM NO.	INVERTER Rating & PANELS	SOLAR GENERATE	BATTERY STORAGE	NETT METER	TYPICAL APPLICATION	LINK
Power.SURE.1.UPS	2.5kW	NONE	3.9kWh/Day	NO	5Hrs: 20x LED Lights, 2x Fridges,	...
Power.SURE.1.Solar	2.5Kw / 3x300W	4.2kWh/Day	3.9kWh/Day	NO	1x TV DSTV	...
Power.SURE.starter (Solar)	4.5Kw / 6x300W	7kWh/Day	4.1kWh/Day	YES	3Hrs: 30x LED Lights, 10X CFL Lights, 2x fridges, 2x TV DSTV, 2x Laptops, 1x Microwave, 1x Kettle, More+	
Power.SURE.2.UPS	4.5kW	NONE	3.9kWh/Day	YES	5Hrs: 50x LED Lights, 2x fridges,	...
Power.SURE.2.Solar	4.5Kw / 6x300W	8.4kWh/Day	8.2kWh/Day	YES	2x TV DSTV, 2x Laptops, 1x Microwave, 1x Kettle, 10x 11W Lamps, 1x Dishwasher	...
Power.SURE.3.UPS	7kW	NONE	3.9kWh/Day	YES	5Hrs: 50x LED Lights, 2x fridges,	...
Power.SURE.3.Solar	7Kw / 9x300W	12.6kWh/Day	12.2kWh/Day	YES	2x TV DSTV, 2x Laptops, 1x Microwave, 1x Kettle, 10x 11W Lamps, 1x Dishwasher, 1x W/Machine, 1x T/Dryer, Iron	...
Power.SURE.4.Solar	7Kw / 12x300W	12.6kWh/Day	3.9kWh/Day	YES	'As Above' for 8 Hrs	...
Power.SURE.5.Solar	9Kw / 15x300W	12.6kWh/Day	3.9kWh/Day	YES	'As Above' for 16 Hrs	...
Power.SURE.6.Solar	14Kw / 18x300W	12.6kWh/Day	3.9kWh/Day	YES	'As Above' for 24 Hrs	...

Table 1 - Power.SURE & Power.SAVE Systems by AM Solar

NEW!

Featured Product:
Power.SURE.starter
Ideal Residential or Commercial Solar Power Solution for Load Shedding.

Solar by Day, Eskom by Night, Batteries for Loadshedding (4 hrs).

Nett-Metering Ready - Expandable for future. More+

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QUICK SELECTION GUIDE..

Use the table below to compare system features to select the right system for you.

SYSTEM No.	DIRECT LOAD SUPPLY	NETT METERING	SOLAR PANELS	BATTERIES	ENERGY SAVINGS	POWER FAIL READY	PROGRAM INVERTER	INVERTER STACKABLE (ADD INVERTERS)	CAN ADD MORE PANELS	CAN ADD MORE BATTERIES	HAS EXTERNAL CONTROL PANEL (optional)	INTERNET MONITORING (optional)
Power.SAVE.2	*	*	*		*			*	*			*
Power.SAVE.3	*	*	*		*			*	*			*
Power.SAVE.5	*	*	*		*			*	*			*
Power.SURE.1.UPS	*			*		*	*	*	*	*	*	*
Power.SURE.1.SOLAR	*		*	*	*	*	*	*	*	*	*	*
Power.SURE.starter (Solar)	*	*	*	*	*	*	*	*	*	*	*	*
Power.SURE.2.UPS	*	*		*		*	*	*	*	*	*	*
Power.SURE.2.SOLAR	*	*	*	*	*	*	*	*	*	*	*	*
Power.SURE.3.UPS	*	*		*		*	*	*	*	*	*	*
Power.SURE.3.SOLAR	*	*	*	*	*	*	*	*	*	*	*	*
Power.SURE.4.SOLAR	*	*	*	*	*	*	*	*	*	*	*	*
Power.SURE.5.SOLAR	*	*	*	*	*	*	*	*	*	*	*	*
Power.SURE.6.SOLAR	*	*	*	*	*	*	*	*	*	*	*	*

Table 2 - Power.System's Features Selection Guide

Follow Our **3-Step** Process to select your RESIDENTIAL Solar Power Solution..

[Click Here](#)

THE LOADSHEET (System Size/Capacity)

This is a sample Loadsheat used to design the Power.SURE1 system.
This is the Loadsheat for the Power.SURE.1.UPS and the Power.SURE.1.SOLAR systems.
Make sure your requirement(s) meet or are similar to this loadsheets Totals!!

APPLIANCE	QTY	RATING (Watts)	DURATION (Hours)	TOTAL (Wh/Day)	TOTAL (W peak)
Lights	20	5W	5	500	100
TV (LED)	1	150W	5	750	150
Fridge	1	200W	6	2400	400
DSTV	1	50W	5	250	50
TOTAL kWh/Day:				3 900 * for Charge & Storage	700 * for Inverter size

Table 3 – Loadsheat for the Power.SURE.1

Formulas: QTY X Watts X Hours = wH/Day
QTY X Watts = W peak

DO-IT-YOURSELF LOADSHEET:

STEP 1: Modify or create your own Loadsheat similar to the above sample to evaluate how many kWh/Day and Peak Load you need per day. **Tip:** Use a spreadsheet.

STEP 2: Calculate the Wh/Day (Total) and the W peak (Total). * see formulas above

STEP 3: Compare your Loadsheat **Wh/Day** Total to the **Solar Charge & Battery Storage** Limits (columns in Figure 1) and make sure they are similar.

STEP 4: Compare your Loadsheat **W peak** Total to the Inverter output rating (see: Inverter & Panels column in Figure 1) and make sure it does not exceed it.

THE FINANCIAL CASE FOR SOLAR

Most of PV electricity's **cost comes from the expense of initially purchasing the system.** You will appreciate the reduction in your monthly electricity bills, even though the initial investment can be substantial. With the PV system, people **are less vulnerable to future price increases** and possible power cuts, hence providing **power independence.** In many cases the cost of extending conventional power to one's residence shall be higher than the cost of a solar option.

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