



Your *life* unplugged

Current electricity tariffs are 'not at the levels that they should be', says Eskom. The average price of electricity is 33 cents per kilowatt hour* (kWh) which, Eskom claims, doesn't cover operating costs or support their R385 billion capital expansion programme. They say the price should be pegged at a more appropriate level of 80 cents per kWh.

In September 2009, Eskom proposed a 'smoothing of the price' approach to tariff increases, based on an increase of 45% every year, for three years, which, it believes, will mitigate the impact of the increases on customers. Eskom also suggested that the Free Basic Electricity Allocation be increased from 50kWh to 70kWh, limiting the effect of the price increase on poor households. Discussions with government and

Tough times just got tougher with the news that Eskom needs to raise electricity tariffs by a whopping 146% over the next three years. But unless we want to live without power, we have no choice but to pay... or do we?

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municipalities have since prompted Eskom to revise their revenue application**, but the point is, we'll either have to cough up, live in darkness or go off-grid. But how feasible is that really?

Lightbulb Moment

What is a kilowatt hour?

When we buy petrol, we're charged per litre. When we buy electricity, we're charged by the kilowatt hour (kWh). Using 1 000 watts for one hour is a kWh. A watt is the rate of electrical use at any moment – a laptop uses 50 watts, for example. A watt hour is therefore the total energy used over time.

STEP ONE Opting out of the grid

To live off the electricity grid, says Duncan Palmer from the Centre for Renewable and Sustainable Energy Studies, you need a number of solar panels, a wind turbine (depending on where you live), an inverter and some

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batteries. 'Solar energy from the sun is harvested with photovoltaic (PV) panels, which convert the solar energy directly into electrical energy. An electrician wires the inverter into your existing electrical reticulation circuit, and off you go!'

'To sustain normal electricity habits and supply a regular house, you will need about 6kW of PV panels, which will cost around R210 000,' says Riaan Meyer, from the Centre for Renewable and Sustainable Energy Studies at the University of Stellenbosch. 'Adding the inverter, batteries and other components will up it to R500 000 – pricey, but you're investing in 20 years' worth of electricity.'

But while an entire solar power system may be out of reach of most people's budgets, there are some simple steps you can take to lighten the load. According to Eskom, a household's largest

electricity expense is water heating, which typically accounts for 30–40% of the monthly bill. Installing a solar geyser system to cater for the needs of a family of four will cost between R14 000 and R24 000, says Cobus Roux of Home Comfort (www.home-comfort.co.za), an accredited supplier on the Eskom Solar Programme. If used properly, says Roux, it can save up to 33% of the electricity bill of an average house and will pay for itself in two to three years.

Eskom's Solar Water Heating Programme offers a rebate to consumers who have purchased and installed a solar water heater through an approved supplier. The value of the rebate is determined by how much electricity the solar system will displace (see www.eskomdsm.co.za).

STEP TWO Switch to gas

Gas is used extensively for cooking and heating in other parts of the world, but here in SA, we have no pipeline gas, says Palmer. You will need to buy a Liquid Petroleum Gas (LPG) canister which fits your appliance. A refundable deposit is required for the ongoing use of the canister and you refill it at your nearest gas outlet (see www.totalgaz.co.za; www.afrox.co.za; www.easigas.co.za). Remember, as LPG is 100% derived from oil, its price fluctuates with the oil price.

Says Terence*** of The Gas Experts (www.gasexperts.co.za), you can purchase a good, safe four-burner gas hob for under R2 500.

For a family of four living in a basic townhouse, a 9kg bottle of gas can last up to nine months, costing R200 a year to run the hob. A medium-sized gas water heater, retailing for R3 200, will use a 48kg bottle of gas (costing R790) approximately every two and a half months. Installation of a gas stove and geyser will cost around R4 500 (excluding the bottles). To keep warm, gas heaters and fireplaces are cost- and energy-efficient.

