



Obscure Electricity Planning is Detrimental to South Africa

A civil society position on the South African government's decision to continue with new-build energy generation projects, without an updated and credible integrated resource plan.



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OUTA

Organisation Undoing Tax Abuse

This position document sets out the framework and rationale of OUTA's call on the relevant South African governing authorities to finalise with credibility, transparency and due process, the long overdue Integrated Resource Plan (IRP) and accordingly, to halt new energy build programs in South Africa until this process is complete.

1. Overriding Principles

This document and call on Government is undertaken and guided by the following overriding principles:

- A respect for democracy values and principles.
- Rule of law under the Constitution of South Africa.
- Good governance and due process.
- Openness and transparency.
- Meaningful Stakeholder consultation and participation, including civil society and the public.
- Sustainable development.
- Rational decision making.
- Cost effective and competitive bidding.
- Flexibility to meet uncertain economic growth and demand.
- Care for the environment.

2. Overview

The decisions on electricity can have consequences that last for several decades, and ill-informed decision-making can lock in high electricity prices for several generations, thereby inhibiting economic growth, prosperity, development, and peaceful co-existence.

There is deep concern by a wide range of persons and organisations - including those within government, political parties, labour, business and industry associations, academia, civil society, media and the general public - that the current position of an energy debate and new-build energy programs in South Africa is taking place in a vacuum, without updated and credible energy planning data. This is not only the case for new nuclear projects, but also for new coal plants or renewable energy programmes.. Accordingly, in the absence of a base case IRP, such procurement decisions might expediently be based on an outdated IRP for Electricity, IRP2010-2030, published in 2011.

There are further deep concerns that renewable energy generation technologies and Independent Power Producers (IPP) are being side lined, despite their prices having dramatically dropped since the IRP2010-2030 was published in 2011. This equates to a real possibility that the lowest cost of combined technologies may not be applied for South Africa's energy solutions.

Questionable comments and direction expressed by Eskom executives & others in authority

Adding to the concerns of civil society and others, are the recent utterances and public statements by executives of Eskom. These include:

- a) That the new nuclear build program does not require the support of Treasury in that Eskom has the ability to finance this program, without the need for assistance from Treasury; and
- b) A lack of commitment by Eskom to proceed with additional renewable energy programs, compounded by recent suggestions from Eskom's head of generation, Mr Matshela Koko, that Treasury should ring-fence and separately fund the past renewable energy projects committed to in Rounds 1 to 3 of the Independent Power Producers (IPP) program.
- c) Display an open defiance by Eskom of Government Energy Policy in refusing to sign Power Purchase Agreements (PPA's) with IPP's announced as winning bidders under the Renewable Energy Independent Power Producer Procurement (REIPPP) programme.

Comments and actions of this nature by Eskom’s leadership belie the fact that Eskom is a wholly owned state entity, answerable to the South African tax payer. Eskom’s possible failures, if and when these occur, will be financed by the public. Regardless of whether Eskom is able to finance new energy build programs, its decision to do so must be part of integrated energy planning at national level. It must also be rational, in the public’s best interests and finally, must take into consideration the cost impact on the public and business who are held captive by Eskom’s decisions due to their monopolistic position on power supply to the nation. Under such circumstances, the decision to “go it alone” on a new nuclear build program is not only irrational but unlawful and does not serve the best interests of all who live and work in South Africa.

Moreover, Eskom’s ability to fund such expansions will depend entirely on their ability to pass on further electricity price increases to the consumer. It is understood that the Multi Year Price Determination-4 (MYPD-4) price application by Eskom may ask for another series of price hikes at double or more the inflation rate. This begs the question of whether Eskom plans to “afford” its nuclear fleet by systematically overcharging the South African rate payer for decades to come.

Finally, there are concerns that within this vacuum of an updated and credible IRP for electricity in South Africa, Eskom is stalling the introduction of energy by Independent Power Producers (IPP’s) in various technologies, to further its own business interests in coal and nuclear. This is in conflict with the national interest of diversifying both the generation sector and the primary energy mix.

Against the backdrop, this position document sets out the rational and demand that the cabinet, government, Department of Energy, NERSA and Eskom, cease to continue with new energy build programs, until a credible and widely accepted update to the IRP for electricity in South Africa has been completed.

