Power crisis ideal time for rethink

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As residents in the Western Cape are enjoined by Eskom spokespersons to avoid electricity blackouts by switching off electricity appliances and to wrap in blankets to keep warm, we might ask: why do we, who pay our electricity bills, have to bear the cost of Eskom not providing a reliable service? It seems we lose both ways: either we switch off appliances this winter or Eskom will cut off our supply.

Everyone—electricity consumers, and I would assume, Eskom's management and employees—would agree that this is unacceptable. We cannot, and should not, be resigned to blackouts. Eskom has a dominant market position. It generates 96 percent of our electricity. It is regulated by the National Energy Regulator of South Africa (NERSA) and its licence conditions require it to adhere to national quality of supply and customer service standards

NERSA has investigated six serious failures, between November 2005 and March 2006, in the two main power supplies to the Western Cape: the Koeberg nuclear power plant and the high voltage transmission line from the north. NERSA's report will soon be made public. It is likely to conclude that Eskom has transgressed its licence conditions. It will also raise serious concerns around the integrity and robustness of Eskom's operation and maintenance systems.

Eskom has known since Christmas 2005 (when the stray bolt caused catastrophic damage to the generator linked to one of the two Koeberg's nuclear reactors) that it would be short of about 400 megawatts (MW) of electricity supply this winter. Eskom has published on its website (www.eskom.co.za) an Electricity Recovery Plan for the Western Cape. In general it makes sense. The focus is on restoring power at Koeberg, improving the reliability of the electricity transmission line from the north, incentivizing energy conservation and efficiency by industry and consumers in the Western Cape and utilizing emergency back-up generators.

But what progress has been made in realising this recovery plan? Eskom (with the help of the Presidency) has been successful in persuading the national electricity utility in France, EdF, to release the only spare generator rotor of its kind in the world. Our navy has transported it to Cape Town and it has arrived at Koeberg. Eskom has been repairing the other damaged part, the generator stator, and power should be generated by Unit 1 at Koeberg by the third week of May.

In the meantime, fuel is running out in the second nuclear reactor at Koeberg and power output is slowly deteriorating. As soon as the first unit is back in operation, Unit 2 will have to be taken out for two months for refuelling and maintenance. In other words, between now and the end of July we shall have only one of Koeberg's units producing power at any given time. To make matters worse, in April and May, the single functioning unit will be operating at reduced output. The transmission line from the north, plus the hydro-electric pumped storage schemes at Palmiet, in the

Overberg, and Steenbras, behind Gordon's Bay, are unlikely to make up the gap between supply and demand this winter.

Eskom's recovery plan thus relies on persuading electricity consumers to switch to more efficient energy appliances and technologies or to generate their own power or to selectively switch off electricity consuming devices. They aim to persuade households to substitute compact fluorescent lights (CFLs) for less efficient incandescent light bulbs; to subsidize energy efficient technologies (such as geyser blankets or ceiling insulation); to get consumers to switch to other energy supplies (such as gas or solar water heating); to incentivize industrial energy efficiency and to compensate companies for self-generation.

If these plans are successful, then electricity blackouts will be avoided over the Western Cape. However, the Western Cape Stakeholder Status Report, dated 17-21 April and available on the Eskom website, indicates that only 132 MW of a targeted 270MW has been achieved in load reduction relief from industry through its demand market participation scheme (i.e. industry is being paid to switch off machines at certain times of the day). Eskom has also managed to contract 27 industrial customers to provide a total of 42MW of self-generation. No information is given on whether Eskom has managed to procure sufficient additional emergency power. (The targeted 66MW in its plan seems far to low). And half a million CFLs have been distributed, yielding a further 17MW of savings. Eskom is working hard to make up the anticipated shortfall, but it has a long way to go before it reaches the required 400MW.

While a range of options are suggested in Eskom's Electricity Recovery Plan, there is very little information on the incentives available to consumers for switching to more energy efficient technologies and appliances. I phoned local Eskom numbers to find out how I could switch to energy efficient lights, or access subsidies to install insulation around my hot water geyser, or put insulation in my ceiling to minimise space heating requirements, or install a solar water heater to reduce to the need for electricity water heating. None of the share-call operators had any relevant information. To their credit, they transferred my call to other Eskom contacts. After the fifth telephone call I was put in touch with someone who was running a door-to-door campaign on the Cape flats, offering free compact fluorescent light in exchange for old incandescent lamps. I asked whether a similar campaign was available in my suburb. The answer was no – but perhaps there might be an exchange scheme at my local supermarket. There is none. After a further three calls I was put in touch with a private company that had a contract with Eskom to implement a scheme for hot water geyser blankets. Again, I tried to find out how I could access this subsidy. Approved suppliers were still being identified. The scheme was still not fully operational. I tried further to see whether I could get a subsidy for ceiling insulation or a solar water heating. The answer was no.

We are at the end of April. The energy efficiency programmes are still not fully operational. Sufficient emergency power does not seem to be in place. Meanwhile, the power output of Unit 2 at Koeberg diminishes inexorably as its fuel runs out. Winter approaches.

This is not a trivial situation. The social and economic costs over the winter for the Western Cape are likely to be great. Residents will be cold. Those without gas or paraffin cookers will have uncooked meals. There will be insufficient light for reading and studying. The FA cup final on TV may be missed. Trains may not function. Traffic gridlock will worsen. Industries will lose millions again in idle production while continuing to have to pay fixed costs. And the reputation of the Western Cape as a desirable investment location will suffer further damage.

This experience raises a number of important issues, including rethinking our electricity market structure, how to better manage investment and uncertainty, improved planning systems, tighter regulatory oversight , better management and the design of innovative programmes to achieve sustainable market transformation in energy efficiency – subjects perhaps for another article.

The Western Cape Provincial Government has set up an Energy Risk Management Committee. Thankfully, load-shedding is now being co-ordinated and there is much better information available from Eskom and the City of Cape Town on which areas will be affected and when. But we also need to track progress in restoring supply security and avoiding blackouts. And we need to know how we can access opportunities to move to more efficient and sustainable energy use patterns. There is nothing quite like unanticipated inconvenience or a supply crisis to focus minds and energy on policy changes and the initiation or adoption of new programmes. It's a marvellous opportunity to imbed long-lasting shifts to more sustainable electricity supply and use patterns in the Western Cape.

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