The Dawn of the New Municipal Business Model and the Legal Imperatives to Realise Same AMEU TECHNCIAL CONVENTION SANDTON 2018

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1 Introduction

In 2015 two of the authors (At and Adriaan van der Merwe) presented at the AMEU Centenary Conference on *Legislative Imperatives – A Legislative Roadmap for Energy Challenges in SA*. Three years have passed and the South African Electricity Supply Industry's ("**ESI**") dynamics have developed significantly. Many of the concerns raised in the 2015 paper however remains, and the implementation of the proposed road map is more pertinent than ever.

Developments since 2015 include the promulgation of Schedule 2 to the Electricity Regulatory Act 4 of 2006 ("**ERA**"), the publication of the draft Integrated Resource Plan 2018 ("**IRP 2018**"), the unprecedented increase in small scale embedded generation/decentralised energy resources installations ("**SSEG/DER**"), a desire amongst organs of state to procure electricity generation capacity themselves and the municipal drive to change the regulatory rules that govern the municipal electricity business.

The municipal delegates at the SALGA Energy Summit 2018 agreed that there is an urgent need to review the ESI's business model to ensure that change occurs by design, and not by default. There has also been a departure from questioning the structure of Eskom, to a debate on how the restructuring of the industry should be undertaken[1]. The benefits associated with utilising generation capacity from private party electricity generation projects in municipal jurisdictions is a business reality that can no longer be ignored. The dynamic development of the ESI business environment, coupled with a lack of change control, necessitates decisive leadership, a vision for the energy industry and regulatory certainty.

Energy stakeholders agree that the dawn of a new South African energy industry is upon us. The purpose of this paper is to clarify the current dispersion and advocate for a designed and managed development of a sustainable ESI and municipal business model to prevent reform by default. This paper provides recommendations on how to sustain the ESI during the reform process and expand on the legal and regulatory barriers and enablers to bring this new business model about.

2 The Utility Operating Landscape: Current Challenges

The ESI is globally recognised as one the most important enablers of economic growth, service delivery and job creation. In the South African context the ESI is an asset intensive business and serves an estimated 13 million end customers with the key players, from a distribution perspective, being municipalities and Eskom. Of these end customers 57% are served by municipalities with the remaining 43% served by Eskom.

In the previous paper various disruptive forces were identified as challenges that create involuntary drivers for the restructuring.

Many of these challenges are increasingly evident in the industry, which result in an industry sustainability challenge.

[1] Minister Nhlanhla Nene on 22 June 2018: ewn.co.za/2018/06/22/nhlanhla-nene-restructuring-eskom-top-of-agenda

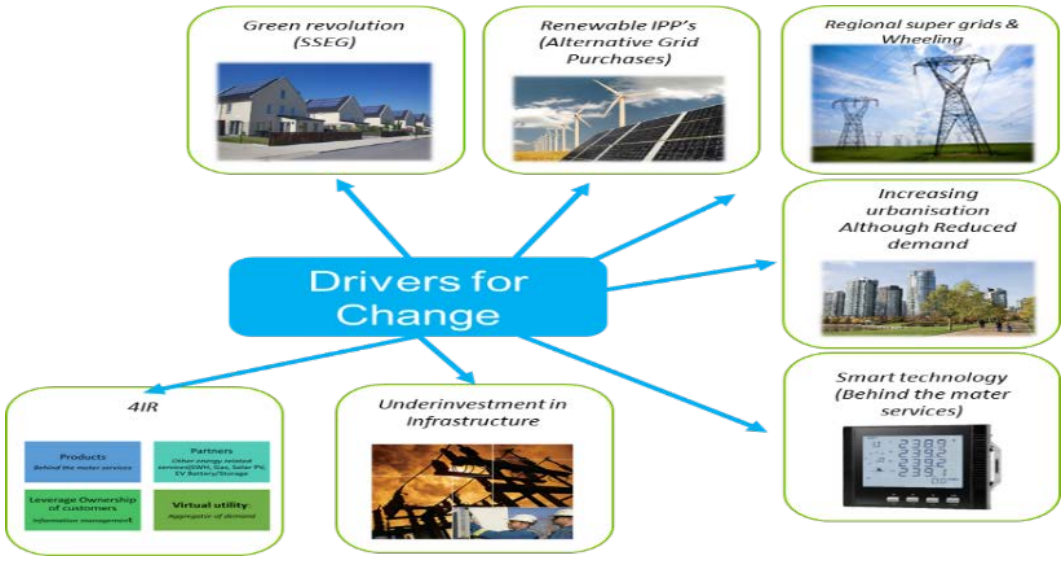


Figure 1: Current Challenges as Drivers for change

2.1 Financial Considerations

The financial sustainability of the ESI is a challenge to the national fiscus, and the ever-increasing debt burden is a major concern. Considering the current business model and industry structure, it is highly unlikely that municipalities will be able to overcome the current R13,6b[2] debt trap. Revenue from municipal sales form a substantial part of the revenue stream of Eskom. It should therefore be appreciated that outstanding municipal debt has a substantial impact on Eskom's cashflow.

Eskom's financial crisis is acknowledged by the Minister of Finance, who cautioned in January 2018 that Eskom could collapse the South African economy[3]. In June 2018 the Minister of Finance, Nhlanhla Nene, asked whether the "*Eskom we have is the Eskom we need*" and pointed out that the Eskom business model need to be revised.

The above does not inspire confidence in the industry and it should be expected that industry participants will be actively seeking for opportunities to safeguard their businesses. These safeguarding actions will not occur in an integrated manner, and begs the question whether restructuring by default will overtake planned and coordinated restructuring interventions. Without taking the national interest into account, and in the absence of an integrated and coordinated approach, the financial challenges facing the industry cannot be effectively addressed.

2.2 Customer Confidence – Seeking of Alternative Options

While there is an acknowledgement that the power outages of 2007/8 and 2015 had a negative effect on the South African economy, these outages also impacted customer loyalty and resulted in a search for alternative and sustainable energy solutions. The 2007/8 and 2015 power outages however presented an opportunity to more affluent customers to pursue alternative energy generation options to reduce their reliance on electricity supply from municipalities and Eskom[4]. In the "traditional utility business" customers had limited choice of supply and were regarded as "captured". In addition, the industry's development, network participation and customer behavior were regulated and managed through rules and by-laws. It

[2] Debt owed by municipalities to Eskom for bulk electricity as at March 2018
[3] www.fin24.com/Economy/Eskom/eskom-could-collapse-sa-economy-warns-gigaba-20180118
[4] The attractiveness of this is provoked by the inclining block tariff that provide incorrect by very attractive cost signals for early breakeven

was under this monopolistic business and operating regime that the existing ESI business model was developed, which allowed costs and returns from various activities to be bundled. It is for this reason that the business model can be regarded as primarily being a model that sells kWh's.

