

# TOWARDS SUSTAINABLE REGIONAL ELECTRICITY DISTRIBUTORS (REDs)

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## 1. Introduction

In the global context, restructuring and the electricity distribution industry (EDI) have become synonymous over the last two decades. While we hear the claim many times that we are unique in South Africa with respect to the EDI reform, the uniqueness can, at times, be questioned. The restructuring experience of countries such as the United Kingdom, Australia, New Zealand, United States, Latin America, Spain, India, Brazil, Argentina, Poland, Namibia and Germany amongst many others could be leveraged and effectively utilised to ensure the successful transformation of the EDI in South Africa. In researching EDI reform in other countries it is clear that the reform is informed by a number of drivers, *interalia*:

- Customer service expectations
- Customer choice
- Socio economic drivers
- Increasing access to affordable energy sources
- Economic growth requirements
- Asset management challenges
- Efficiency improvement requirements
- Investment / funding requirements
- Improved regulation

Considering the challenges facing the EDI in South Africa one could add the following in addition to the above points:

- Achieving, from an electricity distribution perspective, universal access for all households by 2012
- Maintaining the low cost of electricity
- Address the sustainability of the EDI
- Create sustainable employment opportunities

From the above it is therefore clear that many of the global EDI reform drivers are equally applicable in the South African context. However, when considering the global restructuring drivers, challenges, progress and restructuring successes, two significant differences are evident in comparing the situation in South Africa with most of the other countries around the globe; namely that in the case of South Africa the EDI restructuring is taking place in a voluntary environment and that there are no privatisation motives. Having the enabling legislation in place

to facilitate this process contributes significantly to clarity, momentum and the reduction of extensive discussions which yield little, if any, benefits. Furthermore in the case of South Africa the focus is not on privatisation or centralisation since the business model is clear that the national government, local government and Eskom will be the shareholders of the future REDs. It therefore implies that the assets of the 187 municipalities licensed to distribute electricity and the assets of Eskom Distribution will be merged into 6 independent companies, operating under the Public Finance Management Act (PFMA). Considering the current approach to the restructuring in South Africa recognition must be given to the extensive opportunities created for all stakeholders to participate in the process and to influence the business model developed for South Africa.

It is important to note that while the generation and transmission component of the electricity supply industry (ESI) are critical from a supply side perspective, it is the distribution component of the value chain which determines the ability to deliver quality services from an electricity perspective to end customers. Without a sound distribution system it would be impossible to realise realistic economic growth in line with government objectives in this regard.

## **2. Business Model**

The ESI in South Africa has been dominated for many years by Eskom who operates a classic vertically integrated utility business operation. This implies that all of the key electricity supply value chain components i.e. generation; transmission and distribution are vested in the same business. Municipalities on the other hand have predominantly played a role in the distribution environment with a limited number of municipalities also having a limited generation capability. None of the municipalities in South Africa with a generation capability has sufficient generation capacity to meet the electricity demand within their own area of jurisdiction. The above situation provides Eskom with a monopoly position within the South African electricity market context. The vertically integrated business model is widely regarded as a less than optimal approach since it offers amongst others the option of hiding inefficiencies, working against a level industry playing field and restricting real market developments. However Eskom must be commended for their contribution to the ESI in South Africa since 1922. For an effective industry it is essential to have economies of scale, the ability to generate revenue at a rate affordable to the customers and to meet the capital and operating challenges while creating shareholder value. There is therefore a clear relationship between a sustainable RED, revenue, capital expenditure, continuous efficiency/business improvement and value creation. While a model leaning towards centralisation might bring financial savings, the REDs need to be customer focused and close to the customer from a service delivery perspective and therefore the model selected for South Africa is a decentralised model. Local Government has the responsibility to ensure delivery of electricity to the customers within the municipal area of jurisdiction and the proposed

decentralised RED model will be well positioned to ensure effective service delivery. The relationship between the relevant municipality and the relevant RED will be regulated through a Service Delivery Agreement (SDA) as contemplated in the Municipal Systems Act 2000 Section 81. The business model is further developed along the lines of appropriate best practices and will be an integrated value chain driven organisation with a distinct wires focus and a distinct retail focus supported by a common corporate and support service. Furthermore the business will be designed to leverage current appropriate best practices which will be complemented by appropriate best practices identified through benchmarking and evaluation of international best performing utilities.

