Financial Mail

SOUTH AFRICA'S ENERGY CRISIS

ESKOM 2008-2015

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POWER CRISIS

25 January 2008

FRANS BARKER

A DIM OUTLOOK

SHAKEN INVESTOR CONFIDENCE WILL BE THE BIGGEST DRAG ON SA ECONOMIC GROWTH

The cost to the economy of rolling blackouts will take some time to calculate. But already some economists are confidently declaring government's 6% growth target impossible thanks to the lack of power capacity.

While the economy sweats from a lack of power, hundreds of billions of rand will have to be invested rapidly to get SA's electricity capacity back to a level that comfortably meets demand. And despite huge spending that's only going to happen in five years' time.

The economic impact is largely two-fold: an immediate loss of output from the economy as factories are forced to stop production. There, the effect is probably minimal, "a few decimal points of GDP at most", says Econometrix's Azar Jammine.

But the more fundamental impact is that on investor confidence. The blackouts have highlighted the acute shortage of skills and resources to drive SA's R420bn infrastructure plan — which includes government and parastatal expenditure over the next three years.

At a time when the country is embarking on its most ambitious building programme to date — notnjust of power stations, but also of infrastructure for transport, the 2010 soccer World Cup and the private sector — the lack of resources and skills looks set to cap growth for some time to come.

"Our forecast for growth this year was 4%-4,5%. Now it's at the lower end of the scale," says Jammine. "Six percent growth leading up to 2014 looks like a bit of a pipe dream."

RMB has also lowered its growth forecast this year to 4%, though economist Ettienne le Roux says this has little do with power outages, whose impact is "mostly indirect and minimal".

Putting more exact numbers on the cost of the power cuts is an almost impossible task. "It depends on a whole range of variables we don't know yet. How long will load shedding continue and at what level?" he says.

"If it's a replica of last year's two-week power outages in Cape Town, then the impact will be minimal," says FNB's Cees Bruggemans.

For large resources companies though, the impact has forced them to review their project schedules until Eskom can guarantee supplies of competitively priced power. This is investment SA can illafford to lose.

Eskom insists that its call on companies to postpone their investment decisions until

2012 — when new power capacity comes on stream — has been misunderstood.

"Realistically, large projects take four to five years to come on stream, at which stage we should have sufficient capacity," says finance director Bongani Nqwababa. "And projects that have already been scheduled — like the Alcan aluminium smelter at Coega — are in our planning." Eskom will begin supplying the smelter from 2010 onwards in terms of a 25-year supply deal agreed to in 2006. Anglo Platinum's R39bn expansion programme will require an extra 500MW of capacity until 2013 in addition to its current consumption of about 1000MW. The company is confident that the power can be supplied but warns that it will require a further 500MW after 2013.

The company's parent group, Anglo American, says the group has been able to work around Eskom's load-shedding schedule up to now. Spokesman Pranill Ramchander adds that no projects have been put on hold yet as a result of the power crisis.

The Chamber of Mines is compiling data on various companies' expansion projects, which may be hardest hit. "The mines have already reduced their energy consumption substantially because of the ongoing power cuts," the chamber's Frans Barker told Reuters this week.

"Future shortages have left investors quite worried. It's going to impact on expansion and new investment in mining," he said.

The world's largest resource company, BHP Billiton, this week reiterated that it would not expand on its Mozal or Hillside aluminium smelters in Maputo and Richards Bay respectively, "until the supply of electricity at globally competitive prices can be guaranteed," says spokesman Bronwyn Wilkinson.

She couldn't disclose the financial impact of load shedding on production yet, but says at this stage it is "not material".

Manganese and coal operations have been affected, but most have generators that ensure safety of workers isn't compromised and output remains on track.

Its energy-hungry aluminium smelters, which make BHP Eskom's largest consumer, have experienced load shedding for the past few months.

"Our contracts with Eskom for the aluminium smelters do have an interruptibility clause that enables Eskom to cut power to our smelters to prevent load shedding to domestic users," she says.

"But there are limits to those contracts and so far the interruptions have been within those limits."

Fellow major power consumer Xstrata has a three-year demand management agreement with Eskom for its chrome operations. Xstrata makes available up to 250MW of power to Eskom when it's needed. In return, Eskom gives Xstrata notice when excess capacity is needed, enabling it to reschedule production accordingly. The agreement also allows for compensation from Eskom, which means Xstrata's bottom line isn't affected.

Spokesman Songezo Zibi says that increased electricity requirements for the development of phase two of the Lion Ferrochrome project were included in the original application, but that the company will work together with other business leaders and Eskom as part of the task team. "We won't do anything irresponsible," he says.

This week, Eskom met 38 of its largest industrial consumers and agreed to set up a joint working group that aims to achieve capacity savings of up to 20%.

Eskom CEO Jacob Maroga says that it is more realistic to expect power savings of 10%-15% in the short to medium term. The utility will look at power rationing for both industrial consumers and households as its key response to the power shortage, "though this is still a few months away". Consumers may be forced to pay higher tariffs or risk cut-offs if they exceed their quota.

Maroga said Eskom was working with municipal electricity companies on the implementation of new pricing systems and looking at more effective communication on load-shedding schedules.

"Clearly we would like to offer far greater predictability for load shedding but our networks and those of municipalities don't match. Getting it 100% right is almost impossible," he says.

Meanwhile, the CEO of Johannesburg's City Power, Silas Zimu, predicts that load shedding in the city will be over in the next four months.

Plans to recommission the city's mothballed Kelvin power station are afoot, with assurance obtained from suppliers that the necessary material for the refurbishment can be imported within the next four months, Zimu says.

Kelvin previously supplied Johannesburg but was decommissioned as Eskom's supply was cheaper.

Kelvin will supply 150MW of capacity — just short of the amount that Eskom holds back from Johannesburg during load shedding.

But real surety to investors will come only when additional base-load generation capacity comes on stream in 2012. Until then, load-shedding will continue but to a lesser extent than last week.

Government has played catch-up since 2004, after it dithered for nearly five years before giving Eskom the go-ahead to expand its capacity.

Since then it has found itself consistently underestimating demand.

Despite predictions that growth of 6% by 2014 now looks unlikely, Maroga says Eskom is still basing its new investment on 6% growth expectations. This implies electricity demand is set to rise by 4%/year. Over a 20-year period, it means demand for power will double. This will cost around R1trillion. (Eskom's financial plans are detailed on page 41.)

This decision to double the power available to the economy will have a number of dramatic repercussions. As a first step it has allowed Eskom to fast-track three power plants that will head the list of the biggest-ever projects in SA.

In midyear the utility is set to give the go-ahead for a new R110bn-plus nuclear plant in what could become a fleet of up to five nuclear stations, mostly on SA's coastal areas.

Construction is also expected to start on a second R88bn, coal-fired power station, code-named Bravo, near Witbank in Mpumalanga, to be completed before 2012. This is in addition to the R84bn, 4200MW Medupi plant in Lephalale, Limpopo, where construction started in mid-2007.

About 3600MW will be released once all the previously mothballed power stations of Camden, Grootvlei and Komati are back on stream by 2010, though some units are already operational.

Also operational is 1050MW in peaking power from the two new open-cycle gas turbines in Atlantis and Mossel Bay, whose capacity has been doubled to 2100MW to come on stream over the next two years. See page 40 for a full overview of new projects.

Late last year government also approved the first two new power projects to be developed by independent power producers — two new gas turbines to be built near Coega and Durban by a consortium led by US power utility AES.

On top of new power plants, Eskom will also double spending on its transmission network to R20bn over the next five years.

Putting the numbers together for the entire Eskom capex deployment until 2025 makes for scary reading, and Maroga has mentioned a hitherto unknown number in SA infrastructure terms — R1trillion.

Eskom has indicated that nuclear power could account for up to half of the 40000MW in new generating capacity it plans to develop up to 2025.

While it is also looking at other energy alternatives to its dependence on "dirty" coal, it is nuclear that will fill the space as it cuts the use of coal to 70% of its primary energy mix by 2025 from over 90% at present.

The 1800MW Koeberg plant is the only nuclear station in its fleet now.

As a first step, Eskom is looking at developing a new 3000MW nuclear plant to be ready by 2016.

Executive director Steve Lennon says a decision should be taken by midyear. The utility has identified five possible sites in the Western, Eastern and Northern Cape, though a location adjacent to the Koeberg plant is favoured by Eskom for technical and operational reasons.

The regulatory and environmental process could take well over a year, though.

If successful, the new plant could be the first of five nuclear power plants in coastal areas. It would significantly ease the need to transmit power from Eskom's inland fleet of 20 power stations to the coast.

Lennon says Eskom has been working on the project for over two years, crucially to decide which of the two leading nuclear power operators to partner — Areva of France or Westinghouse of the US.

Both run third-generation pressure water reactors, but they differ in generating capacity — Areva reactors produce 1500MW each, compared with Westinghouse's 1000MW.

Both companies are aggressively courting Eskom and have teamed up with local companies as the bidding to build the fleet of power stations intensifies.

For Eskom the choice of partner is crucial, says Lennon. Given that the utility is looking at up to 20000MW of nuclear power over the next 20 years, "there is room for a fleet strategy and it would justify a partnership with one operator", he says.

FINANCING ESKOM'S EXPANSION

25 January 2008

NICKY SMITH AND SVEN LÜNSCHE

MANY RANDS MAKE LIGHT WORK

FIXING THE POWER SHORTAGE WILL COST R1TRILLION BY 2025. WHERE WILL THE MONEY COMEFROM?

What it means Electricity consumers will face 20% annual price hikes for years About R50bn needed beyond income from tariffs and borrowings

A critical challenge to addressing the power shortage is finding the money to do it. Over the next few weeks Eskom will table an ambitious five-year capex programme that insiders say will range between R250bn and R300bn. It will be the biggest expansion plan by an SA company ever.

It dwarfs the R150bn that is still the official figure for Eskom's capex for the 2007 to 2012 period.

Included in this programme are a number of mega-projects: the bulk of the R84bn Medupi power plant; well over half of the cost of the R88bn Bravo station; the R17bn Braamhoek pump storage plant; and initial spending on a R110bn-plus nuclear power station.

The funding of this plan will have widespread consequences not just for Eskom's balance sheet but also for the state budget and, most importantly, SA electricity consumers.

According to Eskom's preliminary funding plan to be tabled with the board and cabinet next month, it will rely on tariff increases of around 20%/year from 2009-2011 on top of the 14,2% approved for this year.

These tariff hikes, says the utility's finance director, Bongani Nqwababa, will raise revenue of around R250bn over the five-year period, of which about R15bn/year will be utilised to fund the capex drive — R75bn in total.

A further R150bn will come from borrowings, mostly on the local bond market. "This is about as much as we can hope to raise without markedly affecting our credit rating and thus the interest we have to pay on the debt," Nqwababa says.

The remainder — R25bn-R75bn, depending on the eventual outcome of the five-year plan — still needs to be "found".

As Eskom is looking to spend well over R1trillion to double its generating capacity to 80000MW by 2025, it believes government's approach to addressing the five-year shortfall will set the benchmark for the next two decades.

"Nothing short of a fundamental review of the structure of the electricity market by government and regulators is required," an Eskom executive says.

Eskom has been put under severe pressure since a decision by credit ratings agency

Standard & Poor's (S&P) to put its debt on credit watch from stable to negative. It follows similar concerns expressed by S&P rivals Moody's and Fitch.

Once Eskom's funding plan is approved, the agencies will review their ratings. Any downward adjustment would raise the interest rates Eskom has to pay on its debt — a move that could cost the utility billions on its planned R250bn borrowing programme.

S&P analyst Mark Davidson justifies the warning because of Eskom's plans "to materially increase its capital expenditure programme ... as well as significant inflationary pressures, primarily on fuel prices and capital equipment".

Davidson warns that if a higher capital programme is funded through debt raised on the bond markets, "the investments will result in a material weakening of Eskom's credit metrics, even with a sizeable tariff hike.

"S&P expects Eskom to require additional funding support from its owners to mitigate the impact on the ratings. Though we view implicit support for Eskom as strong ... any potential capital support from government is yet to be defined and approved," Davidson says.

Nqwababa says Eskom is waiting for government to move from "implicit support to explicit support; it is time for the shareholder to come to the party".

The department of public enterprises (DPE) — Eskom's shareholder ministry — has confirmed that the utility has outlined estimates of its capex plan and the recapitalisation required. "It is a question of affordability and requires political approval so it's not a quick issue to resolve," the department's DG, Portia Molefe, has stated.

Nqwababa says there are four main options it has tabled with government:

A cash injection from the shareholder. Ultimately this would have to come from national treasury but be disbursed by the DPE. Nqwababa says a R62bn cash injection from the state would be appropriate given the current tariff model.

Government stands as guarantor for the utility's borrowings.

A subordinated loan from the state to the utility.

A combination of all three of these.

National treasury would not be drawn on its response but it is said to favour providing guarantees to Eskom's borrowing programme.

Where state support could prove crucial is in convincing industry regulator Nersa (National Energy Regulator of SA) to approve higher tariff increases for Eskom. Nqwababa says increases of up to 20% every year for the next four years are necessary to pay for the building of new power stations. For 2008, Nersa approved 14,2% against Eskom's request for 18,7%. "We believe that anything less than 20% will limit our build programme to the current three approved base load power plants," Nqwababa says.

Though consumer bodies and trade unions have rejected Eskom's demands, SA electricity tariffs are still the lowest anywhere in the world.

Nersa arrives at a tariff rate through a calculation which adds Eskom's operating costs to its primary energy costs (thermal coal) and then adds an amount equal to 7,3% of its assets.

But the return on assets is calculated by using the historic value of Eskom's power plants and transmission network.

Eskom would like this equation to change so that the tariffs are calculated on the replacement value of its assets. Nqwababa estimates that if the assets were revalued to present day values, it could be as much as 10 times the value reflected on the company's balance sheet — R144bn at the end of March 2007.

A higher tariff structure would also make it more attractive for foreign power utilities to enter the SA electricity market. This would be in line with government policy to have 30% of all new investment in electricity capacity be made by independent power producers.

But in practice Eskom has been driving new capacity investments. So far only two smaller peaking power stations — near Port Elizabeth and Durban — costing a combined R5bn have been awarded to a consortium led by US utility AES.

"Given the current market structure, any utility operating here is dependent on a long-term offtake agreement with Eskom. But the current tariff regime does not make it commercially attractive to invest," says an investment banker active in advising utilities across Africa.

But he cautions that even a higher tariff structure would not necessarily lead to a rush of new investment. "This is a market that is heavily regulated and dominated by Eskom. It has not so far welcomed new electricity initiatives beyond bidding for new power plant concessions issued by government," he says.

He recommends that government should look at greater private investment in new plants and even selling off some of its existing power stations to private-sector investors. "Both would free Eskom's balance sheet significantly — even if Eskom committed to buying the power from the private plants. The equity portion is typically 30% of the cost of a power plant — 30% that Eskom could save on its expansion plan," the executive explains.

But co-ownership of new plants is a "no-no", says Nqwababa. He indicates that a proposal by French state-owned power group Électricité de France (EDF) to part-finance Eskom's capex plan in return for equity in SA's nuclear generation capacity is unlikely to succeed.

EDF's sister company, Areva, is one of the two utilities — the other being Westinghouse of the US — that are bidding to build Eskom's proposed fleet of five new nuclear power stations.

"Co-ownership is not on the cards but vendor funding is a definite possibility," says Nqwababa. Vendor funding would require the builders of a power plant to carry the cost of building the station; Eskom would repay, with interest, once the power station generates cash flow.

Another option being considered by government is co-generating plants. A number of SA's top industrial electricity users — Sasol and ArcelorMittal among them — have proposed building their own electricity stations to power their plants. Any surplus capacity would be sold to the Eskom grid.

But the bulk of funding for Eskom's capex plan will have to come from the debt market and Nqwababa says, for now at least, it has the strong backing of local finance institutions.

The utility was considering postponing its bimonthly auctions of its bonds because of the outages. "But market players have asked us to carry on and our R350m auctions continue to be oversubscribed," he says.