2.3 Cost Signals

The decrease in sales volumes and associated revenue decrease should not come as a surprise when considering the declining cost of alternative energy options (such as that of solar photovoltaic rooftop installations), increasing equipment reliability and energy efficiency, technological innovations and awareness amongst customers of environmental impacts. This implies that the fixed cost structure of the municipal business model is ever increasing, while the associated energy volumes (kWh's) sales and revenue are ever decreasing. The margins are substantially eroded and the result of these factors are that the industry "death spiral" has become a reality. The increase in municipal debt and the inability of municipalities to meet their financial responsibility must also be considered in this context.

The above creates a scenario where affluent customers will implement alternative electricity generation options but remain connected to the grid for "back-up" supply with the result that the average energy consumption per grid connected customer will continue to decline and exacerbate the utility death spiral. It is therefore clear that municipalities can no longer utilise bundled tariffs where consumption is the key recovery mechanism. The municipal kWh business has therefore become unsustainable and presents another argument why the business model requires urgent review.

From the above it is clear that certain ESI reforms will be necessary to ensure the industry's sustainability.

2.4 Essentials for the ESI survival

To ensure the survival of the ESI it is critical that the wires and retail business be unbundled and ring-fenced. Tariff structuring should also incentivise the desired consumer behaviour to further support business sustainability. In instances where cross-subsidies are required, such subsidies should be transparent and effectively managed in the broader business context. Policy and regulatory frameworks should therefore be clear to accommodate the change in the business landscape. When considering the emerging energy trading related opportunities it becomes clear that it is now opportune time to consider public private partnerships for retail and energy trading.

During the SALGA Energy Summit 2018 tariff reform was debated and it was resolved that: "*The reform in the electricity tariff requires cost-reflectivity, grid protection, simplicity in design, increase role for time-of-use pricing, tariff rationalisation and tariff/price convergence. The revised tariff determination framework should also cater for small scale embedded generation (SSEG) and bi-directional energy trading e.g. buying and selling of electricity between a municipality and prosumer. The pricing policy, tariff determination framework and regulatory framework needs therefore urgent review*".

3 The Legal Framework of the South African ESI

Whilst this paper does not seek to provide a full exposition of the ESI's legal framework, an understanding of the regulatory framework in which municipalities operate is required. On a basic level, a regulatory framework evolves pursuant to government policy. Government policy guides lawmakers to promulgate legislation, which legislation is then implemented in greater detail by the regulations published thereunder. In an ESI context policies such as the *White Paper on the Energy Policy of the Republic of South Africa (1998)* ("**Energy White Paper**") and the *Integrated Resource Plan 2010* ("**IRP 2010**") provide roadmaps for the way in which government envisages the ESI's development to be realised.

The IRP 2010 was promulgated in March 2011 with the purpose to determine the long-term electricity demand and detail how this demand should be met in terms of generating capacity, type, timing and cost.

The IRP 2010 was envisaged to be a "living plan" that was to be updated every two years. To date this has however not occurred and the IRP 2010 is in need of urgent review. A draft IRP 2018 has been published for comment, but not yet promulgated.

The Electricity Regulation Act, 4 of 2006 ("**ERA**") is the main piece of legislation which regulates the South African ESI. The ERA provides for, amongst others, that subject to certain exemptions electricity may only be imported or exported, traded, distributed, transmitted or generated under the authority of a licence granted by the National Energy Regulator of South Africa ("**NERSA**"). Importantly licences are issued subject to the Integrated Resource Plan in force at the time, and should a market participant decide to undertake an electricity generation project outside of the allocation in the IRP, such market participant would have to apply to the Minister of Energy for a deviation from the IRP. It should be noted that the IRP 2010 does not make provision for the procurement of generation capacity by municipalities.

The Minister of Energy has wide powers under the ERA and is, amongst others, empowered to make Ministerial Determinations under section 34 ("**Ministerial Determinations**"). These Ministerial Determinations are made in the event that the Minister of Energy determines that new generation capacity is required to ensure the continued uninterrupted supply of electricity in South Africa. Ministerial Determinations are made subject to the generation capacity allowances outlined in the IRP and, amongst others, provide for who the generator, procurer and buyer of such electricity will be.

The Regulations on New Generation Capacity promulgated under the ERA ("**New Gen Regulations**") provide for how organs of state should procure new generation capacity as mandated under Ministerial Determinations. As municipalities are organs of state the New Gen Regulations also find application to its activities. To date there has not been a Ministerial Determination which allows municipalities to procure new generation capacity. Although municipalities are able to buy generation capacity from any generator, such generator would have to be licenced by NERSA, and such licence can only be granted within the confines of the IRP. This leads to a situation where municipalities effectively have no choice of supplier, outside of that decided upon by the Minister of Energy under Ministerial Determinations.

The Constitution of South Africa provides that local government has executive authority over, and the right to administer, electricity distribution, while recognising the right of national and local government to legislate and regulate this function. The Constitution states that municipalities have the "*executive authority and right to administer*" "*electricity reticulation*" in their area of jurisdiction. The ERA defines "*reticulation*" as the "*trading or distribution of electricity and includes services associated therewith*".

The Local Government: Municipal Structures Act 117 of 1998 continues in Section 84 (1)(c) that the "*bulk supply of electricity, which includes for the purposes of such supply, the transmission, distribution and, where applicable, the generation of electricity*" is a district municipality function and power.

Accordingly, the provision or supply of electricity in a municipal jurisdiction amounts to the provision of a municipal service in terms of the Local Government: Municipal System Act 32 of 2000 ("**MSA**") and can only be undertaken pursuant to a competitive bidding process. If a market participant then provides electricity reticulation in a municipal area, the municipality would need to appoint the market participant as an external service provider under a service delivery agreement ("**SDA**").