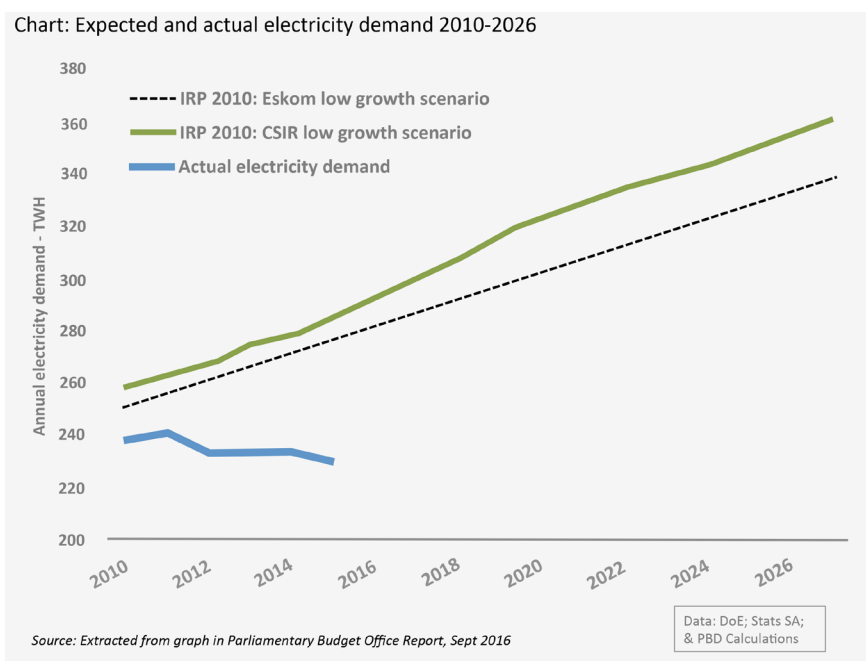
3. The Background

Electricity supply and demand forecasts for South Africa cannot be allowed to rely on six year old data as is reflected in the current and only lawfully adopted national IRP for Electricity for the IRP2010-2030, dated 2011. This is why the IRP is intended to be updated every two years and why a new IRP (2016) - based on the latest available evidence and analysis of supply, demand, and the variety of ways in which to match these – is now urgently overdue.

Essential in the development and finalisation of an updated IRP, is the need for an open, transparent and participative process to ensure sound decision-making. Recent announcements of delays in presenting the proposed IRP to cabinet are further compounded by the lack of public’s participation therein.

3.1 The hazards of ill-informed energy and electricity planning in South Africa

The danger of making major decisions on new electricity build projects in the absence of a robust and regularly updated Integrated Energy Plan and an IRP for Electricity respectively can best be seen from this graph:



For instance, the use of Eskom’s “low growth scenario” from the IRP2010 trajectory suggests that supply must meet a demand of around 330 TWh (TerraWatt Hours) of electricity per annum by 2026. However, the electricity demand and usage has not increased since the 242TWh peak, shortly after the 2010 projections. In fact, the demand has begun to decline and if this current situation and trend persists, Eskom’s projections could be as much as 40% overstated by 2026. Such a significant oversupply of energy generation would have disastrous economic repercussions for South Africa.

In short, the absence of updated resource planning documents will limit government’s effectiveness in making informed and critical decisions for new / future projects, from which emerges very costly mistakes with severe repercussions for the nation’s economy for decades to come.

Since 2010, the significant delays and cost overruns on new coal based energy plants have increased the price of electricity dramatically. This means that updated data informing the IRP would inform the ongoing and up to date impact of various energy sources to the planners. By doing so, Eskom’s executives would be less inclined or able to blame the Renewable Energy Independent Power Producer Procurement (REIPPP) programme for their ever-increasing prices, as they have done in recent times. Planning with updated energy supply cost figures will provide evidence that Eskom’s new-build plans for coal and nuclear is, and will be overwhelmingly responsible for excessive and unnecessary electricity price increases.