Eskom has two large bond offerings: the R15bn ES33 that matures in 2033 and the R8bn ES26, maturing in 2026. "Both bonds have been oversubscribed," Nqwababa adds.

Traditionally Eskom has raised about 70% of its debt on local markets with the remainder being sought on international capital markets. But the balance is likely to swing even further in favour of the SA bond market. "The local market understands our situation better and, in the wake of the subprime mortgage crisis, overseas debtors are far more cautious of taking on debt in some emerging markets," Nqwababa explains.

SPARK OF GOOD NEWS

22 February 2008

NICKY SMITH

Eskom has already secured 30Mt of the 45Mt of extra coal the utility announced last week it would be buying over the next two years in addition to its normal procurement.

The surprise admission by the utility's spokesman Tony Stott — though he could not provide details — comes in the face of market scepticism that Eskom could achieve anywhere close to the extra supplies needed to replenish its depleted coal stockpile.

Stott said Eskom's procurement division had secured the supply agreements with local coal miners. It means Eskom will this year buy about 150Mt of coal, up from 117Mt last year.

The increase in the coal requirement came as a surprise to the coal task team, formed three weeks ago by the mining industry to co-ordinate a response to Eskom's coal crisis. The only agreement that had been reached between the two groups had been to secure about 5,4Mt of extra coal ahead of winter.

Stott says the procurement programme was started late last year with mines that are already supplying

Eskom's fleet of 23 coal-fired power stations. He would not disclose the price the utility paid.

He adds that Eskom is confident it will be able to secure all this coal within SA and not resort to imports as many analysts feared.

The security of coal supplies is the best news coming out of Eskom since the beginning of the power crisis earlier this year. Longer term, the company has requested tenders for mining houses to supply coal to Eskom for between 40 years and 60 years. This would total between 380Mt and 790Mt depending on the quality of the coal as determined by its calorific value.

The extra coal will be used to bolster stockpiles which, in January, were down to three days' supply. Brian Dames, who heads Eskom's generation division as well as overseeing the R300bn new investment drive, says the group aims to have 20 days' stock in the coming months, building up to 35 days ahead of winter.

The rundown of supplies over the past few months points to a serious lack of planning at the generation division, whose divisional executive, Ehud Matya, was replaced by Dames earlier this month. "How difficult can it be to see your coal mountain being whittled away?" asks one analyst.

Eskom CEO Jacob Maroga denied the stockpile had been strategically run down to improve the company's balance sheet.

Rebuilding the stockpile presents financial and operational challenges. On the financial side, buying up to 45Mt of coal could cost Eskom up to R15bn more over the next two years

For its long-term supply agreements, Eskom is paying between R52/t and R100/t of

coal.

This is far from the US$115/t that coal producers have been receiving for higher-quality coal on the export market and explains why many miners have focused their expansion on the more lucrative overseas market.

Dames admits the extra coal Eskom is buying may have to be of a higher quality and will be more expensive, "as much as double" its current supply agreements. But critics question whether Eskom can even negotiate a R200/t deal given the surge in the international coal price.

A more likely price range is between R250/t and R300/t, while news agency Bloomberg reports that Eskom had reportedly offered R400/t for extra coal.

The extra bill will have a significant impact on the company's income statement and certainly presages even steeper tariff increases in the coming years.

On the logistical side, supplying 150Mt to power stations will challenge the road and rail networks in Mpumalanga and northern KwaZulu Natal, where most of the power stations are situated.

An illustration of the challenge is the enormous problems of getting coal to the Tutuka power station near Standerton.

The adjacent New Denmark colliery can only supply 5,1Mt of the 10,6Mt Tutuka will burn this year. The remainder will have to arrive by truck every six minutes to unload the coal onto the stockpile, which is gradually building up again. The traffic has already taken its toll on roads around Standerton and they will take an even greater pounding as more trucks arrive.

Given the operational and environmental problems surrounding greater coal usage, coupled with escalating prices, Eskom has hired consultancy McKinsey to re-examine its primary energy mix.

Tutuka power station Building up its coal reserves

ESKOM CRISIS: BIG HEADS SHOULD ROLL

28 March 2008

EDITORIAL

The Eskom energy crisis is crying out for heads to roll. It may be a merely symbolic gesture, but it would restore a measure of faith that public-sector officials are not just there to cream it, but are held accountable for their actions.

The costs to the economy will be with us for years to come, particularly now that government has backed Eskom's call for tariff hikes of around 60%. If the Reserve Bank had any doubts about raising interest rates, they will have vanished by now. But the fallout from the power crisis goes beyond its economic ramifications — it has damaged the psyche of a nation. For many skilled South Africans, it was the final straw, convincing them to pack and leave for greener pastures.

But who's head should be on the block? Such a crisis would have brought down governments in other democracies. Incredulously, it looks as though Eskom's executives may even end up getting bonuses.

This magazine has been sympathetic to Eskom's management in the past. The crisis now is largely not of its own making — as long as 10 years ago Eskom executives and directors warned government that a supply shortage was brewing. Its warnings weren't heeded. Similarly, applications for larger tariff increases were rejected by the industry regulator, which awarded sub-inflation hikes.

But the way Eskom has handled the crisis in recent months has been utterly inept. Its communications have been confusing and misleading — a day after they believed they had a workmanlike meeting with Eskom management in January, mines were told they had to shut down production. The company has still not managed to produce a load-shedding schedule that makes sense to consumers.

And despite commitments to discuss future price hikes with labour and business, the latest 60% tariff hike application has come as a complete surprise to all but Eskom and government.

There are serious operational shortcomings as well. Running down the coal stockpile defies commercial logic. On the HR front, letting experienced technical staff and engineers go was inexcusable given that Eskom knew of the upcoming power crunch years ago. Skilled white Eskom employees continue to be easy prey for private-sector firms as their chances for promotion remain limited. Finally, asking for a 60% hike a mere three months after the previous 14% tariff increase was approved suggests a serious lack of planning.

Then there is the Eskom board. The silence of the directors, particularly its chairmen Reuel Khoza and, now, Valli Moosa, is difficult to fathom. Eskom is a case study in fiduciary negligence. Khoza should have been knocking incessantly on government's door to get the go-ahead for new power stations.

Moosa, the Eskom chairman and a director since June 2005, has been conspicuous by

his invisibility during the entire crisis. Yet a crisis is precisely the time when a chairman should be earning those fees, taking the heat off his stressed executives, representing the organisation to the outside world and generally playing a leadership role. Moosa and his reclusive 12 fellow nonexecs must have decided that the can must be carried either by minister Alec Erwin (to whom they report) or CEO Jacob Maroga (who reports to them).

Erwin has become a chief apologist for Eskom's failures and his attempts to put a glossy shine on events are, for the most, not taken seriously. To his credit he gave the go-ahead for the capital expansion programme soon after taking over the helm at public enterprises, Eskom's shareholder ministry, in 2004. His predecessor, Jeff Radebe, sat on report after report without doing anything. If there was an inkling of responsibility left within government, both should resign.

But, ultimately, it has to be Maroga who has to go. He has all the qualifications and a distinguished career at Eskom but management is about a lot more than technical ability and experience. It's about character and leadership. At the height of the crisis, Maroga said: "I'm the CE of Eskom, so ultimately I take accountability for what happens." By definition, accountability means taking responsibility for your actions. Fall on your sword, Jacob.

DARKNESS AT NOON

11 April 2008

BARNEY MTHOMBOTHI

Eskom, having been refused permission by government to build more power stations, determinedly drove the cart into the ravine

People are now taking their money and skills to safer and more secure climes abroad.

Eskom has gone from being one of the most admired public institutions to being the butt of gallows humour in a matter of months. It's an achievement of sorts. The scary thing is that they think they have done a rather good job and deserve a bonus. They should not be getting bonuses; they should get the boot. The public has been wondering whether those suits know what they're doing. It seems like a case of the blind leading the sighted.

This country has gone through some traumatic watersheds in its history: the Sharpeville massacre, the Soweto riots and many others that damaged the country's image and left a pall of gloom over the land. The impact of the Eskom debacle on the public psyche has been devastating. It's amazing what being locked out of your house or sitting for hours in a traffic jam because of power cuts can do to your state of mind. For many it's been the final straw. People are leaving. They've had it.

When, two decades ago, Botha failed or refused to cross his Rubicon, the country in a sense moved on, leaving him behind. He was to suffer a stroke and was ultimately tossed out by his party. That debacle was the darkness before the new dawn.

Eskom has brought us darkness at noon. What is so terrible about this sorry mess is not only the fact that we sit twiddling our thumbs in the dark, and thousands of businesses, especially small ones, are going belly-up; it is also the fact that nobody has been called to account for this debacle; nobody has fallen on his sword. Frankly, nobody cares.

People are crying out for action. They're unlikely to get it. Not even a sacrificial lamb. This is the stuff that brings down governments in true democracies. The fact that the resignation of Thabo Mbeki and his government is not even mooted — not even a remote possibility — is an indication of the toothlessness of our so-called democracy. The new dispensation has become nothing but some paradise in which politicians and their cronies loll in luxury, with nary a desire to take responsibility for any action or inaction. We're no different from Zimbabwe, where the state — and its people — are at the service or mercy of despots. Or is our mute response to the drama unfolding in Zimbabwe a sure giveaway that Robert Mugabe's nirvana is our ultimate destination?

Months into the crisis — with our international reputation in tatters — we still don't have full understanding of the scale or cause of the problem. A lot of verbiage has been uttered, but no substance. What we do know is that the Eskom board and management, having been refused permission by government to build more power stations, determinedly drove the cart — or allowed it to career — into the ravine. There was no

shouting for help or any attempt to avert the looming disaster. The crisis was already upon us when we were apprised of it.

Having co-authored the crisis, Eskom's management of it has been abysmal. That alone should be a firing offence. Having landed us in this darkness, they've now got into the irritating habit of blaming the public for not saving energy. And to add salt to the wound, they seem to have decided, with government's approval, that a 60% increase in electricity is the price we ought to pay for their incompetence.

They deserve not a cent from us; they should get the sack. And get a new crowd that has a handle on things to sort out the mess. That's the least the public would expect from a responsive government.

ROAD TO A BLACKOUT

2 May 2008

NICKY SMITH

Eskom-bashing has become a national pastime. Load shedding has entered our daily parlance, if not our daily diet. But the current load shedding nightmare is more than just about Eskom — it is mired in a decade of haggling, administrative incompetence, strategic blunders and political obfuscation. The FM knits together a narrative of the monumental bungling that has left SA in the dark

"Onbekend" is the sign that guides the visitor off the M6, north of Pretoria, to the Farm Inn, a fourstar thatch & sandstone hotel favoured by bureaucrats who go there to meet away from the public eye.

It was here, in 2000 and again in 2001, that key government officials and regulators met top Eskom executives to chart the way forward for SA's electricity industry. It was a road into unknown territory, embarked on with the best of intentions, but with the most disastrous of outcomes.

At Farm Inn Eskom was blocked from building the new power stations that would have avoided today's power crisis.

This is a story of many moving parts and a variety of sources, each with their own perspective of the genesis of our power crisis. One of the pieces in the complicated puzzle is SA's history of excess capacity and the level of pricing that resulted from this glut of power.

Another is that Eskom has been answerable to two ministries — the departments of minerals & energy (DME) and public enterprises (DPE) — which has led to red tape and a lack of critical focus, planning and co-ordination.

A pervasive belief that power is cheap and abundant has also played a big role in the crisis. As one source remarked: "SA's power has never been cheap — it was incorrectly priced."

This misconception about power prices has led to inappropriate investments in electricity-intensive industries, while at the same time there was enormous political pressure to provide power cheaply and widely to a country emerging from a past where basic services were the preserve of the minority.

In October 2000 and in November 2001, workshops were held at the Farm Inn to plan an overhaul of the electricity industry to match a vision painted by government's energy white paper, published in December 1998.

Eskom was to be unbundled into three different operating entities, responsible for generation, distribution and transmission.

On the generation side, competitors would have to be introduced. Eskom would be corporatised and made into a dividend- and tax-paying corporate citizen.

Yet, within that white paper debated at Farm Inn, the seeds of today's crisis lay unnoticed. Ominously, it warned: "Eskom's latest integrated electricity plan forecasts for an assumed demand growth of 4,2% that Eskom's present generation capacity surplus will be fully utilised by about 2007.

"Timely steps will have to be taken to ensure that demand does not exceed available supply capacity and that appropriate strategies, including those with long lead times, are implemented in time. The next decision on supply-side investments will probably have to be taken by the end of 1999 to ensure that the electricity needs of the next decade are met."

Between 1996 and 1998, when the white paper was being drafted, key ministers — Jeff Radebe, Penuell Maduna and Phumzile Mlambo-Ngcuka — were aware of these warnings. Then again in 2001, on a nuclear energy fact-finding tour in China, Mlambo-Ngcuka, minerals & energy minister at the time, was buttonholed by an Eskom executive who told her: "We have a window of opportunity to change things. This policy will destroy the industry, you need to change things." The warning was ignored.

Back at the Farm Inn the future of SA's power industry was decided by a small group of highpowered decision makers who put the brakes on Eskom's plans to build. They included Sandile Nogxina, director-general of the DME; Sivi Gounden, director-general of the DPE; Smunda Mokoena, the then deputy director-general of electricity in the DME; and his successor, Nelisiwe Magubane.

Senior staff from the National Electricity Regulator, such as Segate Mokonyane, and executives from Eskom — CE Thulani Gcabashe and head of strategy Steve Lennon — were also there.

It was a group flushed with success. The ANC had won the second democratic election in 1999 with an increased majority — a weighty endorsement of government's vision of creating an economic miracle to match its political miracle. An internationally popular programme to restructure state assets was under way under the aegis of the Growth, Employment & Redistribution (Gear) plan of 1996. State-owned entities (SOEs) were slated for partial or full privatisation and protected monopolies were to be deregulated, especially in energy and telecommunications.

The full or partial privatisation of SOEs such as the Airports Company SA, SA Airways, arms producer Denel, Telkom and Eskom could yield about R70bn that would go to the fiscus. The money could be used to facilitate the transformation of the racial make-up and participation in the economy.

Introducing empowerment partners into SOEs was also a popular idea.

In the white paper, government voiced its intention to introduce competition in energy generation and put an end to Eskom's monopoly. Power stations would be divided into groups to form a number of new companies, which would compete with each other. Transmission would become an independent SOE that would provide for nondiscriminatory access to transmission lines, and a neutral interface between generators and regulators.

Distribution would be rationalised from the 400 distributors into at least five regional

electricity distributors. (Ten years later there are 187.)

But one attendee at Farm Inn remembers the voices of concern. "No-one believed we would get to where we are now [in 2008]. But we kept saying 'guys, this is not going to work, Eskom is already a very efficient, low-cost producer'."

It was a warning that would be repeated many times in the years ahead, while successive opportunities to avert the current crisis were missed.

An Eskom director recalls: "In July 2002, one of the first issues that was raised by the board was the lack of progress in the electricity supply industry. We said the last thing we want to be caught with is running from overcapacity to undercapacity, and that is where we are six years later. Too much debate and very little action. There is an obsession with doing things right instead of doing the right thing."

The thinking behind the policy was to give appropriate pricing signals so independent power producers (IPPs) would be lured by the opportunity to make a return. Eskom would need to be prevented from building power stations to make the market attractive for IPPs.

But Eskom was concerned that while no building would need to happen before 2002, it was important that planning start immediately. It lobbied hard at Farm Inn to be allowed to do this.

The DME held firm, but a compromise was eventually reached. It was decided that Eskom would retain no less than 70% of generation capacity and IPPs would make up the balance.

"A major win for the DPE, which went in to bat for Eskom at Farm Inn," one DPE official recalls, "was the fact that Eskom was allowed to be a supplier of last resort. The intention was to ensure security of supply. We were not entirely confident that the policy would work. We understood the maths [for IPPs] would not have worked without a substantial overhaul of the tariff regime."

Eskom was to focus on a substantial return to service (RTS) programme of three mothballed plants, namely Komati, Grootvlei and Camden.

