



Doug Kuni the MD of the South African Independent Power Producers Association (SAIPPA) and an Independent Power consultant to major corporations. He is an Honours Engineering Graduate of London University (UK) and undertook postgraduate studies in Germany (Aachen). He has a 27 year career in the electrical power sector. He headed up the Generation Engineering Division of Eskom for 5 years, completing the Majuba Power Station and also worked for Eskom Enterprises, as Business Development Manager. After leaving Eskom, he joined a Hong Kong based company, as Chief Corporate Officer, acquiring supply chain assets in China. After his return to South Africa he headed up IPSA Group operations as General Manager South Africa and completed the Newcastle Cogeneration project.

Roadmap to a thriving Electricity Supply Industry in SA

I am stymied as to what more can be done to tell the Government what a “power pickle” we are in. Simply put: without a stable and thriving electrical power sector in South Africa there will be very little of the precious economic growth we need to prosper.

The electricity sector in South Africa has its beginnings in the old Victoria Falls Power Company Ltd which supplied the Witwatersrand and reef gold mines. It originally consisted of 4 power stations with an interconnected grid – a system design later adopted by America and United Kingdom. The original Electricity Supply Commission (Eskom) creation was the genius of H J Van der Bijl whom Jan Smuts summoned back to South Africa in 1920, to put the country on a path to industrialisation. Having seen what was happening in the United States where he worked for the American Telephone and Telegraph Company (AT&T), Van der Bijl realised that abundant, inexpensive electricity would be key to that objective and set about putting Eskom in place.

The other pillar required for industrialisation was steel, which would be the feedstock for the downstream manufacturing sector. The formation of Eskom, Iscor and the IDC—all of which had Van der Bijl as their first chairman—set South Africa on a path of industrialisation to the point where we are today, or rather in 2007 – when the first power brownouts since the 1970s occurred. It is predicted that we will be in a power shortage situation for the next six to ten years.

Alice Jacob's book: *South African Heritage – a Biography of HJ Van der Bijl* (Caxton 1948) is highly recommended reading. It would be instructive to be acquainted with the quality of person who put it all together. I talk here of the technical genius and depth of understanding this individual had, to be allocated such a complex task and then going about accomplishing it. I speak not of the politics of the era or of its subsequent evolution in South Africa which the present government inherited, but what was started by Van der Bijl and, despite vastly different politics, we now have to build upon it for our survival.

South Africa has reached a cross-roads in the saga of electricity and only time will tell - if this country can today find another Van der Bijl to restructure our power sector for the new Millennium.

Supply - Power Generation (Gx)

We now know how the Government reacted in 1997 to a warning from Eskom that we would be short of power in 2007 if it did not start immediately planning for new capacity. In power generation, for large fossil stations, 10 years is considered ‘short term’ for planning purposes. Eskom's inability to convince its political principals to approve new expansion led to contracts only being awarded in 2006.

In January 2007 the lights went out and 12 months later the mining industry was shut down for two weeks. The damage to this country's economy cannot be measured – the direct consequences of 2008 were conservatively estimated that South Africa lost about R150bn in Gross Domestic Product (GDP) output in one year, the equivalent of a Medupi power station– but the opportunity costs are impossible to measure. Former President Mbeki apologised to the nation for this.

With that famous apology has come a program of new build, ridden with delays and cost overruns, the likes of which this country has never seen. For how long will the Treasury be able to come to Eskom's rescue?

When will South Africa have adequate Gx capacity again? Left only to public efforts, we could face power shortages for the next six to ten years, depending on how the global economy recovers. That also assumes that the existing capacity will perform at its current level – any deterioration means more shortages. So why would an Anglo, Xstrata or Exxaro start looking at their own power plants for their operations, if we (yes, a partner of 49 million) can save sufficient electricity so that 'we all have enough for our needs'?

Without the stabilisation of the base-load and mid-merit capacity in this country, we will remain in a power crisis.

We are already late on planning further base-load capacity. If you look at the Integrated Resource Plan 2010 (IRP 2010) we see no indication of the next coal base-load planning, or the nuclear fleet. Without the stabilisation of the base-load and mid-merit capacity in this country, we will remain in a power crisis.

With regards to renewable energy and interconnected power systems, it is very important to know that all renewable energy sources which are non-dispatchable need conventional power supply support on the grid. This means that more capacity from conventional sources needs to be installed to keep the grid stable. Only "Renewable Energy with storage" ameliorates capacity constraints on the system.