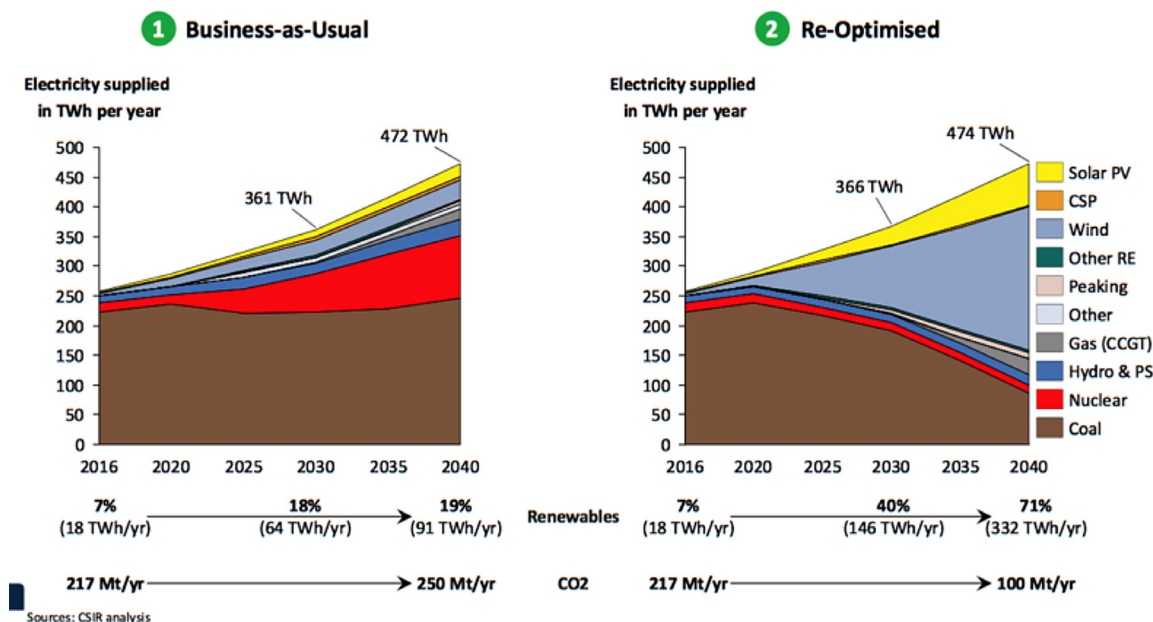
3.2 New CSIR study indicates no new coal or nuclear required.

On the 3rd November 2016, the CSIR Energy Centre released a report titled “Least-cost electricity mix for South Africa by 2040 – Scenarios for South Africa’s future electricity mix”, presented by Dr. Tobias Bischof-Niemz, Jarrad Wright, Joanne Calitz and Crescent Mushwana.

The CSIR study presents a re-optimised, least-cost mix for new electricity generation capacity technologies for the years ahead to 2040, while taking into account all the necessary updated economic, electricity demand, technology cost and other pertinent assumptions. When compared to a “business-as-usual scenario, the outcome of a re-optimised least cost plan proposed in this study indicates that, when removing the artificial and arbitrarily applied constraints currently placed on wind and solar PV options, 70% of South Africa’s electricity should be supplied by renewable energy sources by 2040.

Furthermore, this study also indicates that no new coal or nuclear energy projects need to be introduced into South Africa’s energy mix going forward.

Massive additional benefits provided to South Africa from the introduction of the renewable route - as indicated in the CSIR Study - is that CO2 emissions from electricity generation in South Africa will be reduced by approximately 60%, when compared to the “business-as-usual” scenario. Additionally, by avoiding new coal power, combined with the declining role of coal (as Eskom’s old coal-fired generation plant is retired), water usage also declines significantly with an estimated saving of 40-billion litres of water per annum by 2040.



3.3 The danger of an “overbuild” of energy supply in South Africa.

With the recent approvals of two new coal powered energy projects, Thabametsi (557 MW) and Khanyisa (306 MW), plus the existing projects at Medupi (4,8 GW, of which 1,6GW is on stream) and Kusile (4.8 GW) still to come on line, there is a view that South Africa faces a real danger of an “overbuild” of new energy supply, over the next decade. The key issue is whether we want to overbuild at R0,50 per kWh related to renewable energy projects, or overbuild at costs of greater than R1,10 per kWh on new coal and nuclear projects.

Due consideration should also be given to the scenario that Eskom should halt (mothball) the Kusile coal powered plant, as all indications point to Eskom throwing good money after bad on this project. Despite the fact that the costs incurred on Kusile to date are sunk costs, the track record of these build programs point to excessive cost and time overruns. Future investment into the Kusile project, amidst rapidly reducing new energy supply options from revised renewable scenarios, is tantamount to irresponsible commitment of the South African taxpayer and energy consumer and therefore an unnecessary expenditure on future energy costs.

Eskom’s official figures show that Kusile’s cost to completion (CTC) at R150bn, against a budget of R92bn and world bank average of around R32bn (at 2008 prices)

3.4 Restoring order, the rule of law and predictability to the electricity sector

To restore credibility and efficient functionality to South Africa’s energy generation sector, we highlight the need to:

- Move into an evidence-based decision-making process on for electricity planning.
- Apply and enforce the existing legal policies in place.