There had also been a suggestion from Eskom to introduce 10% empowerment partners to the RTS programme.

There was a lot excitement about this option from empowerment companies but once their bankers had crunched the numbers, the commercial weaknesses in IPPs was exposed and the idea died a quite death.

In 2001, when the key players gathered again at Farm Inn, Eskom had become even more agitated about the lack of progress in attracting IPPs.

One observer remembers an Eskom executive saying: "We accept there are other objectives but at the same time we have to get going. The issues around price and security of supply must be addressed."

Eskom management had lobbied hard for a multimarket model (different pricing structures for new power producers, with higher cost bases) during these workshops. They argued that without creating a streaming model to introduce higher-cost new producers into the energy mix, the restructuring of the electricity supply industry (ESI) was headed for trouble. But its warnings were ignored.

Between 1982 and 2000 electricity prices in SA had fallen 35% in real terms, largely as a result of pressure on Eskom to keep power affordable to poor households as well as industry.

In 2001 Eskom suggested it enter into a relationship with government, and it wanted CPI plus-related tariff increases. Eskom would start the new building programme and meet its obligation to supply, and once new IPPs had been identified, these new projects could be unbundled into the new IPPs.

The NER — the forerunner of Nersa — had traditionally given Eskom only a CPI plus 1% tariff increase on an annual basis. In some instances the regulator was giving Eskom below-inflation increases. "In providing guidance at this time, the DPE and DME were both very weak," remarks someone close to the action at the time.

The DME was preoccupied with the minerals legislation it was crafting, while the DPE was distracted by the Telkom listing and the licensing of a second network operator.

As far as everyone was concerned, including the public, Eskom was running fine — the electricity council had been replaced by the Eskom board and the company was now paying dividends and taxes. "The last thing on anyone's mind was new generation capacity," says an Eskom insider.

Eskom had been in a state of flux since the early 1990s with aggressive pursuit of affirmative action targets and pressure on the utility to slash power prices while continuing its extensive electrification programme. (See skills crisis story below.) Regardless of the seemingly endless appeals, the policy was adopted by cabinet in May 2001, which is about the same time the lights went out in California.

The California electricity crisis was "a wake-up call for Eskom". The power utility reacted by drawing up a briefing document for Radebe, who was public enterprises minister at the time, on what had happened in California.

Eskom told government that the models being proposed were "not a good idea". The lack of a multimarket model was a glaring omission.

Eskom worked closely with a California-based power company to analyse what the issues were.

What emerged was that there had been insufficient investment in generation, transmission and distribution systems.

The reason for the lack of investment had been that the price signals coming from the market had not provided enough incentive to warrant the necessary investments.

A similar briefing document was compiled and presented to cabinet in May 2001, when Eskom told government: "This is what you need to do to avoid what happened in California from happening here." Its pleas and warnings went unnoticed.

While all of this drama unfolded between the DME, the DPE and the power utility, Eskom was corporatising itself and finding something else to do with its time since it would no longer be allowed to build new base load power generation.

And so it was that in 2000 Eskom established Eskom Enterprises, which would house its nonregulated businesses.

In the years that followed, Eskom's focus became Africa. Championed by Eskom's chairman, Reuel

Khoza, many hours of management time and energy were wasted on pursuing opportunities in energy, mining and telecommunications, with little success.

"The Eskom board was spending 95% of its time talking about Africa and 5% on SA where 95% of our business was," recalls one Eskom director, commenting on the inappropriateness of the strategy.

But Eskom was aware that it needed to continue with its planning programme and it continued to do work on the Braamhoek pumped storage facility (now called Ingula) in the Drakensberg, but for base load (the power that exists 24 hours a day) capacity, their hands were tied. Eskom went ahead with Ingula, arguing that it had a 13-year lead time and that it would sell it on to an IPP at a later date.

Eskom knew that to do work on a new coal plant would take at least two years, so it scouted for these sites. However, it was unable to start with environmental impact assessments — which usually take at least two years to complete and obtain approval — because of the ban on it building new stations.

With one eye on the clock and the other on the door through which no new energy companies were walking, Eskom acted. In 2002/2003 the company started pulling back resources to manage the kind of new building programme it needed.

Eskom Enterprises largely abandoned its external focus and began to structure itself to be the vehicle that would be responsible for the new building programmes as the reality that IPPs were not flocking to the country started to get through to policy makers.

Though Eskom was not allowed to build new capacity, it did not sit on its laurels while IPPs were being wooed. It had a substantial capital expenditure programme in its return-to-service of the mothballed power stations.

It was envisioned that this would happen between 2002 and 2006, providing the company with some breathing space in terms of the tightening reserve margin until 2010.

However, when the contractors were brought into the mothballed plants it became evident that they had been cannibalised for spare parts: what was in the status reports and what they found at the plants was very different.

This process was set back by at least 18 months while contractors went about conducting an "as is" status report.

Eskom started work on its return-to-service of the mothballed power stations, which it estimated would start delivering power by 2005.

But that was not to be. Timelines were thrown out and budgets ballooned — from R12bn in 2002 to R20bn last year.

It was only when Radebe was moved out of the DPE and Alec Erwin came in that the building plans gathered pace. In October 2004 the cabinet ban on Eskom was officially lifted and the planning and work that Eskom had been doing without any official mandate was accelerated.

The environmental impact assessment plans for the peaking power plants on the West Coast at Gourikwa and Ankerlig went ahead.

And then in November 2005, the lights went off in the Western Cape. One Eskom employee remembers getting a call in the middle of the night from a colleague who said: "We have lost the Cape. You must come in now."

Driving through Cape Town in the pitch dark in the time that followed was a chilling foretaste of what could happen nationally, given the terribly low reserve margin.

The reserve margin is about 8% while internationally a reserve margin of at least 15% is deemed best practice. This margin acts as a buffer should the system experience any undue stresses, such as a spike in demand and the unscheduled loss of generation capacity.

"We really didn't know what it would mean to run out of capacity; until then it had been a little bit academic. The public backlash was intense," recalls another Eskom employee.

At one stage, SA had excess capacity and high reserve margins.

There was major investment in power stations in the 1970s. At that time the US and some European countries looked ready to do more business with SA, which was a pariah state because of its racist policies.

But in 1985, when former state president PW Botha gave his "Rubicon" speech, in which he rejected the calls for reform, the growth in foreign business in SA disappeared virtually overnight. From an annual growth rate of about 4% it went down to 0%.

Economic sanctions were imposed on SA and a year later a state of emergency was declared. SA's economy and its currency battled. The capacity Eskom had invested in now stood idle.

Investment plans for the coal mines contracted to supply the large six-pack power stations were cancelled.

Anglo Coal's New Denmark mine, which supplies Tutuka power station near Standerton, is an example of this rationalisation. Tutuka has until recently been run at about 50% capacity.

Last year, construction began outside Ellisras on the 4788MW Medupi power station, though the civils contract has yet to be awarded.

Environmental approvals have been given for the construction of Bravo power station outside Witbank. But these plants are not going to provide any relief until at least 2012, when the first of Medupi's six units start being phased in. The last was phased in in 2007.

There still might be light at the end of the tunnel, but it is a long, winding tunnel.

CAN'T AFFORD TO TRIP AGAIN

11 July 2008

SVEN LÜNSCHE

The power crisis is forcing Eskom into SA's largest-ever spending plan

Eskom plans to spend R1,5trillion by 2025. State funding support is critical.

Even if nothing good has come out of the power outages this year, the crisis has at least focused the mind of government and provided Eskom with the impetus needed to get its R1trillion-plus investment plan going.

And the big numbers don't seem to scare government. For the next five years Eskom has set aside R343bn for its expansion plan, of which R60bn — for now — will come from government via a shareholder loan.

But putting the numbers together for Eskom's capital expenditure plans until 2025 — by which time it hopes to have doubled its generating capacity to 80000MW — makes even more frightening reading: R1,5trillion is the conservative estimate; it's a number that is rising every month as global shortages of equipment and skills are driving contract prices ever higher.

But it's an investment Eskom is determined to make. It certainly can't afford to be caught short again by an economy that expanded well beyond the expectations of Eskom and certainly those of its government masters.

Government has played catch-up since 2004, after it dithered for nearly five years before giving Eskom the go-ahead to expand its capacity. Since then it has found itself consistently underestimating demand.

Despite predictions that growth of 6% by 2014 now looks unlikely, CEO Jacob Maroga says Eskom is still basing its new investment on 6% growth expectations. This implies electricity demand is set to rise by 4%/year. Over a 20-year period, it means demand for power will double.

Eskom's most immediate supply response has been to accelerate the return of its three mothballed stations and the building of a new set of gas turbines in the Western Cape.

About 3600MW will be released once all the previously mothballed power stations of Camden, Grootvlei and Komati are back on stream by 2011, though some units are already operational.

Also operational is 1050MW in peaking power from the two gas turbines — Gourikwa in Mossel

Bay and Ankerlig in Atlantis — whose capacity has been doubled to 2100MW to come on stream over the next two years.

At the same time Eskom is hoping to achieve a 10% reduction in demand, though pricing incentives to achieve this have yet to be launched.

Through these measures Eskom hopes to avoid further load shedding this year, though Maroga is loath to commit to that. "Only if we save 10% can we commit to an end to load shedding," he warned recently.

But real surety will come only when additional base-load generation capacity comes on stream in 2012/2013.

To its credit, government has been far quicker in approving projects than previously. Since last year three large power plants have been given the go-ahead — all three will head the list of SA's biggestever single projects.

Later this year Eskom is set to give the go-ahead for a new nuclear plant in what could become a fleet of up to five nuclear stations on SA's coastal areas. This fleet is scheduled to provide about half of the new 40000MW in capacity Eskom plans to bring on stream by 2025.

But initially estimated at R120bn, the cost of Nuke One — as the first new nuclear station is known — has since escalated sharply and Eskom has bandied about figures closer to R180bn.

Even that could prove conservative. "If only it were R180bn," said one senior Eskom executive recently.

A decision on the first nuclear power plant is expected by the end of the year. Eskom has split the bidding document into two: one for the first power plant and a second to provide a total of 20000MW of nuclear power by 2025.

Two of the world's leading nuclear power companies are bidding for the contracts: France's Areva and Westinghouse of the US, both of which have lined up local partners to win what will be SA's largest-ever corporate tender.

The other projects that have been given the green light are two new coal-fired base-load stations — at Medupi (outside Lephalale in Limpopo) construction is in full swing, while contracts have also been awarded to build the Bravo plant near Witbank, Mpumalanga.

Both are 4200MW plants and should come on stream between 2012 and 2014 respectively. But

Eskom has also been caught out by the costs of Bravo and Medupi. Both are now being priced at more than R80bn from estimates of about R60bn last year. But their commissioning should at least signal the end of the power crisis.

Other projects on Eskom's schedule include the R17bn, 1300MW Ingula hydro pump station in the

Drakensberg as well as R21bn to be spent on its transmission network nationwide.

Other measures include support for cogeneration projects — where large industrial firms produce their own electricity — and allowing independent power producers (IPPs) into the market.

Last year government awarded two gas turbine plants to US energy company AES, but the group walked away from the contract because of alleged changes in the tender conditions. AES's exit was a critical blow, not only because it worsened short-term supply problems but it also sent out the wrong signals to other IPPs interested in investing in SA.

At the estimated R1,5trillion price tag, Eskom's programme will require regulatory and financial support from what Maroga calls the "policy environment". A number of policies

had to fall into place to make Eskom's job more manageable.

Most immediately, in June, the National Energy Regulator (Nersa) awarded Eskom a higher tariff increase — of 27,5% — for financial 2008/2009.

Though short of the 60% he had requested, the increase has been welcomed by Maroga for providing certainty, but also because it established some crucial pricing principles.

Nersa's ruling allows for a pass-through mechanism within the regulatory framework, which allows Eskom to load large price escalations into its future tariff applications.

This applies to prices of its primary energy materials — coal, diesel and uranium — as well as unforeseen cost increases in building new power stations.

A second crucial aspect in meeting the cost demands is Eskom's ability to retain its relatively high credit rating on its corporate bonds. This is in jeopardy unless the state provides funding support.

National treasury announced a R60bn shareholder loan in the February budget — Eskom had apparently requested double that — but details are expected only over the next two weeks.

Eskom is hoping for long-term funding — "20 years at least" according to finance director Bongani

Nqwababa — a competitive coupon rate and a repayment moratorium for a number of years.

But given the lower-than-expected tariff ruling Eskom might well be asking for more from government, its sole shareholder. The department of public enterprises, Eskom's shareholder ministry, has given its approval in principle but national treasury has proved difficult.

It is keen to limit the fiscus's exposure to funding for state-owned enterprises but has promised to provide greater clarity when it releases details of the R60bn funding package.

Before the Nersa ruling, the three large credit agencies — Fitch, Moody's and Standard & Poor's — noted that Eskom might have its ratings dropped a couple of notches because of its precarious financial position.

They too will wait to see details of the financial support package from government — and possibly larger funding — before they decide on whether to lower their current upper investment grade.

Up to now Eskom bonds have been highly sought after, largely because the utility has jealously guarded its BBB+ (investment grade) rating by keeping conservative debt and interest rate covers on its balance sheet.

The quality of its credit rating allows it to borrow money on more favourable terms — up to 15 percentage points lower — than it would be able to get from commercial banks. The saving on its interest bills has traditionally been passed on to consumers, thus enabling Eskom to charge among the world's lowest electricity prices.

But Nqwababa warns that if the utility's credit rating fell by a notch it could cost between R3m and R4m extra a year for every R1bn it had borrowed.

Eskom has stated it will be able to borrow only R150bn on the capital market for the next five years.

With the R60bn loan from national treasury, Eskom will need to get R133bn from

tariff income in order to fund its capital plan.

The 27,5% tariff rise won't accommodate that, so another trip to treasury will be inevitable to get more funding support from the state.

THE NEXT, BIGGER CRISIS

25 July 2008

SHAREEN SINGH

The failure to overhaul the power distribution sector could cause the next crisis in the electricity industry

Number of ministries oversee the sectorMunicipalities don't want to give up their constitutional powers

The neglect of SA's ailing electricity distribution industry could well cause the country's next power crisis, warn experts.

Government has tacitly admitted that it has failed to overhaul SA's vast electricity distribution industry since a plan to consolidate the sector was first put on the agenda 13 years ago.

The department of minerals & energy (DME) says detailed policy and accompanying legislation to direct the restructuring of the R33bn industry will not get to parliament before a new government comes into power. It blames financial and political hurdles for the long delays.

"One of the lessons I have learnt in this process is that this restructuring is extremely complex — it cuts across all spheres of government and we need constant consultations and persuasion. If it was really simple, we would have done it long ago," says Nellie Magubane, the DME's deputy director in charge of electricity. "It is not just about legislation — it is about money, and the issues are alsopolitical," she adds.

This comes after several attempts by the DME to get local government and Eskom on its side and parliamentary approval of draft policy. The DME's white paper on energy — mooting the restructuring — was endorsed by cabinet in 1998 after years of discussions with trade unions, business and local government.

Electricity is distributed by Eskom and 187 municipalities — the fragmented system has been fraught with financial inefficiency, management problems and lack of investment in maintenance, especially at local government level.

Of the R33bn revenue from power last year, less than 10% has been reinvested in electricity infrastructure, such as power cables and substations that redistribute the power local governments buy from Eskom. With investment backlogs exceeding an estimated R25bn, the threat of networks collapsing is a major concern. "Distribution infrastructure is not in the state it should be," warns Ernst & Young's oil, gas & utilities head Norman Ndaba.

"There is a great deal of uncertainty over policy in the industry," he adds. "This uncertainty, and not Eskom's power supply, is likely to lead to the next big crisis and could be more difficult to resolve.

Power generation involves about 20 plants while distribution is very fragmented,"

Ndaba says.

At least R26bn has to be spent on maintenance by cities alone. Eskom has budgeted R40bn of its five-year R340bn capex programme for investment in distribution.