Extensive EDI modelling and evaluations have indicated that there are significant efficiency improvement opportunities to be gained outside the payroll area. These opportunities include the refinancing of the current industry debt, managing of debtors, addressing the billing challenges, addressing technical and non technical energy losses and leveraging shared services within the industry and legacy parent organisations. Leveraging on the learning's derived from power failures in other countries the distribution grid between REDs will be operated in an integrated manner while there will be a strong drive towards overall network automation, automatic meter reading, automatic metering information management and integrated asset management. In addition to the impact on reliability improvement such an approach is regarded as essential to ensure effective load management, to protect the distribution grid integrity and to enhance the customer interface opportunities. The RED will buy energy based on the wholesale electricity pricing system (WEPS) principles and all customers served off the wires under the control of the relevant RED will contribute to the applicable wires charges.

### **3. RED Creation: Serving the Interests of Key Industry Participants**

#### **3.1 Current Asset Owners**

In line with existing legislation applicable to municipalities, in the restructured industry municipalities will remain the service authority while the REDs will be the service providers. While it is recognised that there are current pockets of excellence in the EDI and that revenue is generated, when assessed holistically, the industry is not sustainable in its current format. The industry is marked by significant under investment in asset management, lack of infrastructure investment to support future growth, an increase in power failures, inconsistent customer service standards and inefficient and unsustainable business practices are evident. While some of the current asset owners attribute blame to the uncertainty created through the restructuring process as the reason for not investing in their electricity distribution businesses, the reality is that this is not a sustainable approach and there is no merit in pursuing this approach. It is clear that even an

institution like Eskom (recognising that Eskom had not invested significantly in new generation during the period of comparison), invested less in capital expenditure over the last decade as reflected in the significant improvement in their debt to equity ratio which improved from 2.93 in 1986 to 0.04 in 2005. In analysing the industry asset base per distribution business it suggests that there is limited correlation between what is taken out of the business, what the business investment requirements are and what the business can sustain over a period of time.

The dependency of current asset owners, in particular municipalities, on the surpluses derived from their electricity businesses to support other activities is recognised. With respect to municipalities the business transaction will be structured such that the audited surpluses derived from their electricity businesses will continue to flow to the relevant municipality after the restructuring. Transfer of funds from the relevant RED to the relevant municipality will take place on a frequency as agreed to between the two parties to address cash flow considerations. Furthermore municipalities will still have access to the current credit control instruments. Therefore there should be no risk to any municipality from a cash flow or credit rating perspective subject to good municipal governance and effective municipal management. In the case of Eskom Holdings, compensation for their asset contribution will be dealt with in accordance with the asset transfer framework to be agreed to.

## **3.2 Customers**

Serving the customers effectively, irrespective of customer category and in particular support to poorer households, is high on the restructuring agenda which the current industry structure is not able to effectively address. There are many examples in the current industry of significant inconsistencies in tariffs, service standards, roll out of socio economic policy, customer options and choice. Since the future REDs will be a service provider in a newly defined area with a more representative customer base, standardisation can be introduced while important socio economic instruments such as electrification and Free Basic Electricity (FBE) will be rolled out in a consistent manner and will reach the targeted customer segment. It is acknowledged that in the current industry there is cross subsidisation and for example in the 2003/4 financial year, Eskom subsidised their direct domestic customers and direct landrate customers to the order of R2.1bn. While cross-subsidisation cannot easily be removed it is envisaged that the EDI under REDs will move to more cost reflective tariffs. The need for tariff cross subsidisation to poorer customer categories is recognized. However the importance of transparent subsidisation is also recognised. Tariff harmonisation is envisaged to take place over a five year period and a balanced approach will be adopted to assist the government in addressing poverty challenges, while all customers will enjoy a clear pricing signal which is essential in terms of poverty alleviation, economic growth and business sustainability. It is essential that the tariff harmonisation initiative is informed through an extensive cost of supply study.

From a business model perspective it is envisaged that all electricity customers currently served by municipalities will transfer to the relevant RED while all Eskom Distribution customers with an electricity consumption of less than 100GWh per annum at one consolidated point, will transfer to the relevant RED. All customers, irrespective of size, where applicable, will contribute to the wires charges associated with the delivery of energy. Although the intention is not to introduce customer choice at this stage, it is envisaged that the National Energy Regulator of South Africa (NERSA) will have to give this matter urgent attention to avoid a market establishment by default. Furthermore the RED business model is designed to accommodate future competition in the electricity market should it be introduced.