From a power supply perspective, the first peg in the ground for a Roadmap is:

- *To fix the Gx problems in the public sector - fast;*
- *To allow Private Gx into the market so that the power shortfalls can be made up. With constraints on public funds, private investors can alleviate the funding problems and complement Eskom's shortfall; and*
- *To address the Policy and Regulatory environment.*

Consumption - The Power Distribution Industry (Dx)

If a business cannot deliver its product to the end consumer and collect its money then the entire chain beaks down. This sounds simple enough!

In 2011, Electricity Distribution Industry (EDI) Holdings was shut down after Government's efforts, for 9 years, to restructure the distribution industry had failed. It consumed about R300m per annum and in the end produced nothing of value. Its unintended consequences will come back to haunt us.

The effect of setting up the EDI resulted in the municipalities ceasing further investment in their networks, because the assets were going to be transferred into

a new entity. Refurbishment, backbone strengthening and maintenance suffered as a result, leaving the country with a current backlog of about R55bn, required for the municipalities to re-instate their assets to required operating standards.

This crucial “end of the chain” investment needs to be expedited and executed to preserve the integrity of the system. What happens now without EDI Holdings? Where will the funding come from? And how long will it take to make up the backlog?

The second peg on the Roadmap is thus:

- *Put the municipalities under pressure to re-instate their assets – anything less will result in system decay beyond recovery;*
- *Put legislation in place to absorb unviable municipalities into larger ones to ensure viability;*
- *Regulate tariffs to be within affordable levels to avoid delinquency – otherwise electricity theft will just escalate; and*
- *Search for off-grid solutions where possible – grid electricity is expensive. Dovetail the Department of Energy and Treasury renewable energy program with off-grid approach for remote communities.*

The objectives of the industry were spelt out: affordability, efficiency and competition. The current state of affairs is far from meeting these objectives.

The Rules of the Industry - The Regulatory Environment

It has been said of the South African electricity sector in recent times that there are “too many fingers in the pie” resulting in an inability to make or implement sound decisions. An electrical system is instantaneously connected from the point of supply to the point of consumption – if any link

breaks down, the system breaks down. Thus the rules of the industry must ensure that all sectors work seamlessly to achieve that objective. There is also a need for institutionalisation of that competence. The objectives of the industry were spelt out: affordability, efficiency and competition. The current state of affairs is far from meeting these objectives.

My analogy is that of an “orchestra” without a “conductor”:

- Department of Public Enterprises (DPE): shareholder representative of Government in Eskom.
- Department of Energy (DoE): mandated for policy and ensuring security of supply, also produces the IRP.
- Department of Finance: through the Treasury - providing Eskom guarantees for new build, R350bn approved guarantees.
- Department of Water and Environmental Affairs: published the Long Term Mitigation Scenarios (LTMS) which were incorporated into the IRP2010 to reduce carbon footprint.
- Eskom: the incumbent monopoly utility owning the majority Gx, all the Transmission and System Operations (Tx) and owns parts of Dx not owned by municipalities.
- The National Energy Regulator of South Africa (NERSA): responsible for price regulation and licensing of electricity activities.

When the DoE's Independent System and Market Operator (ISMO) draft first appeared two years ago it disappeared into limbo for about a year, when Barbara Hogan was Minister of DPE. But when Malusi Gigaba was appointed, the draft started being circulated again.

A public process run by NERSA on behalf of the DoE resulted in public hearings. But at a public gathering Minister Malusi Gigaba announced that there will be no structural changes to Eskom and no mention was made of the ISMO Bill despite the public comments passed on the draft

The Electricity Regulation second Amendment was issued on 19 December 2011 and the closing date for comment was 25 January 2012. Essentially the public was given 3 weeks to comment on the country's Primary Electricity Act – ERA 2006. This was later extended to 17 February 2012. We have also been told that there are further amendments in the pipeline to other regulations and the ISMO draft. The proposed amendments to the ERA 2006 all point in the direction of “overregulation”, making Independent Power Producers (IPPs) participation more onerous and difficult.

How are Independent Power Producers (IPPs) expected to conclude contracts with anyone within such an uncertain regulatory environment?

The third and final Peg on the Roadmap is therefore:

- *The Government should put in place a Permanent Electricity Commission (PEC) that includes professionals to rationalise the regulatory process and bring sanity to the industry. This Commission should be drawn from international ranks who are experienced in regulatory affairs and industry restructuring where the models are working. This will include IPPs. There should be one “conductor” of the “orchestra” appointed and mandated;*
- *An immediate revision of the entire suite of regulatory documents must be addressed to ensure they are coherent and have the congruency that will facilitate IPPs participation; and*
- *The PEC must be tasked with producing future IRP's and advising on Government policy.*

As one of the pillars of the economy, it is imperative that we preserve and expand the electricity infrastructure of this country to meet its economic needs. Without this pillar being kept in good shape, we will descend into economic decay.