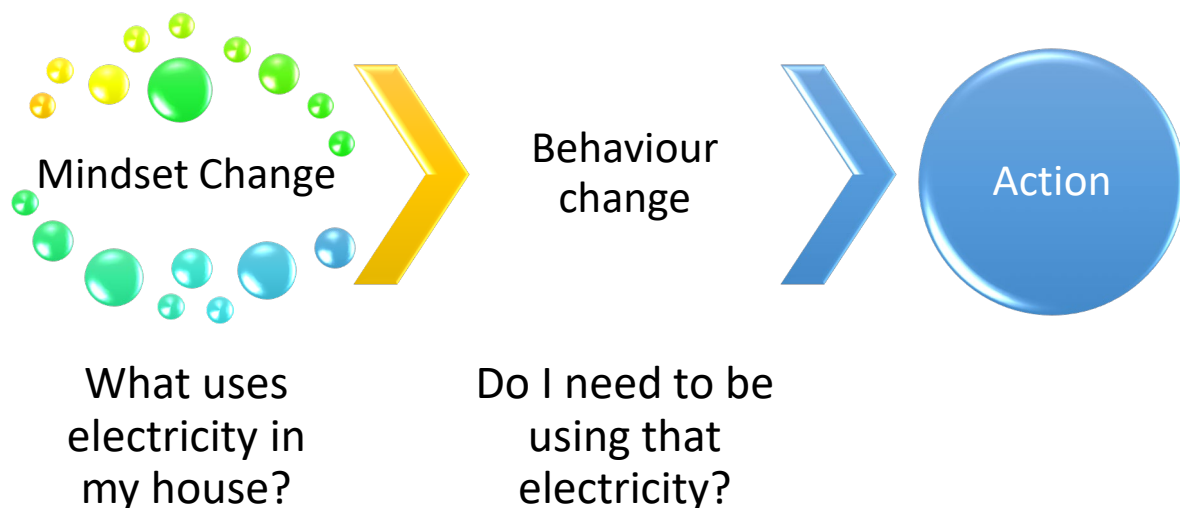


Home Energy Security: what does this mean to South Africans?

Loadshedding's intense impact on the economy is ever present, but for most South Africans food going off in their fridges, being unable to put a hot meal on the table and spending hours in the dark is far more of a reality. While solving the national electricity supply problems is out of our hands, there is much we can do to improve energy security in our homes, writes Dr Karen Surridge from the South African National Energy Development Institute (SANEDI).

South Africa is in the fortunate position of having a variety of energy resources available, including renewable energies. While wind energy is not necessarily a homeowner's initial thought when considering a household intervention, solar energy has become the go-to solution. However, before you invest in a solar system – or any other energy solution for your home – take three basic steps to make your household as energy efficient as possible: a mindset change, followed by a behaviour change leading to actions that result in energy efficiency. This will reduce load on the grid, which will help to reduce loadshedding, but also benefit you by reducing your electricity bill.



Having done all you can to lower your electricity use, you can turn your attention to backup energy technologies.

For quite some time, a petrol or diesel generator was our first thought. However, concerns around air and noise pollution, not to mention the cost of fuel and of running and maintaining an engine, are making generators less attractive.

Another option is a battery backup with an inverter. The battery charges while the electricity is available and when it's not, the stored energy is channeled through the inverter to feed the alternating current requirement of the house. You can also install photovoltaic panels on the roof of the house to generate a direct current that runs through an inverter to feed the

