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Shining a critical light on plans for repowering SA

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LAST year, when South Africans for the most part still enjoyed cheap and reliable electricity supply , the minerals and energy department produced a Master Plan for Electricity Security, which was approved by the cabinet. The plan did not, however, prevent the most extensive and costly failure in the history of the electricity supply industry in SA.

The plan failed to anticipate or address the immediate causes of the current blackouts: Eskom's deficiencies in coal contracting and its inability to keep its existing generation plant operating at acceptable levels. And while the plan recognised the need to restore generation reserve margins to at least 19%, its proposed investment programme has already slipped. For example, Eskom is not on track in bringing online either its next diesel-fired peaking units scheduled for this year or its next big coal-fired station originally slated for 2010. The master plan also anticipated that an independent power project (IPP) would start operation next year, yet this investment has been cancelled. Furthermore, barely a year later, the plan's assumptions about inflation, economic growth, electricity demand and power conservation may be seen to be way off beam.

There are clear lessons from this experience. First, planning in a key sector such as electricity has to be much more robust and dynamic. Rigid, poorly crafted plans are probably more dangerous than no plans at all. Second, plans need to be executed accurately. It is this area that requires the most attention as we manage the crisis.

In essence, there are now five main thrusts to repowering the country: rebuilding Eskom's coal stockpiles; improving maintenance of Eskom's existing power stations so unplanned outages are reduced; ensuring Eskom's investment programme in new generation capacity does not slip; fast-tracking the contracting of private supplies through co-generation and IPPs; and demand-side management, power conservation and energy efficiency. There is also a sixth, cross-cutting imperative — increasing the price of electricity — that will enable and facilitate each of the above programmes. After months of blackouts, it is fair to ask how well the effort

to restore supply security is being managed.

Eskom's new executive director, responsible for primary energy and generation, has brought a welcome urgency in confronting the extraordinary negligence that saw the utility's coal stocks reduced to levels that prejudiced power generation. But there are still many unanswered questions around Eskom's primary energy contracting practices, its information and risk management systems, accountability and responsibility for failures, as well as the financial incentives that saw more value placed on bottom-line profits than on national energy security.

Eskom is committed to expanding its coal stockpiles, but this will take time and it will be extremely costly. Criminally, Eskom has not maximised its old cost-plus or fixed-price coal contracts with the major suppliers, favouring instead a host of small contractors who supply via congested and deteriorating roads. In the past, Eskom had access to the cheapest coal in the world: less than R100 a ton while international prices soared to $100 a ton. No longer; now it is increasingly exposed to spot prices and will pay dearly for new coal. Indeed, most of the 60% price hike Eskom now seeks from the regulator is for this coal.

How is Eskom doing in improving the availability and reliability of its existing power stations? In years past, Eskom aimed at, and exceeded, a target ratio of 90 to 7 to 3, corresponding to the percentage of time power stations were available to generate electricity versus planned maintenance versus unplanned outages or breakdowns. More recently, that ratio has fallen to 86 to 9 to 5. And in the months since October last year, plant availability dropped even further, to 77%. Power supply will remain vulnerable unless Eskom is able to reverse the recent trend of deteriorating plant performance.

Once again, Eskom's new executive director, now in charge not only of new investment and coal but also existing generation plant, is asking probing questions. For example, the frequency of boiler tube failures will not be accepted as a given. The top German utility, RWE, has been contracted to undertake technical audits of each of Eskom's power stations. Hopefully, penetrating analysis and recommendations will follow.

What is noticeable is that the RWE audit has not been widely publicised — reflecting perhaps a misguided sensitivity around exposing Eskom's skills and competencies to external scrutiny. Far too often, questions around the adequacy of Eskom's management, contracting and maintenance systems are seen as criticisms of its affirmative action and transformation policies. But the depth of the failures and the seriousness of their consequences must, and surely will, result in a deracialisation of the skills debate. The skills shortage is now so acute that anyone with competence and experience will be given the opportunity to contribute.

The main effort to restore supply security remains Eskom's massive investment programme in new generation capacity. Eskom has been rebuilding its project development, engineering and contracting divisions, and management and consulting firms have been engaged to assist Eskom staff. However the challenges are formidable. For example, the international power equipment market is extremely tight, manufacturing slots are difficult to secure, and prices are increasing. Eskom will need to demonstrate that it can contract efficiently and deliver on time.

But it is now evident that Eskom's investment programme on its own will not restore supply security in the next five to seven years, as it takes many years to build new base-load capacity. In the meantime, we shall have to rely also on private sector participation through co-generation, IPPs and power conservation. There is certainly a great deal of interest from the private sector. The key challenge is for Eskom to show it can fast-track these contracts.

In an ideal world, the most efficient route would have been a competitive bidding process, in which Eskom evaluated each bid on its merits, stacked bids in terms of price and then contracted the most attractive offers. However, this process would take months, perhaps years. What is now needed is a standard offer. Eskom needs to disclose its avoided cost and to publish prices at which it is prepared to contract co-generation, IPPs or demand-side options. Simplicity and certainty are essential if we are to attract the necessary investment to plug the medium-term supply gap.

The price of electricity is crucial to the success of each of the above programmes. A future price path needs to be agreed on by key stakeholders — one that pays for the costs of restoring coal stocks, allows adequate maintenance, funds new investment, attracts private participation and induces the required energy savings.

A pervasive criticism from industry and other stakeholders is that there is insufficient "felt leadership" to drive, co-ordinate and communicate actions to restore supply security. Certainly, we do not lack in the number of response teams, committees and work streams. But real problems have arisen around lack of alignment and slow implementation. New proposals for more visible presidential leadership and a project management office will address some of these concerns. Investors, industrialists and households will be watching and tracking progress in each of the above areas to see whether, and how soon, we repower SA.

- Eberhard is a professor at the University of Cape Town's Graduate School of Business. This is the first in a series of articles assessing progress in restoring electricity supply security.