"It would be irresponsible of us not to invest in distribution infrastructure though we could well be giving up our distribution assets in the near future," says Eskom CEO Jacob Maroga.

The essence of government's restructuring plan, which a new government would inherit, is to create a streamlined system to replace the messy one which has about 2000 different tariffs ranging from 16c- 60c/kWh.

Eskom and the 187 municipalities distributing power would be split into six Regional Electricity Distributors (Reds), which would be easier to regulate, manage and provide a better way to raise finance commercially. The Reds fall under the state-owned Electricity Distribution Industry Holdings

(EDI). (See map, page 46.)

But the plan seems unworkable because it relies on municipalities and Eskom to voluntarily cede their power distribution function, assets and staff to the Reds — without addressing the issues that affect them.

Several government departments including national treasury, public enterprises and local government are involved in the restructuring committee, spearheaded by DME, but there seems to be a lack of cohesion in formulating policy.

Prof Anton Eberhard, a former National Energy Regular SA (Nersa) board member, says a restructuring under the current model, "will not fly", because the core policy issues have not been resolved and the voluntary model has failed.

Earlier this year regulations under the Electricity Regulation Amendment Act were passed that compel municipalities to comply with specifications set by Nersa. These include "progressively ensuring access to basic reticulation [distribution] services through appropriate investment in electricity infrastructure".

The act also requires municipalities to provide minimum free electricity "within their means", and to keep separate financial statements, including a balance sheet, of their electricity businesses.

However, the act leaves two key areas under the control of municipalities and these could ultimately undermine Reds. Firstly, municipalities don't have to join Reds, it's a voluntary process; secondly, they can still set their own tariffs.

Unless there is a constitutional amendment to give national government power over electricity distribution, municipalities will cling to their right to distribute power because it is their biggest source of income. The existing model "should be revisited", Eberhard says.

Mark Pickering, a consultant at Mbane Power, who once served on a DME advisory panel, believes there is nothing wrong with the model but government needs to "put a deal on the table that municipalities would find attractive". Municipalities, he says, would come to the party if they knew that they would not suffer financially.

SA Local Government Association (Salga) director Lance Joel concurs. "Most municipalities support the restructuring but they need to know how they will be compensated.

Will they be worse off financially — will their staff be worse off?" he says. The restructuring will affect 30000 employees at municipal level.

Magubane agrees compensation is an issue. "Unless we have a deal that works for all stakeholders, we will have problems," she says.

But finance minister Trevor Manuel has always been concerned about stripping municipalities of their main revenue source, so to date there has been no resolution on the funding issues.

National treasury's current thinking is that Eskom and municipalities will be compensated for electricity assets transferred and lost income by holding shares in Reds, instead of the fiscus, says deputy director-general Fuzile Lungisa. "This will minimise the impact of restructuring on the financial sustainability of municipalities."

But this has, to date, not satisfied municipalities.

As the tussle continues, EDI, the company set up by DME in March 2003 to oversee the creation of the six Reds, continues its work in a policy vacuum.

CE Phindile Nzimande, who has been with EDI since its inception, admits the voluntary process is not working. But she stops short of saying anything about a constitutional amendment.

She stresses that EDI was not created to resolve policy problems, but to implement. However, she says EDI has become "involved in addressing policy issues because it is essential to our ability to implement". Of the 187 municipalities that have distribution assets, only 49 have signed up to cede their assets — a take-up ratio of 27%. Eskom is said to be "95% ready" for the conversion.

Last month EDI received R1,2bn over three years, in addition to the R60m/year it receives to help municipalities ring-fence their electricity business and prepare them to move to a Red.

Ring-fencing is crucial to ascertain exactly what each municipality's asset is worth and how much it stands to lose in revenue. This work is beginning in earnest only now as EDI has just recently hired new consultants, including Ernst & Young, to oversee it. Previously, EDI tried to work on estimates based on computer modelling, rather than careful scrutiny of each municipal distributor's finances. EDI was set up as a temporary structure — once it has set up the Reds and they are functioning well — it will be dismantled. Nzimande is negotiating an extension to her contract for three more years.

Ndaba believes EDI should be a permanent authority with more teeth. "The biggest problem in the sector is that no entity is ultimately responsible for the industry. Despite its drawbacks EDI is in the best position to do so and should be given the resources needed," he says.

However, others argue that unless the fundamental issues relating to finances and the constitution are resolved, and a legitimate policy is in place, the restructuring in its current form will stagnate.

Restructuring the fragmented power distribution system was always going to be contentious. Without revenue from electricity, many municipalities would struggle to fund their operations and their credit ratings would be adversely affected.

Though there have been assurances that they would be receiving revenue flow via

the Reds, uncertainty about the restructuring has led the municipalities to resist various permutations of the overhaul. A lack of clarity over compensation for the assets has also got them up in arms.

DME as well as other government ministers have indicated that if need be they will amend the constitution to force the municipalities into the Reds.

But any talk of a constitutional amendment would be like a red flag to a bull. Salga's Joel warns that "it would be opposed". In an election year, it would be highly unlikely that government would risk resorting to it.

Four years ago government launched Red1 with Cape Town as its base and comprising most of the Western Cape. But within a year Cape Town pulled out of Red1 after government decided the Reds had to report to central rather than local government.

After Cape Town's withdrawal Red1 lacked the financial resources to continue and Nersa withdrew its licence. Some consultants however, argue that a smaller-scale restructuring, focusing on the bigger metros and those municipalities whose finances are in better shape, should be considered. So it could be back to the drawing board for yet another permutation of the restructuring.

With municipal finances in a mess, the lack of investment in electricity distribution could worsen and cause the next power crisis. This alone should be enough incentive for government to clear the financial and political hurdles to resolve the mess.

BOOST NEEDED TO KEEP THE LIGHTS ON

17 October 2008

EDITORIAL

What a strange animal Eskom has become. For many years after the Electricity Supply Commission (known as the ESC or Escom) was founded in 1923, there was no doubt that it was a state entity. The chairman of the board reported to the minister of mines & industries. Escom's brief was to build generating capacity, and later it took an increasing role in distribution. If it failed in these tasks, there was no doubt who would be held ultimately accountable: government.

Escom became Eskom in 1987, and over the past two decades the utility has increasingly taken on the status and trappings of a large private company. It paid tax. Its human resources practices became a benchmark. It produced the cheapest power in the world, efficiently.

Flushed with success, it built an opulent corporate headquarters, Megawatt Park, on prime land north of Sandton. The general manager became a senior general manager, and then a CEO. This title inflation was matched by ever bigger executive packages and bonuses, and ever fancier annual reports. It developed highly sophisticated budgeting processes, with the kind of fund-raising expertise and management of risk normally found in big banks (a far cry from the single accountant employed in 1923).

Yet Eskom remained, and remains, a 100% state-owned entity — even though, like Transnet, it likes to talk about its "shareholder". Though it has a board of well-paid nonexecutive luminaries, they all know who's boss — the minister of public enterprises.

So the corporate history has produced a kind of multiple personality. When it suits government, it likes to treat Eskom as an independent company. It has been reluctant to guarantee future debt (though it has done so for borrowings already incurred) or to inject capital itself.

This reluctance is understandable, but also puzzling at a time when there is a global credit crisis. To make matters worse, Eskom has been downgraded this year by two ratings agencies, Standard &

Poor's and Moody's. Eskom itself has estimated that a rerating by a single notch can cost it up to

R2bn in additional interest on loans, while also making the bonds it sells less attractive. And large investment funds are often prohibited by their mandates from investing in any bonds that fall outside investment grade.

That isn't the end of Eskom's financial challenges. Cheap electricity was great while it lasted, but in the end it had to be paid for. Decades of excess capacity in the generation sector created a disconnect between the cost of production and the prices charged for power. It was finally demonstrated this year that tariffs had been kept artificially low for too long, while the need for funding for capital investment had been underestimated to the point of disaster.

Yet Eskom is still hostage to a regulator that has the power to set price increases — no pretence at being a private company there — but is not accountable if Eskom cannot meet its commitments.

Then there was the severe damage to the Eskom corporate brand when the country came to a virtual standstill at the end of January. The symbolism of the mining industry — the foundation of SA's modern economy — having to shut down was especially dramatic. Then a period of power cuts undermined the utility's image further. An impression lingered of poor corporate planning and execution, even though it was clear that the blame lay with government (as President Thabo Mbeki acknowledged).

Government knows very well that if Eskom cannot raise the billions needed, the state will have to step in with loans, or injections of capital, or guarantees, or a combination of these. So why not do so now? The markets are looking for such a signal. Quite apart from impressing the ratings agencies and improving access to cheaper debt, it would be a timely morale booster to the economy as a whole in fragile times. Government is ultimately responsible for keeping the lights on, and it must stop pretending otherwise.

ESKOM RELIES ON LATE SURGE

15 May 2009

MATTHEW HILL

Better late than never, the adage goes. In fact, it's become something of a motto for state-owned Eskom.

The power utility has yet to apply for a tariff increase to the National Energy Regulator of SA (Nersa). The new tariff should have been implemented on April 1.

Though Eskom spokesman Fani Zulu tells the FM the company should make its application to Nersa by the end of May, this late submission could come back to haunt it. Already, Eskom is under financial pressure.

Behind the late submission is the financial crisis, uncertainty around government support prior to guarantees made earlier this year and efforts to raise funding abroad. Eskom won a 27,5% tariff increase last year, after having applied for more than 60%.

A late submission this year could have serious effects. Nersa electricity regulator member Thembani Bukula says it has taken three to four months in the past for the regulator to reach a tariff decision for

Eskom. There is no reason why it wouldn't take that long again.

If Eskom submits its application this month, a decision could come only in September. Bukula warns it should not be taken for granted that the tariff increase would be back-dated to April, as it was last year. He says: "The time for recovering costs is becoming shorter and shorter."

It is certain that power prices will go up. The severity of Eskom's situation was made clear by last year's power crisis, which effectively shut the mining industry for nearly a week.

Last year, Nersa indicated an increase of 20%-25% would be realistic for 2009. But that was before the global economy went bad. Since then, Eskom's revenue has dropped with falling power demand, putting additional strain on its balance sheet. Bukula is aware of this and says the regulator will have to take it into account.

Cosatu has threatened a repeat of 2008's one-day strike if Nersa grants Eskom an increase in or above the band it indicated it would probably grant last year. The trade union federation says it never agreed to Nersa's figures and will fight any increases that would put strain on the poor.

Analysts the FM spoke to earlier this year believed Eskom would get an increase of 18%-22%.

Eskom plans to spend R273bn over the next three years on its expansion projects, including two new coal power stations. But it has yet to finance about R130bn of that amount. Government has agreed to loan Eskom R60bn over three years, R10bn of which it gave the utility last year. Former finance minister Trevor Manuel announced in February the state would make available a further R176bn in loan guarantees (including R20bn of existing loans).

The outstanding amount it needs to raise could come through increased borrowings. Eskom could approach development finance institutions, like the World Bank and the Development Bank of Southern Africa, for increased funding. But these organisations do not have limitless funds, with an increasing amount of companies approaching them for help. Global credit markets are still limping.

The power utility could approach government for further financial help, but the state is facing its own problems as SA's current account deficit grows.

Another way Eskom could finance its capital expansion programme is through tariffs. Problem is, regulations don't allow for this. Transnet has learnt this the hard way. It applied to Nersa for a pipeline tariff increase to fund a new petroleum products pipeline connecting Gauteng to Durban, but did not get it. The regulator sought legal advice and decided it was not allowed to grant the parastatal a tariff increase to fund future projects.

The present Nersa model for determining Eskom's tariff increases takes into account primary energy costs, such as coal, and the depreciation of assets. This model, says Zulu, needs to be reconsidered.

Eskom is cash-flow positive but, if things continue as they are, "the issue of cheques bouncing somewhere down the line becomes a reality".

Eskom's financial position will be revealed when it posts its 2009 results before the end of June.

CAN WE REGAIN OUR TRUST IN ESKOM?

12 June 2009

EDITORIAL

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WHAT ESKOM NEEDS TO DO

20 November 2009

MATTHEW HILL

It has been a tumultuous month for Eskom, with both CEO Jacob Maroga and chairman Bobby Godsell stepping down. Now, the real work starts. Matthew Hill looks at how it can solve its funding crunch

As Eskom emerges from a bruising leadership battle, there will be no pause for breath. It has a bigger, more urgent battle on its books: how to crack its funding crisis. If it doesn't act expeditiously, it will mean lights out for SA.

Nobody is questioning the fact that SA needs new power stations — and fast. Paying for them is the problem. The FM has learnt, for example, that the power utility has delayed construction of its second new power station, Kusile (at Emalahleni), which is expected to cater for 10% of SA's electricity demand. It's one way of reducing the financial burden. Still, it will take a stroke of genius to find the best solution for SA.

Presently, Eskom draws its cash from four main sources: government support, bond issues, tariffs and borrowings. It has received R232bn from government in loans and guarantees; has tapped the bond market for R21bn over the past two years; has secured US$2bn in loans from the African

Development Bank; and it increased tariffs by 31% this year.

Eskom estimates it can raise a maximum R40bn/year in debt over the next three years, and a total of R232bn by 2015. For example, it is targeting R12bn/year in bond issues. But it needs a lot more to cover its nearly R400bn expansion plan and rising operating costs, which have been climbing faster than its tariffs.

Eskom can't look to government for any more money or loan guarantees (where it pledges to repay loans if Eskom defaults), national treasury confirmed to the FM this week. And there's a limit to how much it can borrow. So tariff increases and partial privatisation are the only remaining options.

After two years of higher than inflation price increases (see graphic on page 32), Africa's biggest power producer has asked for 45% tariff hikes each year over the next three years, but this would treble the country's electricity costs.

Luckily, this isn't cast in stone. After much outrage from every quarter, Eskom is re-examining its final tariff submission to the National Energy Regulator of SA (Nersa) on November 30.

Last weekend the alliance summit also highlighted the need for lower tariff increases.

And with good reason. The proposed 45% hike could be the final nail in the coffin for some of the country's already struggling industries. The gold mining sector, for example, has lamented that the hikes would be a boot to the solar plexus of employment. In SA's

deep-level mines, electricity costs could shoot up from 15% to 30% of total costs.

AngloGold Ashanti CEO Mark Cutifani has stuck his neck out, saying the proposed increases will not fly. The worst-case scenario? Up to 1m jobs are likely to be affected, he predicts.

The clothing & textile industry will also be left threadbare. Further stresses might be too painful for a sector that has already suffered job losses and company closures as a result of illegal and cheap imports from the East, China in particular, and the recession.

Textile Federation director Brian Brink says: "These [tariff] cost increases would be the last straw for many in the industry. Some are going to have to pack it in — they're all battered and bruised." A third of the 40000 jobs in the sector are on the line.

There's a bigger effect on the wider economy though. Higher electricity tariffs would push up inflation (the 31,3% increase this year added 0,6% to inflation; a 45% hike would add 0,5%-2%).

Electricity prices, though, account for less of the new CPI (consumer price index) basket, which masks the true impact on the real economy. Higher inflation means interest rates remain elevated which, in turn, sustains the rand's strength.

This is a double whammy againstSA's competitiveness, along with higher input costs. The new Reserve Bank governor Gill Marcus held the repo rate unchanged at 7% this week.

Apart from the dire consequences for various industries and the economy, it is clear that Eskom's financial woes cannot be resolved by higher tariffs alone.

So what is the solution? An overly simple answer would be for government to step in with additional loans or loan guarantees. Business Unity SA (Busa) and the National Union of Mineworkers (NUM) have called on government to rescue Eskom but government is not willing to provide further handouts. It has already channelled a R60bn loan and R176bn in guarantees.

The reason? Finance minister Pravin Gordhan is on a mission to shrink the ballooning budget deficit, and more money for Eskom doesn't fit into this plan. In his first medium-term budget statement in

October, Gordhan said SA's budget deficit would reach 7,6% of GDP this year as revenues shrank and spending rose.

NUM general secretary Frans Baleni says there is room to grow this deficit in a developing country such as SA. Comparatively, Brazil's deficit was 43,1% of GDP in June.