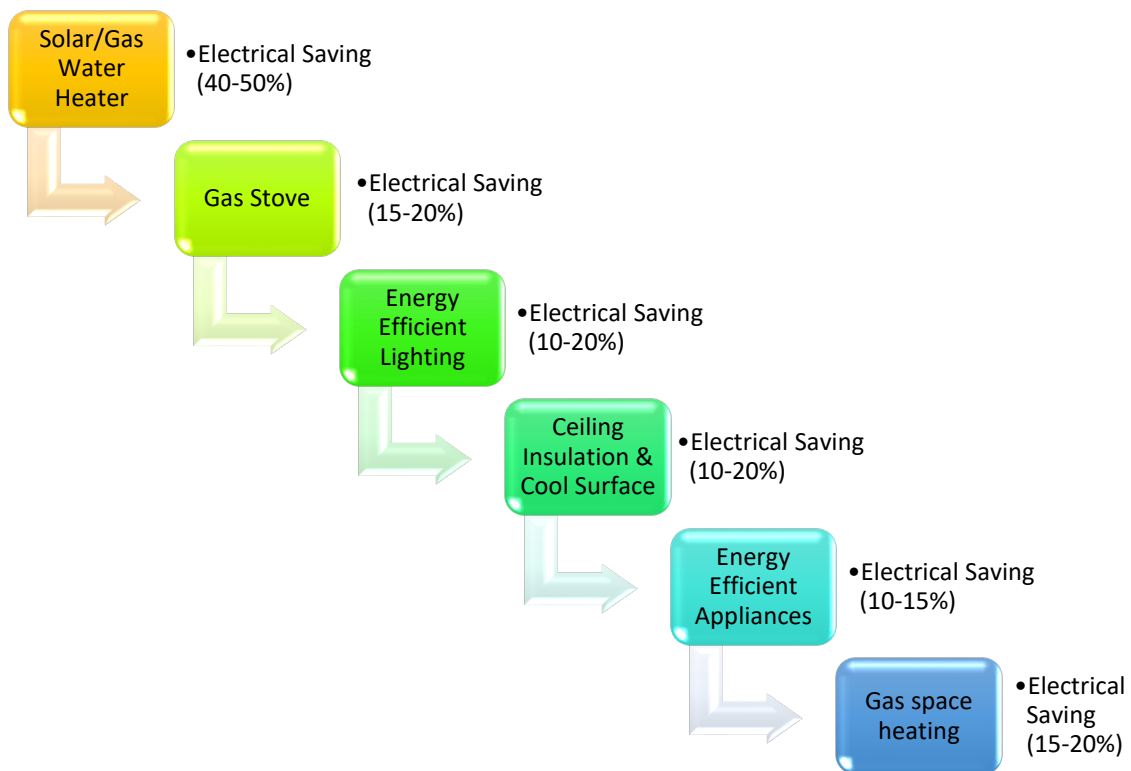
alternating current of the house during daylight hours when the sun is shining. The ultimate energy security option would be a combination of these two technologies: using solar photovoltaics as an electricity supply to the house, but also to charge a battery backup system that will come online when the sun goes down.

Different types of technologies have different cost implications, which is why it is essential to first make your household as energy efficient as possible so that when you do a technological intervention, you can keep costs down because the requirement for the system is lower.

Appliances that provide heating and cooling use the most electricity, particularly an electrical geyser. Start, therefore, by investing in technology like a solar or gas water heater and/or an instantaneous or heat pump water heater. Such an energy-efficient or energy-neutral technology will immediately reduce your household electricity bill by up to 50%. The same applies to space-heating and cooking needs, both of which can be met with gas. When appliances reach the end of their lifetime, choose an energy-efficient replacement (this SANEDI article on standards and labelling is a handy guide). In addition, good insulation and cool-surface technology (see this article for more information) can ensure that your house remains cool when you have cooled it down, or warm once you have heated it.

The most underrated of all potential interventions, despite its significant energy- and cost-saving impact, is lighting. Simply switching from old incandescent or fluorescent light bulbs to LED bulbs can shave as much as 20% off your bill every month. As one of the cheapest energy-efficient interventions, LED bulbs should be the first thing you do. The bulbs also last far longer than their less electricity efficient counterparts.

The message to take from all this is that every household can improve its energy-security situation. Consider your day-to-day energy requirements to determine, firstly, how you can become more energy efficient and, secondly, which energy-secure solution will best meet your needs. The result is the ultimate win-win scenario: a home that is energy secure, considerable savings on your electricity bill and a contribution to reducing loadshedding stages.



[Caption]

There are multiple home-energy solutions available in the photovoltaic inverter and battery backup sector. Use this infographic to develop the most cost effective, reliable, and energy-secure solution for you and your family.

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About SANEDI

The South African National Energy Development Institute (SANEDI), established by the Government, directs, monitors, and conducts applied energy research to develop innovative, integrated solutions to catalyse growth and prosperity in the green economy. It drives scientific evidence-driven ventures that contribute to youth empowerment, gender equity, environmental sustainability, and the 4th Industrial Revolution, within the National Development Plan (NDP), through consultative, sustainable energy projects. For more information, go to www.sanedi.org.za.

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