



Press Release
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Immediate Release

How to be smart when going with PV

In the urgency to shield your household from the worst of loadshedding, you could end up with an investment that doesn't deliver the promised returns. Here's how to avoid the pitfalls when installing a PV system.

Solar panels have become a feature of the South African residential landscape over the past few years as homeowners seek a measure of energy self-sufficiency. Once you have made your home as energy efficient as possible with LED lights, a solar/gas/efficient geyser, gas cooker and energy-saving habits, the time is right to invest in a PV system with battery backup to keep you going during loadshedding.

It is always a good idea to know what your monthly electricity consumption in terms of kilowatt hours, this will be asked of you by any installer worth his/her salt. You can find this on your electricity bill, and it would be a good idea to compare what you were using before your energy efficiency interventions versus what you are using now. Once you know what you are consuming you will also know whether or not the installer is quoting you with specifications that will meet your needs.

“How much can I expect to pay for a PV system and will the ROI be worth it, are questions I get asked often, quickly followed by what can I do to not get taken for a ride,” says Dr Karen SurrIDGE, Renewable Energy Project Manager of the South African National Energy Development Institute (SANEDI). The answers are not simple one liners, but the guidelines SurrIDGE gives will go a long way towards ensuring a happy PV and/or battery system investment.

1. Find the right installer

The starting point is a reputable installer with a solid reputation and good references. You can find installers in your area registered with the South African Photovoltaic Industry Association (SAPVIA) on the PV GreenCard website (<https://pvgreencard.co.za>). Registration means that the person has had the proper safety and quality training and will issue you with proof of compliance for the installation for insurance, finance and regulatory purposes.

You can also Google your potential installers and ask friends or social-media community groups for references, word of mouth can be a powerful recommendation. A certificate of compliance (CoC) as a line item on your quote is usually an indication of capability, since only registered tradespeople can issue such a document.

2. Know what you should be paying for

A PV system consists of PV panels, an inverter, batteries and the components that tie the system into your home's electrical system. The quote from your installer should be itemised and specify all these items.

- The inverter inverts the direct current (DC) produced by the PV panels (or batteries) into alternating current (AC), which makes the electricity available to your home and appliances. An inverter on its own is of no use. Never skimp on the inverter and always choose one with a built-in surge protector. While prices differ, a good 5 kVA inverter that is sufficient for an average four-person household should cost between R25 000 and R30 000.
- In terms of photovoltaic (PV) panels, go with a well-known brand that has a good reputation. Insist that the installer specifies the brand they intend to use so that you can do your own research. Nowadays, PV panels have a relatively high efficiency of about 20% and it is usually a 545 – 555 Watt panel that you will purchase. You are looking at a price range of approximately R 2 000 – R 4 500 per panel. For an average household, with a family of about four, 8 of these panels should be more than enough. Once again do your research, make sure that you are satisfied with the specifications on the make of panel for which you are quoted.
- When it comes to batteries, there are a number of options from which you can choose, however, there are two factors that you need to consider the first one is the depth of discharge (DOD) and the second one is the number of cycles in the lifespan of the battery.
 - Ideally, if it suits your pocket, Lithium Ion should be your battery of choice, but it is the most expensive option, coming in at about R25 000 – R30 000 for a 4.8kWh to go on your 5kW inverter. They are more energy dense than lead acid or gel batteries, meaning they last longer (up to 3000 cycles) and have a deeper cycle discharge ability. In laymen's terms this means that a lithium ion battery can comfortably go down to 20-5% power (discharging 80-95% into your household needs) before it needs to be recharged; not negatively affecting the lifespan of the battery.
 - In terms of cost vs DOD and cycles, the next best option is to consider gel batteries. One would expect to pay around R 4000 – R 7000 for a 3.2kWh. These should only be run to 50% discharge, anything beyond this and you will risk negatively affecting their lifespan (100-1500 cycles).
 - Similarly, deep cycle lead acid batteries should be discharged to no lower than 50%, never fully discharge a deep cycle lead acid battery because the deeper you discharge the battery the more it will reduce the battery's total lifespan (500-1000 cycles). Lead acid batteries are the least cost to buy and prices range from R3 000 – R 7 000 for a 3.2kWh (12V)

- Whatever Battery you select, insist on a brand name that you know or can research, both in terms of performance and price.
- Request an itemised quote for all the components needed to get the electricity from the panels into your home. These include roof brackets, wiring, the combiner box (which sits between your home distribution board and the inverter), labour costs, the certificate of compliance (CoC), switches, cables ,fuses (it is always good to buy a few of these to keep in reserve, they are inexpensive) and trunking.
- Switchgear and surge protection, which is the “brain” needed to balance the system, must also be specified, along with the level of tech integration that is offered.
- Lastly, don’t be seduced into buying functionality and/or capacity you might not use, remember you are energy efficient now so you don’t need such a large system, things such as wi-fi communication etc. are also a nice to have, but not essential.

“It is important to get a spec for the wattage on the inverter, panels and batteries,” says Surridge. “You sometimes need a few more panels than you’d think, and you never want to run your inverter at its maximum. For example, if you have 2,8 kW coming in from the panels, you want a 5 kW inverter. In this way, you don’t put strain on the inverter, which extends its lifetime. As far as possible, you want your inverter to last as long as your batteries.”

3. Negotiate

Just because you have a quote from a reputable installer doesn’t mean you have to accept it. Negotiate if you feel it is unreasonable, but without skimping on either quality or safety for the equipment, safety for your home electrical system and safety for you and your family.

“A PV and/or battery back-up system can add tremendous quality to your life and up the resale value of your home,” says Surridge. “It is therefore worth investing the time and effort to make sure you get the best value for your investment.”

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