Busa makes a pertinent point — that Eskom's funding dilemma should be one of government's main concerns. "It comes down to a question of priorities and trade-offs within the current fiscal framework," says Busa deputy CEO Raymond Parsons, "and accepting, if necessary, that the Eskom challenge is probably on the top of the list of parastatal difficulties requiring additional fiscal intervention."

But treasury DG Lesetja Kganyago is adamant. "As far as government is concerned, we have given the injection that we needed to," he tells the FM, adding that the state "doesn't have money lying around" to throw at Eskom's funding gap.

Kganyago points out that a high budget deficit also pushes up inflation (government has to print more money to repay debt, thereby devaluing the currency).

Without government support, where will Eskom find the money? The general expectation is the power utility will ask for lower increases from Nersa.

Public enterprises minister Barbara Hogan, who oversees Eskom, confirms this. "I think we can bring it down from the 45%," she tells the FM.

The problem is, even if Eskom is granted the 45%/year increases for three years, it would still be left with a gaping R30bn hole in its balance sheet by the end of that period.

Acting chairman Mpho Makwana will be the face of Eskom at the tariff application hearings. This is disconcerting. There are questions around his technical knowledge of the issues at Eskom.

Admittedly, he's been at Eskom for seven years, but in a nonexecutive role until he was named acting executive chairman last week.

He is effectively playing the role of the chairman and CEO simultaneously for six months, which goes against rules of good governance.

He is already exercising his power, with a communications crackdown. In an interview with the FM, he was quite abrasive at times.

Pushed for comment on whether he would be addressing the 41 outstanding issues former chairman Bobby Godsell had raised, Makwana said: "We're not in an inquiry now ... I'm responding to you in your own language, English. It is not up for discussion."

This is not the defensive attitude Eskom should be adopting in a time of crisis.

What else can Eskom do? Raising bonds and loans will help, but these will mainly be stop-gap or supplementary measures. Eskom has knocked on the door of the World Bank's International Monetary Fund for a US$3,75bn loan ($3bn for the Medupi coal-fired power station; $260m for renewable wind and solar energy; and $490m for low-carbon energy efficiency components).

Kganyago says Eskom is hopeful it willget the loan next year.

And Eskom's plans to delay work on the Kusile power station (the second of the first two new plants in as many decades, the first being Medupi in Lephalale) should be seen in the context of SA's lower power demand forecast. Rio Tinto has canned the aluminium smelter it was planning at Coega, which would have used 1200MW (about a quarter of what Kusile would generate). According to a senior

Eskom manager, Eskom will decide at a December 2-4 board meeting how long to delay Kusile. University of Cape Town's Prof Anton Eberhard says: "The Kusile power station will almost certainly have to be delayed as Eskom will not be able to pay the contractors." Pushing it back by two to three years from its official commissioning date of 2014 will free up a lot of cash flow, he says.

The problem with any delays to Eskom's build programme is it runs the risk of being caught with its pants down later. Experts are already predicting a big power supply shortage by around 2015. Stalling new generation capacity could plunge SA into darkness yet again.

Eskom could mitigate this by accelerating plans to bring in independent power producers (IPPs).

Toronto-listed CIC Energy has its finger on the proverbial button of the Mmamabula power plant it plans to build near Lephalale, across the Botswana border. It is waiting for

government to agree to buy its power, and believes the plant could start supplying juice by 2014.

"Government, and not Eskom, is now the decision maker with respect to the Mmamabula project," says the company.

This is seen to be crucial, as it is by far the most advanced IPP. There could be glitches getting the go-ahead (see story on page 34).

To avoid these risks, Eskom could press ahead with Kusile and sell a stake in the plant to a private company. The proceeds could then go towards construction costs, pegged at R100bn-plus. Hogan says this is one of the options Eskom is considering.

It may, however, prove difficult to conclude negotiations around bringing in a private player in the urgent time frames required.

The Left turning red every time the word privatisation is mentioned will also be a stumbling block.

But Frost & Sullivan energy analyst Cornelius van der Waal says politics should not get in the way of what needs to happen: "Eskom will have to have private assistance with Kusile. That's the reality."

Selling a 40% stake in the project could, at face value, remove nearly R50bn from what Eskom would have to pay for the construction.

A similar option would be to sell a minority stake in Eskom itself or its subsidiaries — partial privatisation. A private shareholder would improve governance and efficiencies. These are all options that are now on the table, Hogan tells the FM.

All factors taken into account, delaying Kusile comes with too many risks. IPPs have many regulatory hurdles, not to mention overcoming lengthy environmental processes. Though Mmamabula is far advanced, its 1200MW will not be enough to plug the supply shortfall.

Eskom needs to break new ground in urgently bringing a private partner into Kusile.

Though this would still require tariffs increases to make it commercially attractive, they won't have to be nearly as steep as what it's asking for now.

FEEDING THE JOB GENERATOR

16 April 2010

CHARLOTTE MATHEWS

Last week was a pivotal moment for the SA government. So many idioms and proverbs come to mind, starting with "reality bites" and ending with "needs must make do". It was easy for government to take a hard stance against private-sector involvement

Securing a US$3,75bn loan from the World Bank to help fund construction of the Medupi power station and some renewable energy projects is only one of many targets Eskom needs to meet to satisfy SA's increasing appetite for electricity.

An adequate and properly functioning electricity supply is important for more reasons than making a hot bath possible for the remaining 20% of South Africans without electricity. It means more investment in industry and more jobs — which generates more taxes.

Investec economist Annabel Bishop says that "without creating an enabling environment at the macro level for job creation, SA will be hampered in curing the country's biggest ill: unemployment".

Medupi will be the second power station in the Waterberg area after Matimba and will be supplied with coal from Exxaro Resources' Grootgeluk mine.

It will cost about R145bn for a life span of about 50 years. It will be a dry-cooled plant, which uses less water, with installed capacity of 4788MW. When it comes on stream in 2012 it will add another 10% to Eskom's baseload.

Eskom's five-year programme of new building, currently estimated to cost R385bn, includes the Kusile power station and the Ingula pumped storage scheme. Though the third new power station is expected to be nuclear, no decisions have been taken.

Chris Yelland of EE Publishers estimates the current shortfall in funding for the new build programme is R67bn-R87bn after the World Bank loan. About R45bn is needed for Kusile.

The World Bank loan is the first significant funding granted to SA by the institution in 16 years. It will facilitate Eskom raising loans from other sources.

Eskom has been granted a 24,8% rise in electricity tariffs this year, 25,8% in 2011/2012, and 25,9% in 2012/2013. The utility applied for 35% and according to Cadiz economist Kim Silberman, at least 31% was needed to complete Kusile.

Silberman suggests other sources of funding could be a loan levy, a review of tariffs, government taking more equity or providing more guarantees for Eskom loans, or ring-fencing Kusile and bringing in private investors.

Though consumers are irritated about paying more for electricity than industrial us-

ers, Silberman says it is cheaper to supply electricity to industry. More administration is entailed in supplying domestic users, and domestic demand peaks require Eskom to put higher-cost peaking power capacity in place.

Public enterprises minister Barbara Hogan told parliament SA could get through this year without power outages, but warned the supply would be tighter in 2011 and 2012.

Business Unity SA said its members, which include the chemical, mining and engineering sectors, would target 5000MW of electricity savings — equivalent to about 12% of Eskom's present installed capacity.

Quartile Capital's manager of energy research, Ralph Berold, says there are many issues to consider other than funding Medupi, and a critical one is to integrate long-term energy solutions with SA's climate change commitments.

Until now, no longer-term vision has been developed because SA has been in "crisis mode" to meet its energy needs.

GRIDLOCK BEGINS TO SHIFT

24 June 2011

LISE PRETORIUS

SA's electricity system — a historical monopoly now in crisis — may finally be on the way to allowing independent power producers (IPPs) access to the national grid, something that has been in policy discussions since 1998.

Their inclusion is vital if SA is going to reach its target of 40000 additional megawatts by 2030.

To make this possible, an independent system and market operator (ISMO) is needed — a financially viable company that will be responsible for the supply and the buying of electricity from Eskom and independent producers. The draft ISMO bill received its first round of comments last week.

The bill stipulates that the ISMO will at first be a ringfenced entity within Eskom. The plan is to separate it gradually.

But there are many outstanding issues that the bill doesn't address.

The first is who will own the transmission grid, which is currently owned by Eskom. "The current bill does not advocate that the grid goes with the ISMO," says Doug Kuni, managing director of the SA

Independent Power Producers Association. This introduces complexities. For example, an IPP would have to have a power purchase agreement with an ISMO that can't guarantee grid availability. "A power purchase agreement between the operator with no assets and the IPP will not be 'bankable'," said the Free Market Foundation in its comment submission.

This would also introduce a conflict of interest for Eskom, as it would control who had access to the grid, when IPPs would be Eskom's competition.

One solution — put forward by both Kuni and the Free Market Foundation — is that ownership of the grid moves to a transmission system operator. This new operator would still be owned by government, so the asset would stay on its balance sheet. Government could then sell, say, 30% to private investors, raising a substantial amount of capital. (The value of the grid is R10,5bn in

Eskom's financial statements, but the selling price is probably much higher, according to the Free Market Foundation.) This would also relieve government of its contingent liability from Eskom's loans; and the capital could be used to fund Eskom's new generation capacity.

SA's electricity system would then be vertically disaggregated, with generation, transmission and distribution no longer housed in one entity (Eskom). Rather, Eskom would be a generator (and a distributor), in a competitive generation environment.

The second issue is that of access to the grid and pricing. It's not clear whether the ISMO will be the single buyer or whether willing-buyer willing-seller arrangements will be allowed. Ompi Aphane, acting director-general of electricity, nuclear and clean energy at

the department of energy, told delegates at a debate held by the Free Market Foundation earlier this month that there are many regulatory hurdles to clear before SA could have the latter arrangement. He highlighted some areas that need to be addressed. How would pricing work? Where would power come from if an IPP failed to generate the contracted capacity?

The foundation says government and the energy regulator need only focus on the charges for the transmission of the electricity, known as wheeling charges. It says there is no way of knowing what prices will prevail once the market is opened up to competition.

Addressing the issue of balancing the grid when an IPP fails, there has been a suggestion that these producers could form groups that agree on other plants stepping in with spare capacity when needed. Barun Mitra, a delegate at the debate from the Liberty Institute in New Delhi, said that at the beginning of the 1990s, India was in the position SA is in now. It faced load shedding and a severe lack of capacity. When the Indian electricity system opened up to trading in 2003, private investment soared. Today "out of more than 58000MW power projects currently under construction, private developers are supporting about 32339MW." Mitra urged SA to learn from India's experiences.

The ISMO needs to be created as quickly as possible. Independent producers are waiting in line to generate electricity for SA, but are being held up by an unclear regulatory environment.

POWER ALERT

1 July 2011

CHARLOTTE MATHEWS AND LISE PRETORIUS

Eskom is getting back on its feet after the 2008 supply crisis led to crippling blackouts countrywide.

But there is still cause for concern as Eskom admits to being on power alert for the next five years. The steep 25%/year tariff hikes that consumers have had to endure are producing operating surpluses.

Almost all the funding that the utility needs to add more generating capacity has been secured. But it will take a few years before it achieves its ideal financial ratio targets, admits finance director Paul O'Flaherty.

There are a few worrying issues: underspending, delays, maintenance backlogs and tariff pressures.

In the past two years, Eskom has spent less on capital projects than its target. Despite the urgency to add new power stations, last year Eskom's total capex dropped slightly, to R44,3bn, mainly because work on Kusile slowed until funding was resolved. It gathered pace only in October.

There were also problems at Medupi and some hitches in expanding the distribution network, on which R10bn/year is to be spent, related to land usage permissions. O'Flaherty says Eskom plans to meet its capex target of R75bn for this year.

On the positive side, Eskom is trying to ensure that its spending benefits the economy and is not overreliant on imports. About 60% of the money spent on Kusile, Medupi and Ingula is from the local market; a large portion is from black empowerment entities.

Total budgeted capex on the new build programme is R450bn-R500bn, to be funded from a mix of internal cash flows, shareholder loans and debt finance. CEO Brian Dames says Eskom has secured 70,6% of its R300bn financing requirement to 2017. The remaining 30% will be secured within the next year.

It is worrying that Eskom added only 315MW of generation capacity in the financial year to March, below the 625MW target, because of problems that arose in returning to service the old Grootvlei and Komati power stations.

Eskom will add 17120MW of new capacity over 12 years. About one-third, or 5221MW, is already on stream. Together, Medupi and Kusile will provide 9564MW, with the first Medupi unit coming on stream in 2012. The programme should be completed in 2017/2018.

Beyond those two huge coal-fired power stations, SA's long-term energy plan, the IRP 2010, provides for increasing input from nuclear power and renewable technologies such as solar, wind and hydroelectricity. That means the future of Eskom as a monopolistic state-owned utility will change.

Its ability to perform its mandate will depend on the introduction of private players.

Ideally, the transmission grid will become independent while Eskom, which will have

to operate in a more competitive market, will focus on its core business of generation.

But it will remain the dominant player. "Eskom has about 97% of the market — I would imagine that this will go down into the 70s if the market is really opened up," says Jayendra Naidoo, executive chairman of J&J Group and energy spokesman for Business Leadership SA.

But 13 years after the introduction of independent power producers (IPPs) was described as a priority, there are still questions. "[There is] uncertainty in buying in electricity to the grid [from IPPs], the pricing structure ... and how municipal distribution and pricing will be handled," says Human Sciences Research Council research fellow Miriam Altman.

Eskom is determined to be part of the new dynamics of the energy industry. It has started building wind and solar plants and will play a role in the nuclear programme. "We can't be all things to all people," says Dames. "We believe there should be other players in the market, which also brings in [healthy] competition."

Another potential problem highlighted in Eskom's results is the backlog in maintenance. The target is 10% maintenance a year and only 7% is being achieved because of peak-time demands. Between 5pm and 8pm every night demand rises from 33000MW to 35500MW.

Dames says peak winter demand is likely to be about 37500MW next month and he believes Eskom can meet that. Any outages experienced recently were related to local distribution issues, not Eskom supply.

The problem with a maintenance backlog is that it can cause serious problems. In February, Eskom lost a generator, equivalent to 600MW, at the Duvha power station because of a fire. A report into the cause of the fire has not yet been released.

Dames says SA will be on power alert for the next five years, particularly the next two. There is a strong likelihood of a shortfall in the period to 2015 and the tightest period will be 2011-2012. Eskom plans to address this through its voluntary demand-side management programme, co-generation programmes, improving generation availability and supporting municipal generation. If these don't work, there is a compulsory energy conservation scheme and greater use of open-cycle gas turbines, though those are expensive to run.

The other headache for Eskom's customers is tariff hikes. Eskom was permitted by the regulator to raise tariffs by 25%/year for three years and has to make another submission for increases from April 1 2013.

Dames says to achieve an 8,16% return on assets (Eskom's return on assets is currently 2,91%) Eskom would, in theory, need another two years of 25% tariff increases. "But that is not our position," says Dames. "We are conscious of the effects on job creation and households."

Government plans to impose a tax on carbon emissions would also fall heavily on coal-fired electricity generation. Eskom has made submissions to government on carbon tax.

"We cannot disclose the details," says Dames. "But the costs would have to be passed on fully to consumers — we are not in a position to absorb them — and would have an impact on the economy and jobs."

Business and residential users still have reason to be nervous after their experiences in 2008.

BALANCING ON THIN WIRES

16 September 2011

LISE PRETORIUS

SA's electricity distribution network is in dire need of upgrading but municipalities seem reluctant or unable to grasp the urgency of the situation

Most South Africans associate electricity problems with inadequate generation capacity, and perhaps believe that when the two new power stations — Medupi and Kusile — are built, the pressure will be off. But there's no use having adequate electricity generation if the distribution system cannot get the power to homes and businesses.

The electricity distribution industry (EDI, including all the lines, transformers and substations of 132000 volts or less) has a backlog in maintenance and refurbishment that amounts to R32bn. This is growing at R2,5bn every year, according to the department of energy.