STEP THREE Get a geyser blanket

The exact savings are hard to predict, but fitting a geyser blanket around your geyser and insulating your hot water pipes is recommended, says Palmer, as these prevent heat loss when the geyser is switched off. Geyser blankets range in price from R90 to R400 – only buy those that are SABS-approved, Eskom-endorsed and flameproof. DIY kits are available but it's easiest to ask a plumber to install the blanket, at a cost of

roughly R250–R450 per hour (it shouldn't take longer than an hour). For more information, go to www.eskomdsm.co.za.

STEP FOUR Monitor your electricity usage and budget

Seeing the cash impact of your energy habits is a great incentive to cultivate an energy-efficient culture in your home. The easy-to-install e2 Wireless Electricity Monitor, priced at R995 and available from www.electricity-monitor.co.za, is a nifty gadget that provides information on how much electricity you're using, with respect to power, cost and carbon footprint.

If you get power directly from Eskom and live in a prepayment area, consider switching to prepaid electricity, which will help you relate usage to your budget. Eskom usually provides the prepaid electricity meter, but you'll have to hire an electrician to install it.

STEP FIVE Change your habits

- Buy energy-efficient appliances and electronics and don't leave them on standby; turn off at the wall.
- Turn off lights, TV and radio when leaving a room.
- Don't boil a full kettle of water, just the amount needed.
- Defrost the fridge and freezer on a regular basis, and keep them well ventilated and out of direct sunlight.
- Cover your swimming pool to keep it cleaner and reduce the operating time of the pool pump.

Lightbulb Moment

Compact Fluorescent Lightbulbs (CFLs) emit the same amount of light as incandescent bulbs but use four times less power and have a longer lifespan. Changing one 60W bulb (R3,66) to a 13W CFL (R13,99) could save you R67 a year. When CFLs blow, remember to dispose of them in the special bins located in some supermarkets.

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The future of POWER

'With the tariff increases, the focus is shifting to renewable energy (RE) sources,' says Palmer. Solar thermal plants are viable on a national scale – heat is captured and used to generate steam, much as in a coal or nuclear plant – as is wind power. Wave energy technology may improve and become cost competitive in future. While the government put out tenders for new nuclear plants, these plans were shelved due to high cost. Power purchase agreements with Independent Power Producers (IPPs) are also being explored.

What's driving Eskom's tariffs up?

- Infrastructure needs upgrading and expanding
 - An increase in the cost of coal, from which 90% of our energy is derived
 - The Mineral and Petroleum Resources Act of 2008 requires Eskom to pay a royalty on coal
 - Increased transport and mining costs
 - Water rates increases – coal power stations use water for cooling
 - The newly introduced two cents per kWh Environmental Levy on non-renewable energy generation
 - Debt – Eskom posted a R9,5-billion loss in 2008
- According to Duncan Palmer, our electricity costs half that of the next cheapest supply, Australia, and less than a third of the world's average price.

Installing renewable energy systems...

- Each system varies in design, so consult an engineering firm specialising in RE to design one to your specifications, which takes into account how much electricity you use and want to save.
- Be aware of local laws relating to the installation of RE systems, especially wind turbines – these must be mounted on high masts and are generally not accepted in urban areas.
- Solar panels are flat and can be installed on most roofs without changing the house's aesthetics.
- Building a house? There are solutions that can reduce your heating costs (www.greenbuilding.co.za). In the future, RE solutions should increase the house's value. ❖

*From Eskom's Proposed Revenue Application: Multi-Year Price Determination to the National Energy Regulator of South Africa (NERSA), September 2009.

**Eskom submitted a revised revenue application to NERSA in November 2009.

***Surname withheld

How much more will electricity cost me?

Riaan Meyer explains: Eskom currently generates electricity for around 20c per kWh and sells it to municipalities for around 25c per kWh. Municipalities resell to residential customers for 65c per kWh. With the 45% increase, Eskom will sell electricity to municipalities for 36c per kWh. With an inflation rate of 8%, municipalities will resell it for 79c per kWh.

According to the Cape Town State of Energy Report, the average mid- to upper-income household uses roughly 774 kilowatts a month. At the current average tariff of 65c per kWh, this amounts to a monthly bill of about R503. In 2010/2011, this will escalate to around R611.