Figure 2 illustrates the relationship between policy, legislation, regulation and market participants in the ESI.

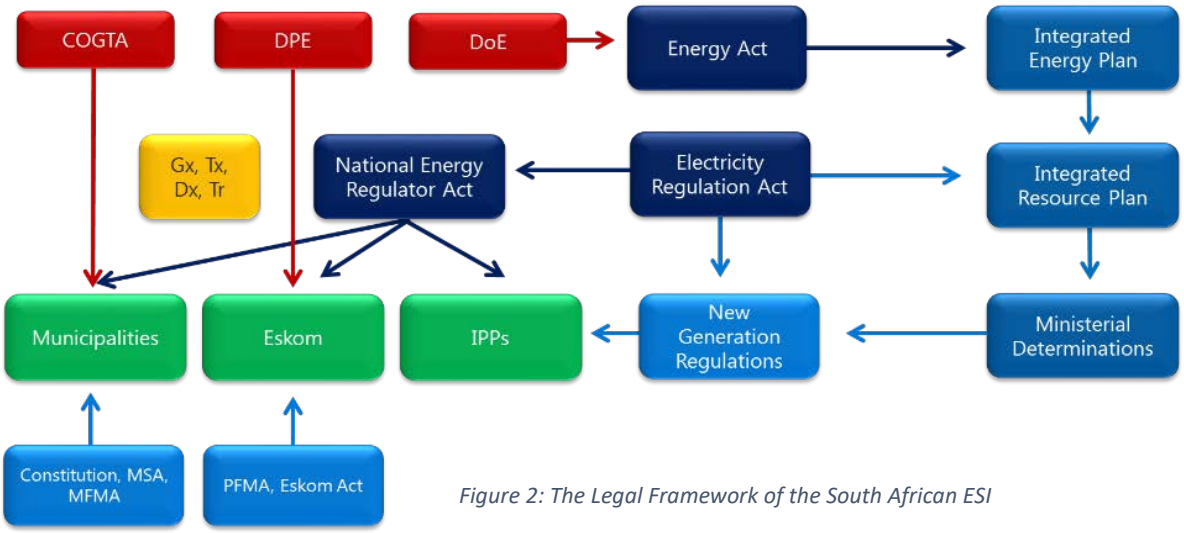


Figure 2: The Legal Framework of the South African ESI

The regulatory framework outlined above lends itself to the creation of the following hurdles for municipalities:

- The SALGA Energy Summit 2018 identified that municipalities have a general lack of understanding of the ESI's legal framework;
- Municipalities cannot procure new generation capacity;
- Municipalities effectively do not have a choice of electricity supplier;
- Municipalities are not enforcing their constitutional executive authority to reticulate within their jurisdictions;
- Market participants in municipal jurisdictions do generally not provide reticulation services pursuant to service delivery agreements; and
- The pace of development of the ESI leads to municipalities implementing post the fact registration, licensing and regulation.

World trends indicate that industry reform takes place when certain ESI drivers occur. In a recent report by the Inter- Ministerial Task Team (IMMTT) to Cabinet these drivers are acknowledged and it is pointed out that the current distribution model is unsustainable[5]. As mentioned earlier in this paper, the Minister of Finance has made a similar statement on the model of Eskom, highlighting its necessitated restructuring, which will include a restructuring of the distribution, transmission and generation sectors of the ESI.

Van der Merwe and Van der Merwe pointed out in 2015 that reform in the South African ESI can be demarcated in four periods up to 2015, and that a fifth period in which reform is occurring by default is already underway[6]. As reform is already occurring, the key considerations to ensure that reform happens in an orderly manner needs to be established.

[5] Inter-Ministerial Task team: Advisory panel on Electricity Reticulation: Prelim- Interim report to Minister of COGTA, 13 June 2018. Drivers identified were: Bulk electricity debt on increase, Payment/collection/arrears from end customers, Incorrect tariff structures resulting in under recover on electricity sales and Inability to respond to alternative energy opportunities, absence of level playing field and inefficiencies contribute to higher operating cost

[6] Legislative Imperatives – A Legislative Roadmap for Energy Challenges in South Africa: AMEU Centenary Convention 2015, Johannesburg

4 Key Considerations for an ESI Transition

The following questions are paramount when considering an ESI transition:

- Should the ESI value chain be ***unbundled***? If so, what level of unbundling is required?
- If more and more industry players are entering the market, how can greater ***market participation*** be realised for all stakeholders in the ESI?
- What are the ***essential interventions*** while ESI reform are underway? Main interventions will include ensuring ***security of supply*** (keeping the lights burning during reform) and addressing ***liquidity challenges*** (the cash conundrum).
- What are the ***emerging ESI structure(s)*** that have the potential to resolve the current challenges?
- What are the ***legal and regulatory considerations*** to realise a sustainable ESI?

Unbundling of the Value Chain

4.1 Generation and Transmission

The debate regarding the unbundling of the ESI value chain is far from a new occurrence. As far back as 2000 the then Minister of Minerals and Energy (Phumzile Mlambo- Ngcuka) initiated discussions on the matter and a World Bank sponsored Ministerial Workshop on ESI reform was held. In 2001 Cabinet approved proposals for the ESI reform through a "managed liberalisation" process, which included the following:

- **Structure of the generation industry** - Eskom's generation market share to be reduced to 70%, with privatisation of the remainder and with private sector involvement to gradually increase by ensuring that all new generation capacity would be built by the private sector.[7]
- **Vertical unbundling** - A separate, state-owned transmission company to be established, independent of generation and distribution
- **Market Structure** - A multi-market model for the electricity market to be established.

Broad consensus on the next steps for market reform was realised by the signing of the "Farm Inn Agreement 2001" in 2002 by the Department of Minerals and Energy, Department of Public Enterprises, South African Local Government Association (SALGA), NERSA and Eskom. Amongst others these steps included:

- Eskom to establish subsidiary companies for generation and transmission;
- The national system control to be converted to an independent market operator company (ISMO[8]).
- Ring-fencing of Eskom transmission infrastructure operations into wires and system operations; and
- Ring-fencing of Eskom generation stations into clusters or portfolios to achieve internal competition.

It is significant to note that the reform of Eskom and the ESI was already foreseen and planned for more than 15 years ago. The need to restructure[9] and unbundle Eskom, and to keep the transmission system intact by the creation of an ISMO, is spurred on by many factors. The most important of these being financial challenges that are aggravated by the declining demand.