3.4.1 Evidence Based Decision Making and the IRP Framework

When in place, the required and regularly updated Integrated Resource Plan for Electricity, needs to display a reliance on actual and up to date data, including new least-cost technology options, mix and timing of new generation capacity into the foreseeable future. This will ensure that decisions of least regret have been taken against the backdrop of inherent uncertainties of supply, demand and cost forecasts in an uncertain world. To do so, the following actions are essential:

- a. Electricity generation / supply forecasts need to be reviewed and updated annually to reflect and take into account the exact timing and reality of new generation capacity coming onto the grid, which would enable the planning process to take into account any time overruns and construction delays of planned new capacity.
- b. Annual electricity demand forecasting should take into account actual economic and electricity demand growth for the previous years, and adjust the forecasts with the latest economic data and trends for electricity demand. Cognisance also needs to be taken of sunset industries such as mining (and accompanying smelting) which consume a significant portion of current electricity supply and is expected to drop off sharply after 2020, as older mines are closed.
- c. The capacity of the transmission grid needs to be reviewed annually based on new generation capacity coming onto the grid in coming years, and transmission planning needs to be updated to take this into account.
- d. The changing costs of the various generation technologies needs to be reviewed and updated annually to take into account changing economic data, as well as any fundamental changes in generation plant costs. These may result from changing rates-of-exchange, localised production incentives, generation market conditions, economies of scale and technology learning curves, particularly in disruptive technologies such as wind and solar PV generation and energy storage technologies.

- e. The IRP model must offer clear and auditable explanations for all assumptions, references and sources of information and its conclusions.
- f. Supply and demand forecasts, together with any technology deployment constraints such as CO2 emission commitments, contractual commitments for new capacity, physical constraints in the deployment of particular technologies, etc., need to be reviewed and revised based on actual supply and demand manifestations in previous years, and the revised future outlook.
- g. Endeavours and assurances that South Africa's energy expansion efforts are consistent with its obligations and commitments to the United Nations Framework Convention on Climate Change, along with South Africa's National Climate Change Response Policy.

3.4.2 Existing Policy and Legislative Framework

What makes this campaign and the future decisions for government easy, is that we are not asking for the formulation of new policy or regulations to guide the necessary actions required on this matter. Our nation's policy framework and legislation in this regard already exists and should merely be applied in an efficient, consistent and transparent manner.

3.4.3 Duties of the Energy Minister

Here we highlight Section 6 of the [National Energy Act, Act 34, 2008](#), which requires that the Minister of Energy **must** publish an **Integrated Energy Plan (IEP)** for South Africa **annually** following a consultative and participative **public process**.

We hereby note that since the promulgation of the Act in 2008 to date, the Minister of Energy has not published a single IEP and that in terms of Section 20 of the Act, a person (including the Minister of Energy) who contravenes or fails to comply with any provision of this Act (for example by failing to publish the IEP annually), shall be guilty of a punishable offence.

Section 3 (5) and (6) of the [National Energy Act, Act 34, 2008](#), requires that the Minister of Energy **MUST** also publish annually, an analysis reviewing energy demand and supply for previous year which includes the forecasting energy supply and demand for no less than 20 years, together with plausible energy scenarios of what the future energy demand and supply landscape could look like under different demand and supply assumptions.

We hereby note that since promulgation of the Act in 2008 to date, the Minister of Energy has only published one Integrated Resource Plan for Electricity, commonly referred to as [IRP2010-2030](#). This was published in 2011, based on work done in 2009 and 2010, which is now out-dated in as far as the changing landscape of energy demand and various energy source pricing goes.

In this regard, a [Draft IRP Update to IRP2010-2030](#) was prepared in 2013 by the Department of Energy, but for various reasons it was never accepted by the Cabinet or Government, possibly because it recommended a reduced and delayed nuclear new-build for South Africa.

4. Our demand to government

- i. To halt the decisions on additional new-build energy generation programmes, particularly in the use of coal or nuclear sources, until the unconstrained IRP-2016 base case has been published and public consultation has taken place on the policy adjustment thereof.
- ii. To express serious consideration of establishing a separate, government-owned, independent grid system and market operator in order to remove Eskom's conflict of interest and prevent possible sabotage of its competitors.
- iii. To return to the ideals of an open, transparent and democratic electricity sector with non-discriminatory access to the grid, and allowing the free flow of information and ideas together with robust debate informing government's ultimate, fact-based policy direction.
- iv. To publish the updated draft IRP for public consideration, before the end of 2016

5. In closing

Failure to ensure an updated, credible, transparent and participative IRP process is followed and used to guide and inform South Africa's energy and electricity planning, will be construed as acting in contravention of principles of our constitutional values and democratic processes and therefore, an action which is not in the best interests of the people of South Africa.

Wayne Duvenage

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