Eskom supplies about 45% of end users, and the municipalities and metros supply the rest. It is the bulk supplier of electricity distributed by 174 municipalities. Similarly, Eskom is responsible for about 40% of the backlog, and the municipalities for 60%.

There is general agreement that the municipalities' grids are in a worse state than Eskom's infrastructure. The average age of SA's equipment is 45 years, says Ompi Aphane, deputy directorgeneral at the department of energy. "It's in old age and is not maintained properly," he says.

Eskom's low-voltage network is about 15 years old, says spokesman Hilary Joffe.

There is a worrying similarity to the problems SA has been experiencing in the area of generation, where warnings of a crisis fell on deaf ears before the issue became a national crisis in 2008. The problems in the EDI have been on the radar screens of the department of energy since the 1990s.

In 2001, it was decided to split the EDI into six regional electricity distributors. EDI Holdings was set up in 2003 to facilitate the process, to transfer assets and to make sure the regional distributors were financially viable.

But in March this year the company was dissolved, and the plans for the regional distributors along with it.

Willie de Beer, former COO of EDI Holdings, says one of the key achievements that came out of

EDI Holdings was the approach-to-distribution asset-management plan, which "laid the foundation for [EDI Holdings] ... to raise the funding and turn it around on a national prioritisation basis".

The findings and solutions still stand, though now they are in the department of energy's hands.

One of the key changes that needed to be made was the ringfencing of municipal electricity funds.

From a maintenance perspective, says De Beer, revenue that came from electricity was not always allocated as a fair proportion.

Peter Fowles, strategic adviser to the Association of Municipal Electricity Undertakings, says the problem lies in the huge demand for municipal capital. When refurbishment of the distribution is vying for funding against water, housing and roads, a decision to spend on the distribution network would always lose. Other political priorities "have tangible and visible outcomes – changing cables doesn't".

De Beer explains that with the consolidation of municipal areas (from a previous 187 to 174), many inherited infrastructure that was already poorly maintained. In addition, "municipalities have taken a very long time to consolidate their areas, many of which are still fragmented".

On top of this, says Fowles, is that in anticipation of "losing" their assets through the restructuring process, municipalities became reluctant to invest without clarity on how they might be compensated.

During EDI Holdings' lifetime, 57 municipalities (including the metros) and Eskom's distribution business were ringfenced and started to operate as distinct businesses.

De Beer says the ringfencing exercise uncovered "horror pictures". He says, though, that the process made a difference and some municipalities are trying to run their electricity distribution networks like a business.

However, there is still not investment at the appropriate level.

A lack of funds is only one side of the story. The other side is a lack of capacity to use funds properly.

"We've lost a huge number of skills since the 1990s," says Fowles. Before then, municipalities used to train more artisans and engineers than they needed themselves. Today, many of the highly skilled

engineers have left, he says, which means a lack of skills transfer.

It also means that not only are there no skills to do daily refurbishment, but many of the bigger tasks have to be outsourced and go out to tender, which increases the cost burden.

On average 45% of "critical positions" are vacant, according to De Beer.

Fowles says that though the ringfencing showed municipalities' willingness to "get their financial affairs in order", he doubts they are investing more in the network or in creating the necessary skills.

Many in the industry believe EDI Holdings would have gone a long way in tackling these issues and restructuring the distribution system, if it had been given the legislative go-ahead.

A constitutional amendment was needed to pass the EDI restructuring bill, which would essentially take away the right of municipalities to electricity reticulation. It would then give EDI Holdings and the department of energy the power to force certain things on the municipalities, including the rules of transfer of assets, and compensation.

But the legislation was never passed. De Beer sees it as due to a lack of political will,

with the restructuring seen as more of a political process than a business model. "We had the capability from a project management perspective and the know-how. It was a sound business case, but perhaps we didn't sell it hard enough," he says.

Aphane says the way forward will be a centrally controlled programme in which responsibility is given to each of the municipalities under certain funding conditions. Funds for network upgrades will be made available to municipalities from funds originally earmarked for the EDI restructuring.

Aphane says there is still R200m left which will be used to "kickstart" upgrades at municipal level.

De Beer says that to implement a sustainable plan, SA is looking at a 10- year project. He says a 20- year funding plan will be needed and this would have a minimal impact on tariffs because the tariffs already include an allowance for maintenance (the ringfencing just needs to be implemented).

There is also the option of allowing the municipal infrastructure grants to be used for electricity.

"It's not that we don't have the money," says De Beer. "We just need leadership from a financial perspective and regulatory perspective."

The department plans its first step as a regulatory intervention. Funding will be conditional upon municipalities ploughing 8% of their revenues back into maintenance.

"It will be regarded as a serious breach if the money is not used properly," says Aphane.

To put into perspective why this spending hasn't been implemented in the past, Fowles says municipalities spend between 60% and 85% of their total expenditure on buying electricity from Eskom, "so there's not much left for everything else". Municipalities also cannot just raise tariffs to pass costs on to their consumers.

He adds that successful implementation will depend on the energy regulator policing municipalities properly and following through with the consequences.

De Beer and Fowles say not all municipalities are in dire situations. Some are on the right track, and the ringfencing has improved matters.

Joffe says Eskom has increased its annual expenditure on maintenance by 11% in the past four years, and will allow for further increases of 20% over the next three years.

"We are planning to invest about R10bn/year over the next six years to strengthen, refurbish and expand Eskom's distribution network," she says. Benchmarking Eskom against international standards, Joffe says the average spend per asset is now above average.

These investments, and those of the municipalities, will have to be implemented with a sense of national priority. De Beer says the network has grown in the past couple of years, and more customers have been connected. As this happens, the network becomes more overloaded.

"Now you feed this all off a very weak backbone, so it must collapse at a point," he says. "We cannot claim we don't know the risk quantum, and we can't claim we don't know what to do."

ELECTRIFYING COST

12 July 2013

TIM COHEN

Schadenfreude is a dangerous thing. But for all the anguish and discomfort it's likely to cause South Africans and our economy, it's impossible not to look on the travails of the Medupi project without a little wry amusement. It's common knowledge that the ANC did something pretty flagrant in respect of this project, assigning a large stake to its financing company, Chancellor House.

Conceptually, it must have seemed a sure-fire winner at the time.

The ANC could tag along behind a project that could draw on government support. It could also easily win the argument with both inquiring business and the questioning public with the simple retort: "Do you really want the country to run out of electricity again?"

Talk about taking advantage of a crisis.

On top of that the numbers are so huge — more than R100bn — that they satisfy the old adage that people won't believe a small lie, but they will believe a whopper.

Anyway, the prospect of a large pile of dividends flowing into the party's coffers for eternity was enough for the ANC to flout some of its own principles. The Mandela and Mbeki governments both bent over backwards to ensure that SA remained outside the evil clutches of the World Bank. But in this case, the upside was too great. Hence, Eskom was permitted to rush off to the bank for a humungous US$3,75bn loan — the first significant foreign debt incurred by the country since the end of apartheid.

Now the boot is on the other foot. Belatedly and humiliatingly, Eskom announced this week the inevitable: the third deadline for the project to start producing electricity — and not very much, by the way — has been delayed again, by another six months. This is just the culmination of a series of disasters at the project, which is now shockingly behind schedule and over budget.

But the side-bar story is particularly ironic. If some of or all the blame attaches to the Japanese project leader, Hitachi, surely some of it also attaches to its partner, Chancellor House. More importantly, if government really intends to seek financial compensation from Hitachi and other members of the project group, surely Chancellor House will have to chip in too? No? You don't think so?

Presumably this notion is just hopelessly naive. Still, we can surely be permitted a little smile as we observe how the party functionaries toss the hot potato around, trying to explain their way out of this little conundrum.

It's not only a matter of Schadenfreude; the underlying questions are genuinely important. First, this enterprise is not chump-change. The cost of the Medupi project alone is the largest in Eskom's history, and that will now increase from R91,2bn to R105bn. As New York bankers are wont to say: a billion here and a billion there, soon you are talking about real money.

The second big question concerns the corroding nature of corruption.

Because everybody knew the ANC had its fingers in this pie from the start, it's understandably difficult for them to see why they shouldn't dig in too. Deals that are corrupt at the top provide everybody down the line with an avenue for extortion. The extortion compounds because good people don't want to participate lest their reputations get tarnished, opening the door for the increasingly corrupt.

The third question concerns the elections in 2014. Public enterprises minister Malusi Gigaba has a convenient scapegoat for this disaster in Eskom CEO Brian Dames, who has seemingly been itching to leave anyway.

But Gigaba can't escape the fact that the ANC will go into an election year with electricity supply still tight. Even if Eskom keeps the lights on, the cap on the economy will remain. That bodes ill for the party, but in this case, it only has itself to blame.

TIME FOR FAST ACTION

23 August 2013

BRENDAN RYAN

SA has unveiled an ambitious 20-year energy plan that includes a new coal-fired power station, a nuclear facility and gas exploration through hydraulic fracturing (fracking) to deal with the legacy of poor power generation infrastructure.
The plan is bold and, if achieved, energy supply will be secured for generations.

But it is also contentious as it perpetuates SA's reliance on "dirty energy" at the same time as electricity demand has been declining. That raises the question: are these huge investments — likely to cost more than R1trillion — necessary?

At the centre of the plan is Eskom, which must build a third coal-fired power station after it completes the construction of the Medupi and Kusile power stations, which are behind schedule.

SA's largest energy projects since the Majuba power plant was commissioned in 2001 have been hampered by numerous delays and costs have ballooned at least 50% from the original budget.

However, earlier this month government announced that Eskom had been granted permission to build another coal-fired plant, dubbed "Coal 3".

Preliminary studies on the location and size of the power station are under way. The studies will also yield answers on the building timeframe of the new plant.

Medupi was originally due to start supplying power by May 2011, with its six units becoming operational in six-month intervals until all were fully commissioned. A parallel process was to have

taken place at Kusile.

Eskom says Medupi will now supply electricity only from the second half of next year, and Kusile from December 2014.

The two are expected to add a combined 9600MW to the national grid by 2018.

As soon as the two are operational, Eskom will start decommissioning old power stations (see graphic).

Therefore, while it prepares to build Coal 3, Eskom is likely to continue to battle with its lack of capacity.

Failure, however, is not an option. Security of power supply is critical to boost the flagging economy with GDP growth languishing at around 2%/year.

Government has said that SA needs GDP growth at 5,4%/year for the next 20 years to reduce unemployment to below 6% and reduce poverty.

Interruption to the electricity supply has often been blamed for constraining SA's economic growth.

But Eskom's ability to oversee these large infrastructure projects has been undermined by the problems at Medupi and Kusile.

Last week the company admitted that it was considering replacing a major contractor,

French industrial giant Alstom, which is building the R105bn Medupi power station that will produce 4800MW when completed. If Eskom carries out the threat, it will further delay the commissioning of the plant, which is already behind schedule by more than three years.

Eskom says it will make a decision on the Alstom contract in the next two months.

In addition to costing the state entity, and by extension the taxpayer, more, the delays have also damaged SA's reputation as an investment destination as they were preceded by the crippling blackouts in 2008 and regular power cuts.

Ratings downgrades have also added to the costs.

Dan Marokane, Eskom's executive for capital projects, says Alstom is guilty of repeatedly failing to deliver Medupi's control and instrumentation software, for which it has a R38,5bn contract.

A day after Marokane told parliament's public enterprises committee about Eskom's troubles with Alstom, the supreme court of appeal upheld Eskom's right to imposefinancial penalties on another major contractor, Hitachi Power Africa, for not delivering on a R22bn boiler contract, which was delayed by faulty welding.

The delays by the two companies, whose contracts make up half the costs of Medupi, will prevent it generating the first 800MW of electricity by December this year.

Eskom took Hitachi to court to enforce a performance bond guarantee to claw back R700m, the first part of the bond it can call on in the Hitachi default contract.

Hitachi had lodged security of R2,2bn with banks — about 10% of the value of the R22bn contract — which could be forfeited for poor performance. The court ruled that Eskom could penalise Hitachi, giving Eskom leverage when demanding Hitachi deliver on its contract.

In Alstom's case, cancelling the contract is the last resort as Eskom has already called in its performance bond of more than R100m, says Eskom.

The utility has asked the German industrial company Siemens to investigate whether it can replace the Alstom software. A decision on that will take months, further delaying the completion of the first generating unit.

Eskom's woes have focused attention on the delayed projects, but SA has to think beyond these and coal if it is to ensure consistent energy supply and avoid the blackouts of 2008.

The energy department urges investment in nuclear plants because of their long operational life (about 60 years) and lower operating costs compared with coal, at about 50 years.

"This makes sense for a country willing to secure long-term price stability and security of supply, and nations with a long-term outlook on these issues are the driving force behind nuclear programmes."

But one of the planning commissioners, University of Cape Town Graduate School of Business professor Anton Eberhard, questions the wisdom of investment in new power stations, including nuclear, saying current demand does not justify the expenditure.

Public enterprises minister Malusi Gigaba and Eskom CEO Brian Dames say the projects are necessary and defend the delays in decision making.

"These decisions are not being deferred out of negligence, they are being deferred because there's a lot of work to be done in the background," says Gigaba about the nuclear project.

Government's green light for Coal 3 adds to Eskom's current R340bn build programme of three power stations, Medupi, Kusile and the Ingula pumped storage hydroelectric facility in the Drakensberg, which together will add 1332MW to the grid by the end of next year.

Since the infrastructure is urgent, the question is who will fund the next power station? Will Eskom ask government to again provide the funding? Will it raise more debt in the capital markets? Or will it sell equity to raise funds?

Funding for Coal 3 cannot be done in isolation as a holistic solution will have to be foundto cater for more generating infrastructure, including the nuclear power stations. From 2014 Eskom will need at least R23bn/year to service debt for the Medupi, Kusile and Ingula build programmes (see graphic).

The repayments will escalate progressively until the stations are fully commissioned before declining as more capital repayments are made. The debt will be fully repaid only in 2043, according to Eskom's estimates.

Dames won't commit to the funding mechanism for Coal 3, saying that government will be approached "for answers".

He says the company's balance sheet allows it to meet only the obligations of the current build programme to 2018. "It will fund everything we have committed to currently, but nothing more," he says.

Government is still vague about Coal 3 and the nuclear facility, despite the pressures Eskom is facing with its current building projects. It merely says that Eskom should build Coal 3 after it completes the Kusile plant. No decision has been made on the size, cost or timeframe. "The energy department is working on those details," says Gigaba. Eskom has said the same.

Though Gigaba's ministry represents government as shareholder and has political responsibility over Eskom, the energy department formulates the policy that the company has to implement. In March 2011 the department, which has been headed by Ben Martins for the past two months, published a revised version of post-apartheid SA's most ambitious infrastructure investment plan.

The 20-year integrated resource plan (IRP) calls for 38300MW of new generation capacity by 2030.

That would nearly double Eskom's current capacity, before the introduction of Medupi, Kusile and Ingula. Those three will add 10932MW by 2018.

To execute government's plan would cost hundreds of billions more than the R340bn being spent now.

Nuclear is expected to comprise two power stations of 4800MW each, with the first generating units producing 1600MW of electricity by 2023. Every year thereafter SA would commission 1600MW of nuclear power — except for one year — until 2029.

The other sources of electricity are expected to be renewable, such as solar, hydroelectric and wind energy. Over the past two years 2500MW of electricity has been procured

from independent power producers (IPPs) who will themselves fund and build renewable power plants.

The projects are the first two of three phases. By 2016, the department expects 3725MW to be sourced from IPPs and up to 8735MW by 2025. At that level the sector will provide about 30% of the nation's energy mix, lowering Eskom's generation to 65% of SA's total power capacity from 95% at present.

Eskom and government need to give their urgent attention to the base-load portion of the IRP which is power from sources that can be controlled to produce a desired amount of electricity at any given time.

This is the most critical and expensive part of the entire investment drive for which funding must be found.

But first a convincing argument needs to be made for the investment in the infrastructure. It is generally accepted in the industry that the IRP framework is out-dated, but government is reviewing it. It's expected an update will be published before procurement for the nuclear investment begins.