Ideally this essential restructuring should have been undertaken whilst the balance sheets of municipalities and Eskom were still strong. The process was however halted in 2004 when the then Minister of Minerals

[7] Energy Security Master Plan – Electricity 2007 – 2025 (2007)
[8] Several versions of the ISMO have been proposed, the last being tabled before the Energy Portfolio Committee in 2013.
[9] ewn.co.za/2018/06/22/nhlanhla-nene-restructuring-eskom-top-of-agenda

and Energy, Alec Erwin, stated in parliament that the state had to put security of supply above all, and above competition especially. This decision was clearly flawed if the successful Renewable Energy IPP Procurement Programme is to be considered.

4.2 Distribution Value Chain

The electricity distribution industry ("**EDI**") restructuring blueprint that contemplated six Regional Electricity Distribution undertakings ("**REDs**") and lead to the establishment of EDI Holdings is well known. The intention was that the REDs would utilise economies of scale, a strong customer base, consolidate scarce manpower resources and create strong balance sheet for the REDs.

RED One was established during 2005 with the City of Cape Town as anchor entity, although not in full compliance with the designed parameters as was contemplated for the entities.

During 2010 Cabinet reviewed the progress and despite substantial progress towards the establishment of the REDs, took the decision to discontinue the process. Cabinet also resolved that the Department of Energy must review the entire electricity supply value chain. Even though the process to restructure the EDI came to a halt, the need for reform remains as it holds a significant risk for security of supply in South Africa.

Increased Market Participation

4.3 Cost Reflectivity

To ensure greater market participation a number of critical interventions are required. One of these is greater cost reflectively in the transfer costs between the different parts in the supply chain (generation, transmission and distribution). This will enable market participants and competitors to understand where and when to enter the market and what the commercial basis for participation is.

It has been found that many municipalities are unaware of the correct utilisation of cost signals to customers and how to ensure long term viability. This is of course exasperated by the looming death spiral and increasing off grid alternatives that are eroding the traditional municipal on-selling kWh business.

Cost of supply and economic studies are required for transparency and cost reflectivity, and alignment between the financial year ends of Eskom and municipalities can also assist from an accounting perspective[10].

The SALGA Energy Summit 2018 resolved that: "*Cost of supply and economic studies are needed for transparency and cost reflectivity. Time-of-use pricing, tariff rationalisation and convergence of electricity prices are opportunities to enhance the customer experience*".

4.4 Wheeling of Power through Networks - Open and Non-discriminatory Access

While industry reform is underway, transparency on unbundled cost for wires and retail will contribute in promoting an increase in the wheeling of power and therefore lead to greater competition. Published and regulated wheeling tariffs by all licensed market players are therefore necessary. Open and non-discriminatory network access also needs to be supported by adequate regulations issued by NERSA and bylaws on a municipal level. The design of feed in tariffs which balance the interest of the energy provider and the off-taker is also of the utmost importance to ensure sustainable transactions[11].

[10] SALGA Energy Summit 2018
[11] SALGA Energy Summit 2018

4.5 SSEG's & IPP Procurement as Local Sources of Energy

All market participants should be able to participate on an equal footing in the market, be it on the end customer side in the form of SSEG's, or the ability for all distributors to purchase power from Independent Power Producers ("**IPP's**").

4.6 Transparent policies and requirements

Policies such as the White Paper on Energy and the IRP 2010 have no enabling provisions, and regulatory enablers are required for market development across the value chain.

5 Interim Steps - Keeping the lights burning during reform

Whether the industry is reformed or not, there remains a substantial challenge to ensure that the lights keep burning. The absence of decisive leadership is hampering the ability of the industry to make decisions that will contribute to improvements in service delivery, as well as the ability to decide on venturing into new business opportunities. The latter is of great importance to improve the viability of the industry and to address the industry's liabilities.

Furthermore, prudent utility practices lack in many municipalities while business essentials such as effective asset and revenue management are neglected. Grid management and energy balancing, inclusive of the management of losses and the notified maximum demand are not receiving the deserved attention. The overloading of networks, plant and equipment leads to an increase in failures and higher technical losses.

The absence of reliable business systems and appropriate technology deployment, compounded by the absence of competent back-office resources, contribute to extended outages, the inability to effectively respond to customers and a deterioration in customer relations.

To address the current financial challenges, it is necessary to embark on a comprehensive cost of supply study in each municipality and then design the appropriate tariffs to support the business in delivering on its mandate. The current municipal business also requires far greater discipline in respect of the asset register, budgeting, revenue and cost management. Getting the above aspects under control is essential and it should be addressed in parallel to embarking on the required industry reform journey.

The following elements have been identified as essential to facilitate the transition from the current business to the future business model:

- Altering of the traditional business vision;
- Utility practises and business aspects;
- Tariff interventions and cost reflectivity;
- Additional revenue streams for the distribution business (behind the meter services); and
- Technology deployment.

The authors acknowledge that the restructuring of the industry will not be a quick intervention. At this point however some important interim considerations for the municipal business model are required.

With revenue derived from electricity sales for both municipalities and Eskom being under serious threat and wheeling for IPPs through existing municipal networks being explored, the value of the grid to protect existing revenue streams and to create new ones must not be underestimated[12]. It is therefore important to align the municipal business vision to:

[12] SALGA Energy Summit 2018

- Pursue new business opportunities (within the Constructional mandate) for the distribution business, keeping in mind that distributors will still have a large customer base;
- Actively seek alternative energy sources to lower the cost of electricity;
- Use partnerships and concessions to enhance service delivery, especially in instances where there is a lack of capacity, resources and finances;
- Focus on sweating the assets in a responsible manner; and
- Unbundle tariffs and correct tariff signals to create the correct customer behaviour.

