Electricity Supply Security / Anton Eberhard

Faults in plan for supply security

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Despite a massive effort by Eskom, involving well over R100 billion of capital expenditure over the next five years, electricity supply security will remain inadequate and reserve margins will be paper thin.

Eskom is probably doing all it can to restore supply security. Its current installed net generation capacity of about 37000 MW will be boosted by the return to service of about 3500MW of old coal-fired stations, about 2000MW of new open-cycle gas turbines, a small 100MW wind farm and a massive new coal plant of about 4200MW (the so-called Alpha and Charlie projects). A new pumped storage scheme of 1300MW is also being built.

The Minister of Public Enterprises has also announced that additional investment decisions will be made on further coal-fired stations and two new conventional nuclear plants. Eskom has confirmed that its future expansion plans are built around "big coal", "big nuclear" and "big networks".

But big, new base-load plants take time to plan, procure, build and commission. None will be operating before 2011. By Eskom's own admission, reserve margins will remain below the recommended 15%. Any unexpected increase in electricity demand or higher than planned plant outages will stress the system and further load-shedding might be necessary.

Plans to restore electricity supply security have not been aided by the painfully slow progress in contracting private independent power producers (IPPs). The competitive bid-process is way behind schedule and unless the request for proposals (RfP) is finalised immediately, and contracts placed with the winning bidder, the target date of 2009 for these vital peaking plants will be missed.

A further worry is the plan to procure private investment in a Combined Cycle Gas Turbine plant in the Eastern Cape by 2009. This base-load or mid-merit plant will be essential for meeting demand in the short to medium term. The risks of this plant not being built on time are high. And delays in procuring IPPs are clouding the investment climate for increased private participation in the sector.

Government and Eskom are acutely aware of the tightness of demand/supply over the next five years. Eskom has embarked on a "stretch" programme to liberate more capacity through improvements to plant availability and the utility is exploring cogeneration contracts, an expanded energy efficiency and demand-side management programme, possible acceleration of commissioning dates and the possibility of converting open cycle gas turbines to more efficient combined cycle technology.

How do we avoid getting into such a tight spot in the future and how do we resolve remaining policy and planning impediments. Duplicate electricity planning systems and parallel and non-transparent investment decision-making, approval and procurement processes are complicating efforts to restore electricity supply security.

Recent experiences illustrate these problems. The Minister made a bold public announcement of a big new generation plant. Eskom's Project Development Department was still busy with the preparation of a full business case to be taken to Eskom's Investment Committee and finally to its Board for approval. Under the provisions of the Public Finance Management Act, approval also has to be obtained from the Department of Public Enterprises (DPE).

Eskom then still has to obtain a licence from the regulator who might be miffed that the investment decision appears to have already been made. If the proposed plant is not in the official (outdated) plan of the regulator then, by law, approval for this deviation has to be sought from the Minister of Minerals and Energy, who also has the power to determine what kind of capacity, and of what type, should be built when.

Meanwhile, the Department of Minerals and Energy (DME) is running its own competitive bidding and procurement process for private IPPs on timelines that are not always consistent with original plans. And the processes whereby Cabinet decides on which new IPP DME should procure are not transparent.

There is clearly much room to streamline policy, planning and procurement processes. Following international best practice, government needs to *set and publish a clear electricity supply standard*. The System Operator should be charged with responsibility for reporting and publishing actual performance against this standard. And the Minister of Minerals and Energy should delegate responsibility to the National Energy Regulator (NERSA) for monitoring security of supply and for providing early warning of any future capacity deficiencies.

Electricity planning should be co-ordinated and integrated by combining the planning processes of NERSA and Eskom. These could be transferred to a new Central Electricity Planning office located in a secure institutional environment, possibly next to the System Operator but under appropriate and transparent governance. National electricity plans and investment opportunities should be published on an annual basis, as is common practice internationally.

The processes whereby *new generation capacity opportunities* are allocated to either Eskom or the private sector *should be transparent* and should be co-ordinated through the proposed new Central Electricity Planning Office. Investment approval and licensing processes for new generation capacity should be streamlined through better co-ordination between electricity planning, the allocation of new build opportunities, approval processes in Eskom, DPE, DME and NERSA licensing.

Procurement of new IPPs should follow international best practice through institutionalising procurement in a *new Single-Buyer Office*, perhaps attached to the System Operator (which might become independent over time). Government also needs to establish a clear policy that sets the maximum level of electricity imports that is consonant with security of supply standards. Competitive regional options need to be evaluated fairly against Eskom expansion plans.

In the meantime, there are some exciting new regional projects. One example is the proposed Mmamabula coal-fired plant in Botswana. Given the extent to which Eskom is stretched in its current activities, it may well make sense to fast-track private projects such as these in order to bolster supply security.

While attention is focused on the generation sector, it is sometimes forgotten that the greatest threats to supply security in the future probably reside in the distribution sector, where policy uncertainty and the lack of progress in reforming the sector is inhibiting investment. Networks are crumbling and skilled and experienced staff are leaving the sector. Area-specific supply outages will increase unless government finds a way through the current impasse.

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A previous article by the author in Business Day has examined the root causes of electricity supply failures. The third article in this series will examine the most serious threat to electricity security – the lack of progress in reforming the electricity distribution industry.