"Government must first demonstrate that the cost and time overruns that are common with these

mega projects can be contained and managed," says Eberhard.

The commission itself calls for the introduction of 29000MW of electricity generation capacity by

2030, a third of which can be attained from the projects already under way.

"Those that advocate Coal 3, or a new nuclear power plant, have to demonstrate first that we need that power in the next 10 years," says Eberhard. He suggests that consumers are paying too much already as electricity costs are now three times higher than they were five years ago.

The result is that energy demand has grown more slowly than forecast in the IRP. The global financial and economic crisis of 2007 also crimped demand for power. That, coupled with greater awareness among consumers of the need to use electricity sparingly, means that less capacity will be needed over the next 20 years than anticipated. According to Statistics SA, SA's energy demand dropped 3,7% last year, falling below the amount consumed in 2007.

"In fact," says Eberhard, "demand has remained flat now for an unprecedented six years and even if it picks up, we shall need much less power in 2030 than originally planned." He says the 10932MW that will be added to the grid from late 2014 will satisfy demand until 2025. In addition, the independent wind and solar projects from the first round will provide another 1000MW.

"Premature or ill-judged investment decisions in new mega coal or nuclear plants will, without doubt, result in further steep electricity price hikes, at great cost to our economy and social welfare," says

Eberhard. Eskom and government also need to assure the nation that "we can finance these investments and can afford them", he says.

The IRP schedule says more nuclear power must be generated from 2023, which means that SA would have to start building by 2018 as it takes at least five years to build

a nuclear unit. That leaves it no breathing space after completing what is now its biggest infrastructure programme in decades.

But as delays are still expected at Kusile, it is likely to be completed only in 2020.

The nuclear investments were estimated to cost about R400bn about four years ago. That figure has since gone up significantly, but the procurement has been delayed, increasing the risk of more price inflation.

The energy department has since revised the cost upwards, while others say it might cost about R1trillion to build nuclear facilities to generate 9600MW. As late as March this year, former energy minister Dipuo Peters said her department had revised the estimated cost of the infrastructure by 40%, but would not divulge what this new figure was.

At the time, she said SA "has no choice but to include nuclear in its energy mix".

Over the past two years, government officials and politicians have promised to start the procurement process this year. Gigaba promised in April that the procurement process would start "in the second half of the year".

But Gigaba has changed his tune, saying last week government would not rush the process to select builders and determine the technology and size of the station. He says the procurement "will be massive and will have huge implications" for the country.

"We are not running away from nuclear investment, but it will be foolish of us to rush through the nuclear procurement programme," he says.

The current investment, plus the renewable power from the IPPs, means there is no immediate need for more mega projects, counters Eberhard.

Last year the energy department contracted 4500MW of solar, wind and hydroelectric capacity. That includes the 2500MW government procured from the Inga hydro power project in the Democratic Republic of Congo, which will come on stream in 2018.

Financial agreements on the third round of the IPP programme, which will produce another 3500MW, will be concluded soon.

Ompi Aphane, the energy department's head of electricity infrastructure planning, told the FM in March that the power SA agreed to buy from Inga was just the first stage of a bigger project. "We will always need more electricity and it is our intention to diversify our sources of power," he said.

The Grand Inga project on the Congo river will produce up to 40000MW in the first stage, and SA wants to be the "anchor" buyer of that power.

"It is thus clear that any talk of Eskom procuring Coal 3, or a fleet of new nuclear power stations, is premature," says Eberhard. He says an updated IRP will show that "even if we assume the aspirational economic growth rates embodied in the NDP, investment decisions in new mega coal or nuclear plants are neither urgent nor necessary".

Nuclear power would help SA achieve global commitments to reduce greenhouse gas emissions by 34% by 2020 and 43% by 2025. While coal, which SA has in abundance, is the dirtiest-burning fossil fuel, nuclear is one of the cleanest-burning fuels available to SA.

The World Nuclear Association says nuclear, wind and hydroelectric power are the cleanest fuel sources. In 2011 the world's nuclear power plants emitted 73Mt of carbon dioxide for the 2518bn KW hours of electricity they produced, the association says. By comparison, coal released 2236Mt of CO^2 for the same power output.

But global sentiment is against nuclear power.

The continuing crisis at Japan's Daiichi nuclear plant at Fukushima, which started more than two years ago, has contributed to the scepticism. An earthquake and tsunami ruptured the facility, ruining its reactors and causing huge leaks of radioactive material, contaminating the sea water and raising radiation levels around the facility. It is the worst nuclear disaster since the meltdown at Chernobyl in 1986 in the former Soviet Union.

Two weeks ago Japan's nuclear watchdog warned that the crisis "has not ended" and that the situation was unstable. This week the Japanese braced for a typhoon heading towards Fukushima.

Japan's nuclear agency says it is considering dumping contaminated water into the sea, which will threaten marine life and raise more environmental concerns.

SA's enthusiasm for another nuclear power station has not been curbed by the Japanese crisis. Gigaba told journalists in early September that "it will happen".

He says one part of the nuclear question has been addressed by cabinet. That is that Eskom will own and run the station once built. What's needed now is to choose the contractor to build it, and source the funds for the expenditure.

"Nobody has any privileged position in terms of the builder," he says. Not even Eskom, which is keen to manage the process, has any advantage over others.

There is ample evidence of government's commitment to building the nuclear power station. This year President Jacob Zuma appointed himself chairman of the national nuclear energy executive coordinating committee, which allows for more efficient and quicker decision making as it now comprises six ministers instead of the previous 12, including the deputy president.

In March Peters appeared confident about an imminent decision. "I would like to inform everyone that there's a lot of work happening in the background towards the roll-out of the nuclear programme," she said then. It is understood that energy companies such as France's Areva, which built the Koeberg power station, and Russia's state-owned Rosatom, have been active participants in the background, coveting attention from government in an effort to be at the front of the bidders' queue.

Whether current economic growth levels and electricity demand justify huge new infrastructure investments, the benefit of a government-led investment drive is that it boosts the rest of the economy. SA emerged from the last global economic crisis largely unaffected, mainly as a result of the infrastructure drive it had to undertake in preparation for the 2010 soccer World Cup.

Also, power stations are long-term investments implemented over an extended period. A decision based on prevailing circumstances may not necessarily be the correct one, as SA learnt when its aged grid gave way in 2008.

The question, therefore, is: has SA not left it too late to begin the building process for the nuclear station? Industry experts, including Eskom's Dames, have been vocal in their warnings that time is running out if the nuclear power station is to be operational by 2023. Work on Koeberg began in 1976 with power produced only in 1984. Dames has repeatedly called on government to start procurement if it is to meet its own deadline and avoid an energy crisis in future. SA will soon know if the warnings have been taken seriously.

Media visit at the Vanggatfontein Mine in Delmas . Trucks are loaded with coal to be processed

DERBY'S COUNTY

12 December 2014

RAZINA MUNSHI

In many parts of the world, mega projects have degenerated into mega disasters. They are fraught with problems not unique to SA.

South Africa has been a darker (and more resentful) country over the past few weeks as a result of rolling power cuts. One often-cited problem is that it's been such a long time since Eskom has built a new power station, it lacks the managerial know-how to build one, let alone three huge new power stations simultaneously.

This may be true, but the problem extends beyond Eskom and incorporates SA as a whole: we are losing our ability to build mega projects. The whole notion of a mega project is controversial. It is often linked to a jumble of motivations and aims, some of which are in conflict. These often include political pride. Yet, occasionally, they are worthwhile and can play a role in securing long-term prosperity.

Take Egypt for example, a country for which the pharaonic project has been a constant talisman over the centuries. President Abdel Fattah al-Sisi has declared his intention to almost double the size of the Suez Canal in record time. The notion is underpinned by economics: the idea is to allow large vessels to sail in both directions at the same time. The "new Suez Canal" will add a 35km lane branching off the existing 193km channel.

Al-Sisi has ordered — in a way that President Jacob Zuma will never be able to — that the construction of the three-year project be fast-tracked to just one year. He has drawn from the country's large military, and created three shifts a day to ensure that construction never stops.

The Suez Canal's strategic importance cannot be overstated. It is the shortest shipping route between Europe and Asia. But not everyone believes the US$4bn expense is justified. Some suggest it may be another vanity project to help a powerful leader build his legacy. Al-Sisi apparently never bothered to commission a feasibility study.

Still, strife-ridden Egypt is desperate for foreign currency, and the canal is an investment that will yield higher revenue.

The most fascinating element of the project is how it will be funded. Only Egyptian banks, companies and investors are allowed to finance it. And Al-Sisi has asked Egyptian citizens — and presumably corporations — to donate their hard-earned cash to a "long live Egypt fund" to pay for it.

Egyptians in the country were asked to contribute 100 Egyptian pounds, and those living abroad to donate $100.

To us, it seems as crazy as it is ambitious. SA tax rates are high enough and they ought to be sufficient. But the Egyptian example does illustrate how varied the options are when a "mega project"

is conceived.

There are plenty of potential problems, of course. Their size makes them intrinsically risky. For example, large dams usually overshoot their budgets by an average of 96%, according to research by Oxford University's Saïd Business School. It suggests that just one ill-conceived dam in a developing country is enough to cause a sovereign debt crisis. Costs of mega projects, as Eskom has discovered, can be too high to deliver risk-adjusted returns.

And there are other concerns. In-house expertise is limited, forcing state-owned enterprises to rely on contractors; and project controls, to keep tabs on costs and schedules, are usually insufficient. This is compounded by irregular maintenance.

The problems are not limited to any one continent. A 2013 Construction Industry Institute analysis of projects around the world found that just 5,4% of them met "best in class" predictability for cost and schedule.

It's no secret that SA needs fresh thinking, and even "radical structural surgery". This should include new funding models and how to better structure state enterprises. But it should also include a look at how to organise, fund and implement large projects — and the specific problems encountered in building Medupi and Kusile should be key lessons. Then at least there might be some silver lining to the travails suffered by Eskom, and South Africans in general, over the past week.

WHAT ESKOM MUST DO RIGHT NOW

30 January 2015

EDITORIAL

Now that load-shedding schedules — power cuts, to be blunt — are a fact of life, and Eskom is no longer in denial, the handling of the country's power crisis needs to be taken to another level.

The principles of power cuts need to be established and publicly explained. How much of the burden should business carry? What about the balance of electricity distribution? Can it be assumed that relatively wealthy households can cope better than poor families when there are cuts? What is the recently announced Eskom "war room" actually doing? Should some geographic areas, like Gauteng, be favoured with more electricity because of their economic importance? We need to be convinced that Eskom is applying its mind, not just pulling out plugs in a haphazard way.

Consumers will be much readier to save electricity and not see Eskom as the enemy if they are convinced that the cuts are being applied fairly. When there is a planned switch-off for maintenance, or load-shedding at relatively short notice, we need to be told in detail what is happening. It is perhaps even more important to report afterwards on which areas were affected the day before, and then to compile weekly and monthly summaries so that a pattern emerges. This will go a long way to build trust in Eskom and do away with the resentful "us and them" attitude that prevails at the moment. It would create a sense of participation and enable Eskom to be measured on what it is doing and not doing.

Talking of fairness, paying consumers are rightly outraged that Eskom is owed billions because municipalities cannot collect the tariffs. For political reasons that have their roots in boycotts in the 1980s and 1990s, the defaulters' lights are not switched off. Government must now make visible efforts to solve this problem, such as directing load-shedding to areas that aren't paying.

The excuse from Eskom that mistakes in the load-shedding schedule are the province of municipalities is no use. Heads need to be banged together at a political level to close this gap, both in operations and communication — a job for the deputy president, who has been tasked with making Eskom work.

Ancient policies need to change, and where Eskom itself is the obstacle, it needs to be instructed by government to get out of the way. Municipalities can and should consider alternative generation capacity, and fund it off their own balance sheets. Nobody should be obliged to take Eskom power if they don't want it.

Private companies must be encouraged, both by Eskom and through tax concessions, to sustain themselves where possible and to deliver surplus power to the national grid. Some industrial and agricultural companies are already doing this — are they being sufficiently rewarded?

Renewable energy sources like solar and wind power are never going to provide the bulk of our energy needs, but they could make the difference when the network is under

strain. They are not fully reliable, but we are second only to Chile when it comes to days of sunshine per year, and we have no shortage of coastal wind. Again, private operators must be given incentives.

Further price increases are inevitable, but here too creativity is needed. The price increase schedule can be extended from three years to, say, 10 years, so that bond holders have clarity about the capacity of Eskom to meet future financial commitments.

Above all, Eskom needs competent leaders and technicians. We hear of retrenchment (often an unimaginative response to budgetary pressure), but little of retaining and hiring the best people. The people of the country are the shareholders in Eskom (not government), and we want to see a few big appointments in project management and operations. Why are former Eskom executives not drawn back, if only as directors? Is there an unwritten rule that white men cannot be appointed to senior positions, or that no foreigners can be recruited?

Admitting the scale of the crisis went against Eskom's corporate instincts, but it has made that move.

Now it needs to behave like a national asset, not a national embarrassment — which means bold, proactive leadership, not timid and defensive mere management.

MATONA'S MISSION

30 January 2015

SIKONATHI MANTSHANTSHA

With SA's electricity supply stretched to the limit, how will the country pull through without a total collapse of the national grid?

Eskom. Daily, the power utility teeters on the brink as its ever-diminishing generating capacity threatens to collapse under the weight of huge maintenance backlogs and a capital investment programme four years behind schedule. Eskom has lost a third of its generating capacity and since October has been rationing the power it is able to muster.

But the toughest job is held by an inexperienced technocrat who has to swiftly make the transformation from civil servant to corporate executive. The incumbent, the fourth CEO in 10 years (excluding two acting CEOs), now has the added responsibility of convincing potential investors in a road show in the US this week that the embattled electricity utility is worth their attention and money.

He has left behind an Eskom system that is hanging by a thread.

Having presided over continuous rolling blackouts since the fourth quarter last year, the potential funders Eskom CE Tshediso Matona and finance director Tsholofelo Molefe will be meeting will be concerned about the suitability of lending their funds to a utility with more than a third of its capacity unavailable to generate revenue.

In an interview with the Financial Mail before jetting off to the US, Matona was cool as a cucumber, displaying none of the urgency or stress that might accompany such a proposition. He spells out, in the controlled and relaxed manner of a technocrat in charge of the situation, how the utility will dig itself and the nation out of the deep, dark tunnel of electricity deficiency that has arguably been the single biggest drawback to SA's (poor) economic growth rate over the past decade.

A career civil servant with a master's degree in development economics, Matona spent all his working life at senior level in the departments of trade & industry and public enterprises before making the switch to head Eskom last year. In his previous roles he helped craft the policy he is now in charge of implementing. That gives him an advantage because of his access to policymakers who may be more trusting of "one of their own", but it can hardly make up for his lack of experience in the power industry.

"It's an advantage that Eskom has someone with my background," says the soft-spoken Matona.

"Nobody can see me as having been part of the problem."

The state-owned company is desperately short of the funding it needs to complete its capital investment programme of the three power stations under construction — Medupi, Kusile and Ingula — as well as for maintaining smooth operations. It was granted a tariff increase of only 8% for each of the five years to March 2018, instead of the 16% it said was required.

The result was a R225bn revenue shortfall in the period, before government promised to hand over an "equity injection" of R20bn this year while the National Energy Regulator of SA (Nersa) allowed Eskom to raise the tariff an additional 5% for the year to March 2016. That's under the revenue clearing account (RCA) mechanism, which allows the utility to claw back the previous year's overexpenditure and recover retroactively the difference in the tariff increase granted by Nersa during the predictive tariff application.

That Matona is now at the helm of Eskom, without any industry or corporate management experience, should be a question in the minds of the investors he's trying to woo. Eskom has to navigate tricky terrain, both operationally and financially, on a daily basis as any slight mishap could plunge the country into uncontrolled blackouts. This week's round of load shedding was triggered by the loss of two generating units at the Tutuka power station in Mpumalanga, unexpectedly taking 1200MW of capacity out of service.