The detailed action items are summarised in figure 3 below:

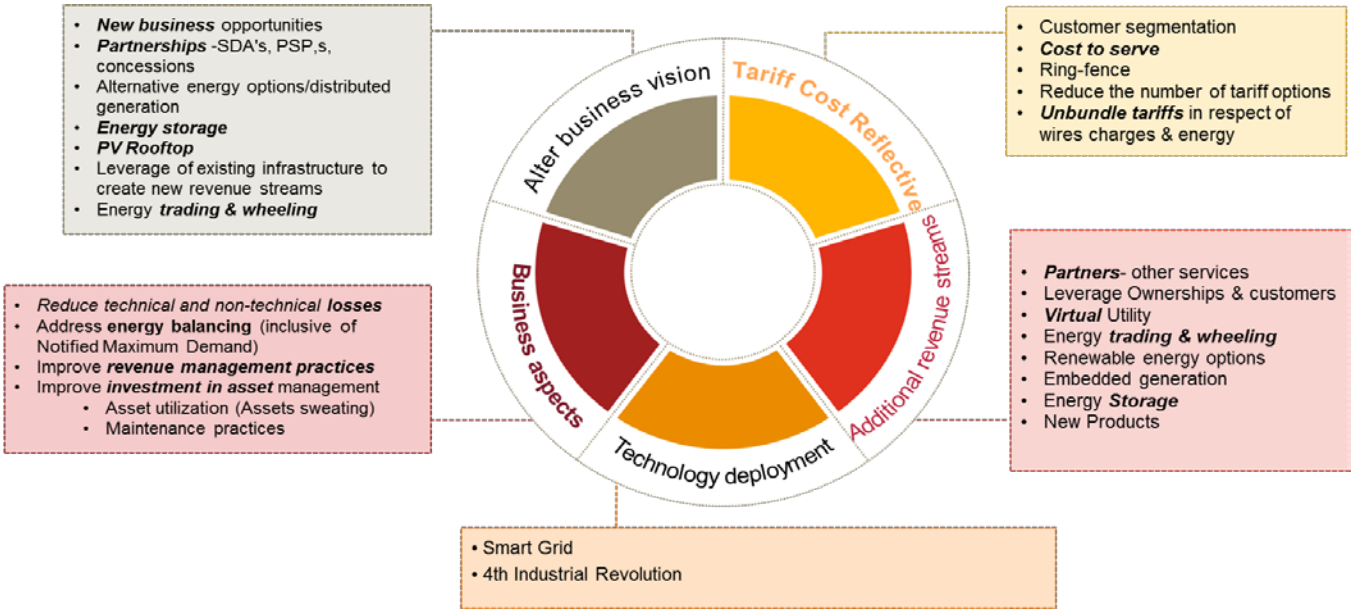


Figure 3: Interim Alternatives-Keeping the Lights On

6 Business Requirements for new models

The following five focus areas are required for the development of new municipal business models:

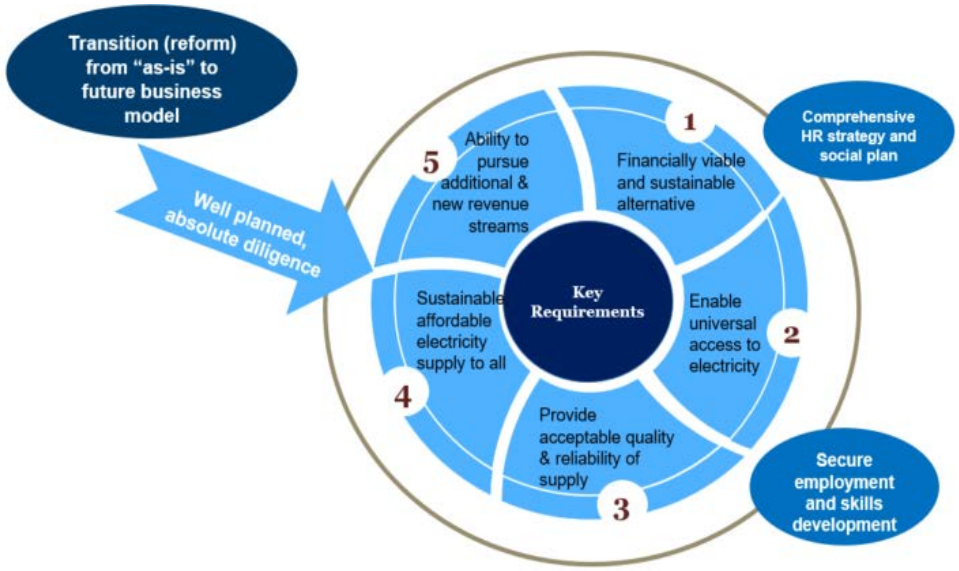


Figure 4: Business requirements for new models

Together with remodelling that should take the complexity, balance and size, financial viability, operational impact and customer impacts into account (see figure 5), it is suggested that the correct market structure for the future state of the industry be developed. Existing legislation allows for various of these developments and provide the framework to mitigate against the disruptive forces and challenges the industry face. These market structure possibilities are depicted in figure 8.

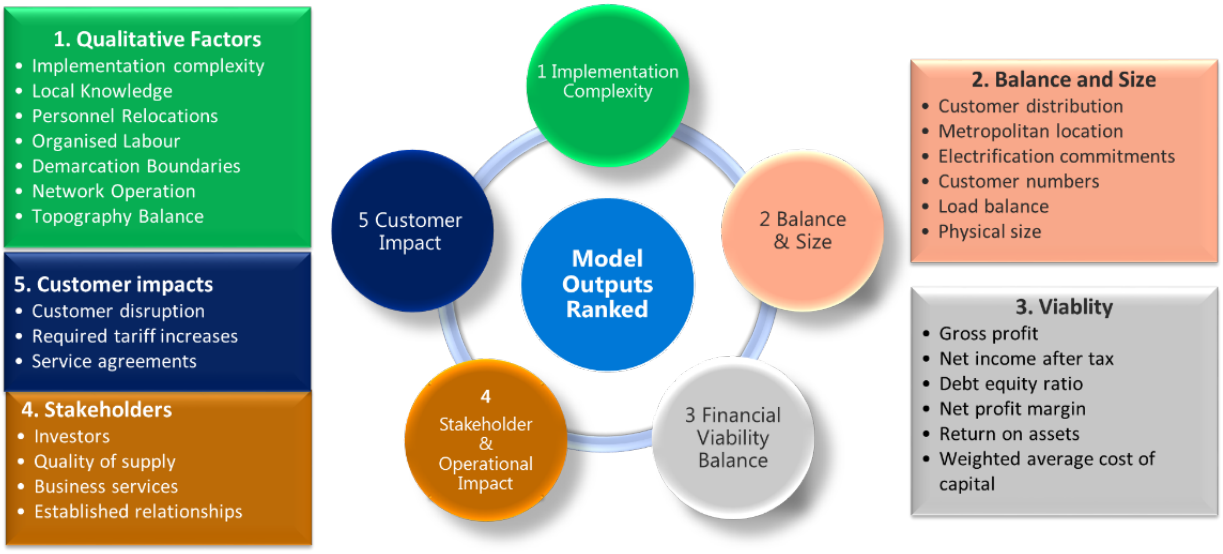


Figure 4: Business requirements for new models 5 Key Elements

6.1 Restructuring and transformation issues

It was identified in the 2015 paper[13] by Van der Merwe and van der Merwe, that definitive trends are visible throughout the generation, transmission and distribution supply chain. These trends are summarised in figure 6:

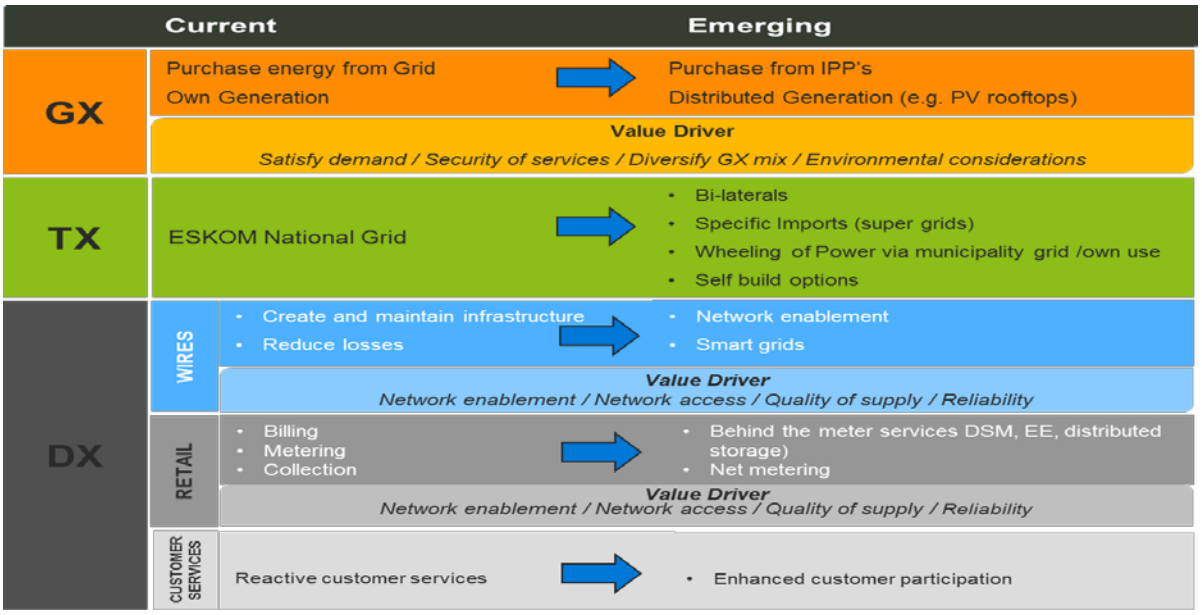


Figure 6: Emerging trend in the ESI in South Africa

The dominant role of Eskom as generator is gradually being challenged by IPP's and distributed generation. In the transmission space wheeling[14] has been introduced in the system and distribution utilities are increasingly looking at behind the meter options to strengthen their business models.

7 Emerging structure(s)

As stated above, the existing business model were developed in the context of a monopoly business and an operating regime which allowed costs and returns from various activities within the operating regime to be bundled. The new reality is that all customers, irrespective of customer category, would like to exercise choice in respect of services, energy portfolio and service providers. This implies that consideration has to be given to alternative business models to facilitate additional revenue streams, customer retention, revenue growth and ultimately business sustainability.

Global experience has shown that it is essential to map out the path towards an optimal business model within the constraints of the Constitution, legislation and the existing regulatory framework. It is therefore essential to understand the legal, governance and regulatory environment to inform the business model selection. It is also necessary to decide on the most optimal ESI structure to ensure business alignment. The authors accept that while essential, this will be a lengthy process which might not be addressed in the near future.

[13] Legislative Imperatives – A Legislative Roadmap for Energy Challenges in South Africa: AMEU Centenary Convention 2015, Johannesburg

[14] Example of PowerX that is licenced to wheel RE energy and has entered into a contract with NMBM for such services.

It therefore becomes essential that municipalities and Eskom decide on an interim model which will address the current constraints, leverage areas of satisfactory performance and improve the overall status of the ESI.

Over the past three years the installation of SSEG's have increased in municipal and Eskom areas of supply. Many municipalities have commenced with policies for SSEG's and have created tariffs to allow for purchases from these embedded generators. Several municipalities want to purchase directly from IPP's and there are examples of municipalities launching their own IPP procurement programs, while others have followed legal routes to attempt to obtain these rights. Other municipalities have simply followed the requirements of section 33 of the Municipal Finance Management Act 56 of 2003 and commenced purchasing energy from IPP's.

The draft IRP 2018 contemplates the introduction of more IPP's in the South African ESI and several cross-border transmission transactions are being investigated that could promote regional trade.

The authors suggest the following steps to be taken to realise the future ESI model. Although this is a complex process that will mature over several years, four main strategic steps are envisaged. These steps are illustrated in the figure 7 below:

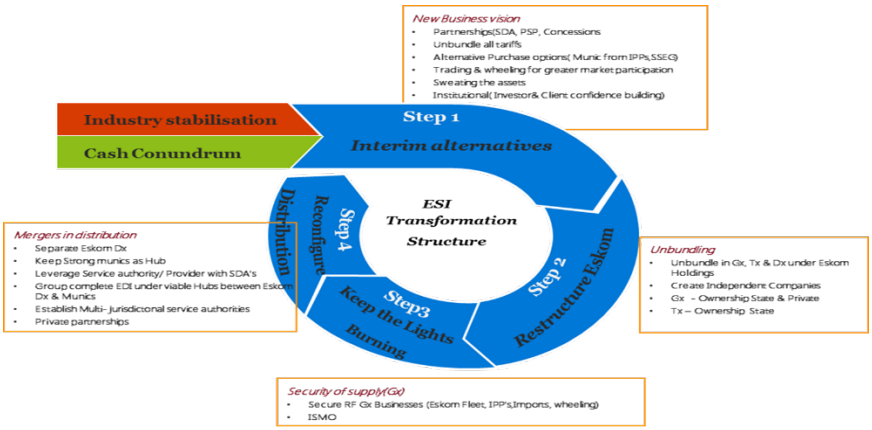


Figure 7: Suggested Restructuring - A four step approach

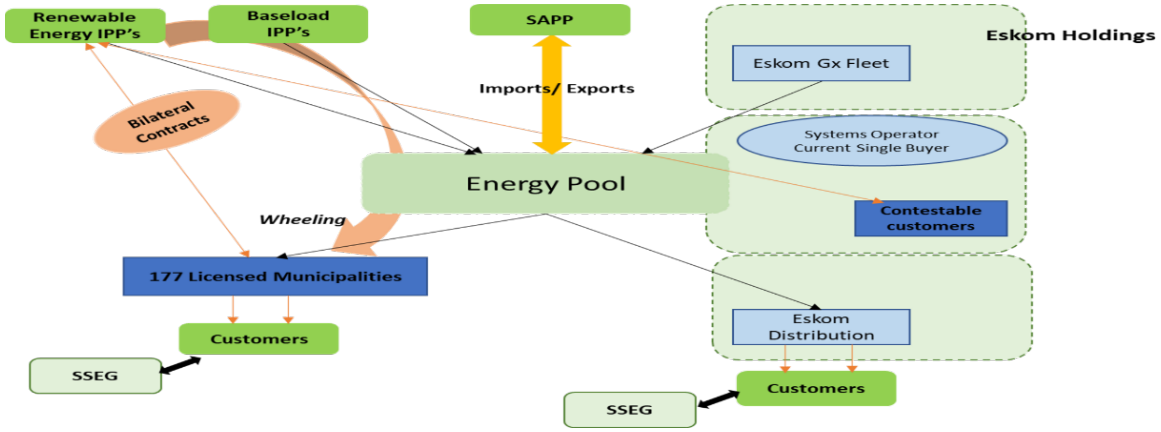
The process will have to commence with several interim alternatives with the strategic aim as initial step 1 to stabilize the industry in the reform that will be rolled out (see section 5 of this paper).

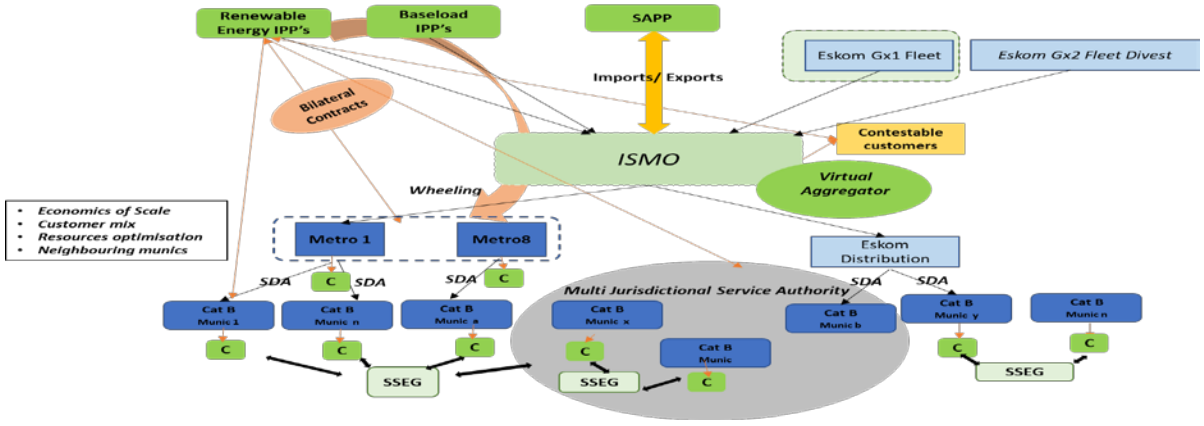
Steps 2-4 need to commence with what was envisaged as the unbundling of Eskom (restructure Eskom into independent generation, transmission and distribution companies), initially under a holdings structure. It could also follow a strategy of contracting out different service options till eventually a different structure is emerging. The challenge with the latter is that Eskom is already not the only role player in this ESI and long term bi- laterals have been introduced in the market without having an energy market to harvest necessarily the best from an energy market perception. On the distribution side both Eskom and municipalities experience similar problems that is linked to the characteristics of the distribution business. It is not the purpose of this paper to analyse the benefits of the restructuring, save to say that this supply chain is in severe financial difficulties and it is unlikely that it will be able to manage itself out of this situation without severe equity injection that can most likely only be achieved via restructuring interventions.

The following action will be to ensure adequate long-term capacity by means of the changing ownership of the Eskom fleet (could be partly state and private ownership), availability of IPP's and power imports- all to be balanced under the hospices of an independent state entity (ISMO). All the latter under the oversight of DPE where state entities are involved.

At distribution side some reconfiguration of the distribution sector is necessary by ringfencing the municipal business from the municipality and consolidate or form service level agreements between stronger municipalities as the hub, Eskom distribution, private service providers (that may be in concession form, PSP's, asset ownership/ asset operator model, customer participation model) and where applicable some multijurisdictional service authorities. These could be formed based on the principles of economies of scale, resource optimization, consolidation of services and service delivery standardisation.

In the selection of industry models which could be considered as an interim option, the following or a combination thereof could be considered.





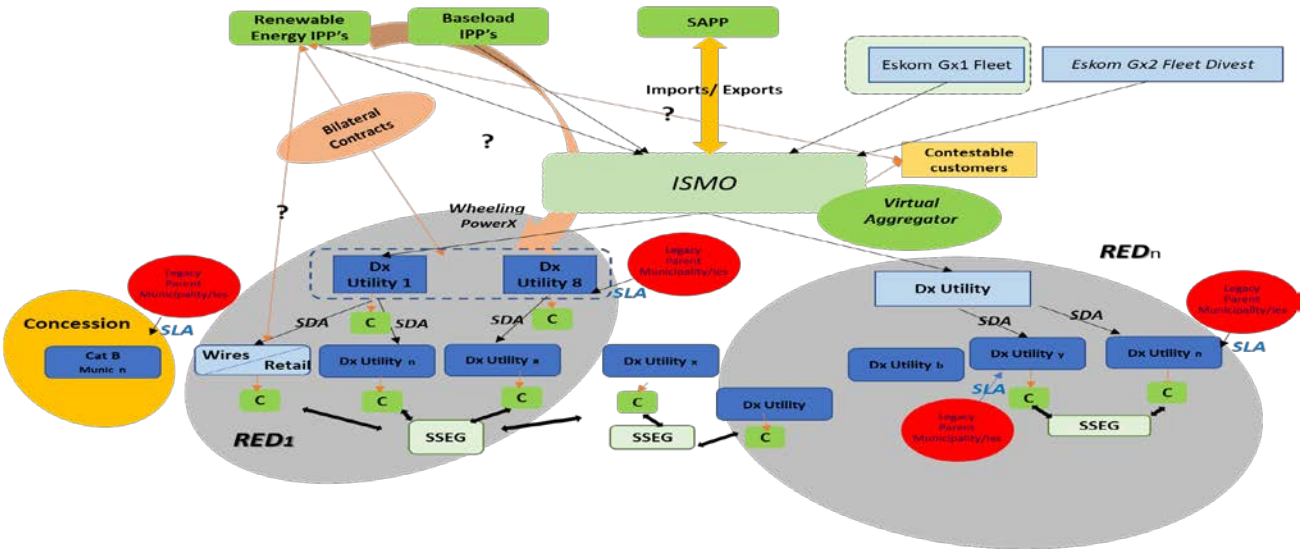


Figure 8: Emerging structure(s)

8 Indicative Journey Map – Legal Imperatives

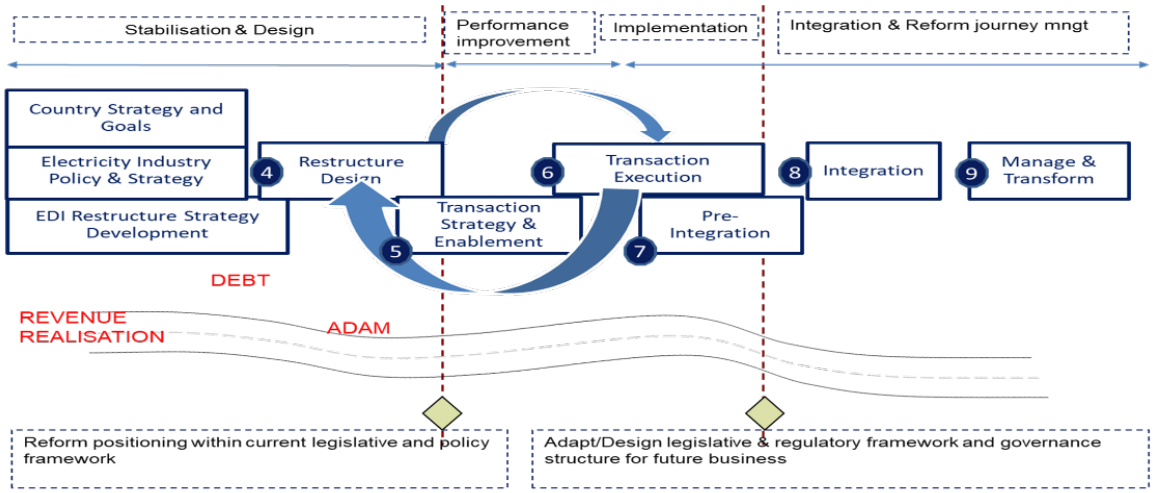


Figure 9: Indicative reform journey map

Having taken cognisance of the developments underway in the ESI and the legal framework regulating same, the authors highlight the following legal imperatives which it believe are essential to ensure an orderly market development:

Action by NERSA

- The existing legal framework should be used to stabilise the ESI and NERSA should publish regulations to provide clarity on areas of uncertainty in the ESI, such as for trading and embedded generation; and
- NERSA should highlight to the Minister of Energy the areas in which it requires regulations to be introduced under the Minister's powers in the ERA and the National Energy Act 34 of 2008 ("**NEA**").

Action by Municipalities

- A better understanding of the ESI's legal framework is required;
- Municipalities should enforce their constitutional competency to reticulate in their respective jurisdictions;
- Municipalities should enter into service delivery agreements with market participants who reticulate within their jurisdictions;
- As the New Gen Regulations restrict municipalities from undertaking procurement programmes for new generation capacity within its jurisdictions, municipalities should canvass for the inclusion of a new generation capacity allocation for municipal generation procurement in the draft IRP 2018;
- Municipalities should proactively implement policy and bylaws to regulate the introduction of embedded generation in its jurisdictions; and
- The ongoing misalignment between municipalities and Eskom on distribution functions are to be settled.

Action by Government

- The existing legal framework should be used to stabilise the ESI, of which a first step will be to finalise the IRP 2018 and the Integrated Energy Plan;
- The Minister of Energy should publish regulations under the ERA and NEA to proactively steer the ESI, such as how deviation applications from the IRP should be submitted and approved;
- Decisive policy direction is required on role of municipalities in the ESI, or whether the status quo as outlined in the Constitution and the ERA will remain;
- A decision is to be made on the restructuring of Eskom; and
- A decision is to be made on the structure of the distribution industry and the role of an independent system and market operator therein.

9 Conclusion

This paper pointed out that international experience indicates that when certain drivers in the ESI/EDI become evident a pattern of restructuring emerges that can take place either by design or by default. The authors predicted three years ago that a restructuring of the ESI/EDI will occur by default due to various disruptive forces.

It is the view of the authors that urgent interim mitigating measures have to be undertaken to support ailing utilities, especially with regard to institutional capacity, escaping the death spiral and alternative business and revenue sources. Most important however is the financial health of the industry at large, which requires interventions throughout the supply chain.

The process of restructuring by default needs to be replaced by instituting a phased approach to solve the underlying disruptive drivers, which can be traced back to the outdated kWh on-selling business structure.

This paper pointed out that the legislative and regulatory framework allow for the realisation of much of the end state requirements, but that decisive enabling policy and clear regulation is of crucial importance to support market development.

Restructuring by default has not been a viable option in any jurisdiction and the authors urge that it should not be allowed to occur in South Africa.

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