When he took the job last year, replacing the old engineering hand of Brian Dames, many stakeholders understandably questioned his suitability. But does it matter who the CE of Eskom is given the policy uncertainty for which government is solely responsible?

Some would argue it is better to have a government insider responsible for implementing policy, since he may command more attention from his political masters, than an engineer tainted by association with the previous Eskom bunch, who were viewed with suspicion in government circles.

Is a firm and clear long-term electricity policy perhaps not the major factor when trying to meet the challenge of providing a continuous and reliable supply of electricity? Would the best engineer in the world be able to implement a government policy that offers the company responsibilities only but no resources to carry them out? Is there in fact a shareholder policy for Eskom's management to implement?

Though management cannot be absolved of all blame for Eskom's string of operational disasters, it would be big mistake to believe the utility's problems are a result of mismanagement alone. Starting in the 1980s, after it was corporatised, the company's sole shareholder, government, tasked Eskom with expanding access to electricity. But successive governments have over decades unwittingly conspired to bungle electricity policy, thus weakening Eskom.

Creating more demand would have helped to absorb the extra generating capacity the company had erroneously built up just as the economy was about to slow dramatically in the face of economic sanctions and the international divestment campaign against apartheid. Crucially, Eskom also needed to attract major industrial customers and therefore offered them long-term power supply contracts at prices below production cost.

When the new dispensation came into effect in 1994, the ANC government repeated the mistakes of its predecessors. Expand electricity provision to black urban and rural areas, government instructed Eskom. But no new investment capacity was considered until around 2004, when it was too late, even though a new, more pliant management gently warned the shareholder of the need to invest in new generation capacity.

Just as the previous government did in the 1980s, the new order made Eskom responsible for building generating infrastructure in 2004, after many costly delays and toying with the idea of private capital contributing to the capacity building. But it did not give

the company any funding plan. Nor did it raise electricity prices to reflect the cost of the future investment that was now crucial. Eskom was simply told: "You're going to look after yourself and paddle this ship."

The greater cost of policy confusion was the loss of skills at Eskom, as engineers were reduced to being maintenance managers instead of building generating capacity. Many left for employment elsewhere.

As Matona sets out to woo potential investors, he will have a tough task winning over a sceptical audience that has a wider pool of investment opportunities than Eskom now presents.

It may provide some comfort that Matona has intimate, high-level domestic policy knowledge, but he will nonetheless be hard pressed to show how Eskom will be fixed at policy level in government.

There have been numerous revisions to the energy department's integrated resources plan of 2010, and government has not been at all candid about the changes. An example is the requirement for a fleet of nuclear power stations, which SA is now pursuing after initially saying it would put off the investment until there was evidence of demand growth.

The long-term policy vision that's required also needs to spell out where the funds for future building projects will come from. But that is beyond the scope of operational management, which is now Matona's duty. The post-1994 governments tried hard to maintain "a developmental pricing level" for electricity, until it was too late. Before that, the same end was necessitated by a lack of demand and too much capacity investment that increased spare generating capacity to 38% instead of a more appropriate 15%.

In the late 1980s through to the early 2000s, Eskom had double the spare generating capacity it actually needed, but it kept electricity prices too low relative to the cost of producing the power.

Whereas only 34% of the population had electricity before 1994, that number has ballooned to 7m more households in 2014, totalling 88% of a significantly expanded population base under the national electrification programme (NEP), says the department of energy in its 2014 annual report.

Mistakes have undoubtedly been made by government after 1994. When the new dispensation came in, Eskom was asked to expand electricity provision to black urban areas and rural areas without giving it any concrete funding plan.

The huge growth in demand has not been matched by an equal rate of infrastructure growth. Since 1994 only 6137MW of additional capacity has been created, mainly from previously mothballed power stations that have been returned to service, bringing total installed capacity to 42000MW.

As government had stopped the utility from building more generating capacity even as it became clear the country would run out of electricity, the excessive spare capacity was quickly whittled down as economic growth reached 5% in 2007, triggering the then unprecedented national blackouts.

It was long after the fact that former president Thabo Mbeki, under whose watch this unfolded, apologised to the nation and admitted policy was wrong and Eskom right in insisting new generating capacity was needed. But the die was cast.

Today, when a strong management team and board are vital to turn Eskom's fortunes around, policy revision and uncertainty are compounded by too many players in government making competing noises and input that seemingly serves only to distract operational management of the utility.

Such disruptive political intervention has cost the company dearly in the recent past. It has destabilised the board and management, making Eskom a place of political backstabbing and a vehicle to enrich the politically connected elite. The ruling party has itself harvested undeserved riches when politically aligned board members awarded large Eskom tenders to the ANC's investment vehicles.

That is why Eskom has had weak boards in charge. The current board and the previous one, which was in charge since around 2009 after the unceremonious departure of former CE Jacob Maroga and chairman Bobby Godsell, were particularly weak in industry experience. Government policy failure seeped down through to the operational side of the organisation.

What does all this bode for fund-raising for Eskom's current and future capital investments? Will the inexperienced Matona and his finance director convince sceptical investors that a company with more than 33% of its generation capacity broken is the best vehicle for their funds?

The numerous and competing interests of the position Matona now occupies has claimed the careers of two of his more qualified predecessors in rather quick fashion over the past seven years. The training of Eskom "lifers" and qualified engineers Maroga and Dames did not equip them well enough to absorb the constant heat the position attracts.

Juggling the execution of a complex and expensive capital investment programme while keeping the lights on and meeting an impatient public's diverse needs, investors' demand for returns, as well as the shareholder's political demands, eventually took its toll on the former CEs, who fell by the wayside before they could complete a full term. Dames, one of the most experienced engineers at Eskom until recently, could not navigate the competing interests and policy uncertainty and jumped ship four years into his tenure.

Appointed CE in 2007, Maroga was out of the job in November 2009, having lost a heated power struggle with the board's chairman, Godsell, over Eskom's strategy and direction after the debilitating and unprecedented national blackouts of the previous year. The bone of contention was Eskom's execution of its build programme and simultaneously providing electricity, after it had just commenced construction of Medupi, its first new power generation project in about 25 years.

Almost a year was to pass, during which a turbulent and politically controversial succession process was recklessly crafted, before Eskom had a new CE, Dames, from July 2010. He resigned in June last year and was gone six months after serving the mandatory notice period, avoiding the next round of controlled rolling blackouts by a few months.

There can be little doubt that both men, trained veterans who served the company all their working lives, lost their careers to the protracted build programme and the company's ever-declining ability to ensure continuous and sufficient power output. If that is indeed the case, then what chance does an outsider like the industry-inexperienced Matona have in making a success of his Eskom career? What is it that sets him apart from his seemingly

better-qualified predecessors?

Will his political connections and easy access to the highest level of policy-setting civil servants count in his favour as he navigates the competing interests at play? Is he the manager that Eskom has always needed? How long will Matona last?

"Put that question about my stay here elsewhere," says a relaxed Matona, sitting back in his secondfloor office in the executive wing at Eskom's headquarters.

"When you have a technocrat who avails himself for the punishment of the toughest job, you work to effect the necessary changes," he says.

"I can't give you anything that makes me unique in terms of my tenure," he replies when asked if he's the man to complete Eskom's current build programme, in which it must install 10300MW of new infrastructure by April 2018.

There can be no doubt that the lack of a coherent and strong policy is responsible for the state Eskom is in. What's needed now is strong leadership inside the company.

At the moment Eskom does not have that kind of leadership. It requires someone with strong industry experience as its CE. Policy formulating experience is all very well but its implementation requires a different skill.

Eskom is probably right that the only immediate remedy is higher electricity tariffs. The next step would be to put in a strong board that has the appropriate industry experience. But at the moment there is no clear strategic energy plan.

When government finally realised in 2004 that it needed to build new power stations, it still did not raise electricity prices high enough to cover their cost. This was a policy failure, as Eskom by itself cannot make pricing decisions. Government is now being forced to finance Eskom from external sources, instead of future revenues, at a time when its capacity to service the debt is weakened.

If electricity prices were high enough, they would pay for future capacity build. This would be more efficient than capital market borrowings, which need to be serviced and repaid. With state revenue severely weakened, the time has arrived for a serious discussion about tariff increases.

If SA does revisit electricity prices before the end of the current multiyear price determination (MYPD) to 2018, it would not be the only economy facing rapidly rising energy prices. The UK raised electricity prices by about 45% between October 2010 and January last year, according to reports. US electricity prices rose by an average 24%/year between 2010 and January this year, says the US Energy Information Administration.

So will Eskom approach the regulator with a request to reopen the 8% annual tariff increase determination to March 2018? While Matona admits that a 13%/year increase is more realistic, given the retrospective RCA determination that gave it an extra 5% for the current year, he says the utility will not reopen the third multiyear price determination but will instead use the annual readjustment mechanism.

"Price uncertainty is very bad for business. The public and industry require certainty and nobody wants to entertain price increases," Matona says.

Though it has to achieve cost-reflective tariffs, Eskom will also be sensitive and careful to balance the needs of the economy with the reality of its own operating costs. "Eskom will make use of the RCA regulatory mechanism available for its additional revenue re-

quirement over the remaining years of the MYPD3," says Matona. That mechanism is available only on presentation of audited financial results.

The utility must, however, still convince the regulator that the subsequent higher costs were a result of market changes in its prudently managed input costs, and not a result of its inefficiencies. When Matona and Molefe address potential investors, they'll have to provide assurances that Eskom's bonds are worthy of their cash.

They have to make that argument in the face of a recent credit downgrade to deep into junk territory by Moody's Investors Services last November, which came despite a new government pledge to back Eskom's debt by another R50bn.

Molefe was not at liberty to disclose how much the company would seek to raise on the road show.

"We'll communicate funding plans at a later stage," she said.

Two other major credit ratings agencies, Standard & Poor's and Fitch, have also put the utility on a negative credit watch, just two notches above the junk level at which no major funds are permitted to invest.

Eskom has to limp on with 33% of its generating capacity either broken down or out of service for regular maintenance because its fleet, at an average of 34 years per station, is fast nearing the end of its design life. The age of the stations that frequently break down, together with negligently deferred maintenance, has meant that Eskom has only 32000MW of its 42000MW installed capacity to work with.

In the darkness of load shedding, Matona has the unenviable task of convincing a sceptical investor community, an unimpressed regulator and an angry public why Eskom should be granted the right to raise electricity prices more than it has in the past six years. After three years of consecutive 30%- plus increases, followed by the current 8% a year rise over five years, the utility still argues that prices are not high enough to cover its cost of generating power.

"The priority for us is achieving the cost reflectivity of the tariff, that's the biggest impact we can make immediately," says Matona.

Medupi power station. First new power project in 25 years

TOO DARK TO SHOP?

6 February 2015

CLAIRE BISSEKER

Load shedding will affect growth but i don't think it takes away the full benefit of the oil price

Since Eskom revealed in January that it expected load shedding to occur on 70% of days over the next three months, economists have been grappling with the implications for SA's growth rate. Their responses have been anything but uniform.

Bureau for Economic Research (BER) senior economist Hugo Pienaar says Eskom 's load shedding schedule was the main trigger that caused him to revise down his 2015 GDP growth forecast from 2,9% to 1,9% just a few days later.

This makes the BER among the most bearish forecasters in the country.

"We realised that [if] the Eskom schedule, even though it is based on probabilities, turned out to be remotely true, then SA would have a serious problem," says Pienaar.

At the opposite end of the spectrum is Old Mutual Investment Group senior economist Johann Els, with a growth forecast of 2,5% and a positive story to tell. He believes that the plummeting oil price could drive a surprise turnaround in the economy and be the start of a positive fiscal run.

But it's hard to sustain that kind of optimism when both the SA Reserve Bank and Eskom are cutting their growth forecasts out of concern over the electricity supply.

For despite slashing its inflation outlook to 3,8% for 2015 (compared to 5,3% previously) on cheaper oil, the Bank also revised down its 2015 GDP growth forecast from 2,5% to 2,2% at its monetary policy committee last week.

Bank governor Lesetja Kganyago said the downward revision to the growth forecast "attempts to take account of electricity supply disruptions which more than offset the positive growth impact of lower oil prices".

In January, Mandla Maleka, the chief economist at Eskom 's treasury, also revised down his GDP growth forecast from 2,5% to 2,2%, partly because of concerns over load shedding.

He says, however, that Eskom has not done any studies to estimate the economic impact of load shedding, nor is the reduction in Eskom 's GDP forecast based on the assumption that there will be a specific number of days of load shedding this year.

"One thing we do know for sure is that any load shedding, no matter how small or well managed, will have a negative impact on the economy," he says.

Eskom has warned that there will be a "high probability" of load shedding on 62 days in February, March and April — that is 70% of the time.

SA's energy regulator, Nersa, noted in its inquiry into SA's 2007/2008 energy crisis that load shedding had occurred on just 23 days. There were five incidents in November, four in December and 14 in January.

"The extent of the load shedding had a disruptive impact on business operations, traffic, industry, mining operations, commerce, hospitals ... and the daily lives of the SA public," it said in its official report. "This situation deteriorated to such an extent that the major mining groups shut down their operations on 24 January 2008 due to safety considerations."

Nersa deemed that these 23 days of load shedding had cost the SA economy R50bn in 2008, or R2,17bn/day. This estimate was based on a figure of R75 per lost kWh (the so-called cost of "unserved energy"), which is stipulated in SA's National Integrated Resource Plan.

By extension, the 62 days of load shedding that Eskom fears are now on the cards could cost the economy over R134bn, or 3% of nominal GDP.

The difference, say economists, is that then load shedding came as a shock, even seeming to catch Eskom unawares, and the effects appeared concentrated in mining and manufacturing. This time, load shedding might be more protracted and the effects more broad-based, but at least schedules are being more clearly communicated.

Bank of America Merrill Lynch SA economist Matthew Sharratt estimates that three months of continual load shedding could subtract up to one percentage point from SA's GDP growth rate this year.

However, he has not revised down his growth forecast, keeping it at 2,3% for the year in line with the prevailing consensus. This is because, like Els, he expects the positive effects of the 45% decline in rand-denominated oil prices to offset the negative impact of load shedding.

Els says that if it hadn't been for the drag being created by Eskom , he would have revised his 2015 growth forecast upward from 2,5% closer to 3%, such is the boost he expects the SA economy to gain from cheaper oil.

"Yes, load shedding will affect growth but I don't think it takes away the full benefit of the oil price [decline]," he says. "I think Eskom wants to get the worst all out there so we're mentally prepared for it and then [hopefully] it's less bad than we'd feared."

He thinks the main reason Old Mutual's growth forecast is above the consensus is that it allows for a sharp increase in consumer spending. This is based on the assumption that the oil price will remain at rock bottom, averaging US$50/bbl this year and $55/bbl in 2016.

Not only would this cause inflation to plunge and effect a sharp improvement in SA's current account deficit, delaying the need for any interest rate hikes in 2015, it would also put fistfuls of cash back into the hands of the consumer (see graph).

Assuming petrol averages R12/l in 2015 and sales volumes stay flat, SA consumers stand to save over R13bn for the year, he calculates. "And we're not a nation of savers — if we have the extra money we spend it."

Add to this Old Mutual's expectation that 2015 will bring fewer strikes, a better fiscal position and a more stable rand, and it's not hard to conclude that it could be a better year despite all the structural problems that continue to inhibit SA's growth.

Els defends his bullish oil price assumptions, arguing that Saudi Arabia's strategy to hold oil prices down to drive out US shale gas and other marginal producers, and to

change consumer behaviour back in favour of gas-guzzling vehicles, will take at least two years to work.

"I don't think Saudi Arabia is bluffing," he says. "They're in it for the long haul."

The BER agrees that consumer spending will receive a strong shot in the arm because of cheap oil, that inflation will tumble and interest rate hikes will be delayed. The difference in outlook comes down to the fact that the BER is more concerned about Eskom . Like the Bank, the BER concludes that the gains from oil are unlikely to compensate for the losses due to load shedding.

"The BER might very well turn out to be correct," says Els, "I just hope they're not."