### **3.3 Staff**

The EDI is currently experiencing a significant skills shortage which immediately offers the opportunity for reskilling and providing development opportunities for the staff currently employed in the industry. Recent surveys in the EDI suggest that the average age of the largest percentage of the technical staff is >50 years. It is of interest to note that there is a reasonable correlation between this finding and what is experienced in countries like the United States, United Kingdom and Australia. The challenge is therefore a global challenge and it can be expected that there will be more opportunities internationally for skilled South Africans and therefore there is a need to train more than what is required in the local market. The future EDI should be able to provide secure employment and present more opportunities for development and growth. Based on current analyses there is no reason to believe that staff currently employed in the electricity distribution industry will experience job losses as a result of the restructuring.

## **4. Assessment of Global EDI Reform**

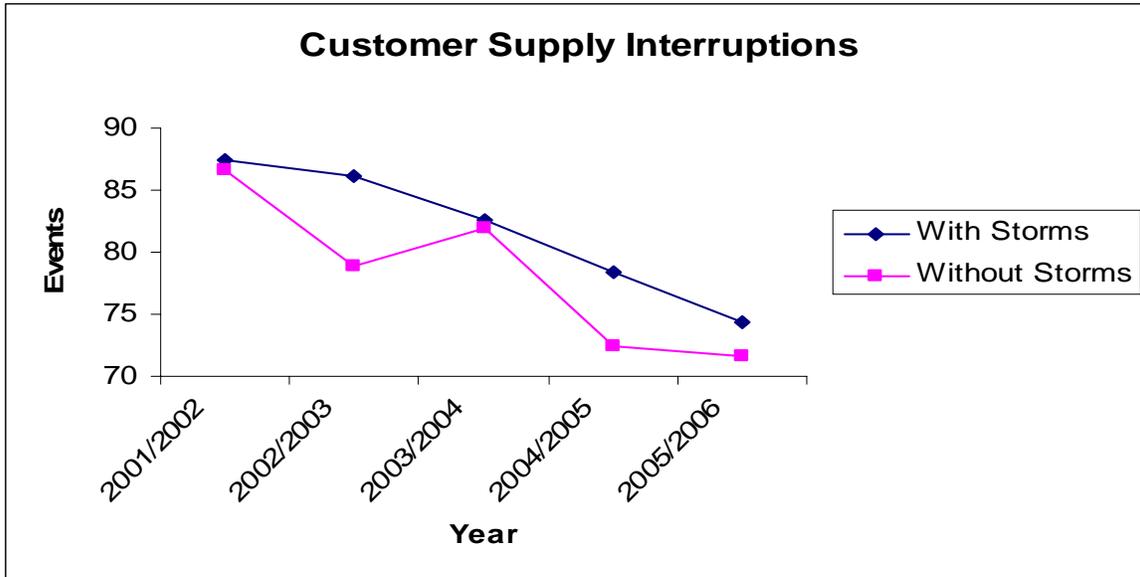
In assessing the global EDI reform success rates, it is interesting to note how quickly blame is apportioned to the restructuring initiative for current incidents which can be directly linked to “sins of the past” or inefficient reform management. The lack of, amongst others, capital investment in infrastructure, effective asset management, loss of critical skills, lack of transfer of institutional knowledge and poor management by the business owners prior to the restructuring in many cases creates the worst business challenges during and immediately after restructuring. Examples of where restructuring had to take the blame “in the eyes of the public” are amongst others the Auckland power failure, California blackout and some black outs in Brazil. It is therefore clear that restructuring is not an overnight quick fix solution; it requires time and in many cases significant capital and other resource investment to turn the industry around. However, what is important is that the longer the restructuring is delayed the more complex the turn around strategy becomes, the higher the risk that things will further deteriorate before it gets

better and the longer it will take to realise the restructuring benefits. Where companies were faced with significant capital requirements it became a challenge to provide returns above the cost of capital. While it is recognised that some of the restructuring initiatives did not meet all the reform objectives there are sufficient success case available to provide comfort that the EDI reform in South Africa will be a success, subject to us learning from both the successful as well as the not so successful global transformation initiatives. It is therefore critical that the restructuring takes place before the “expiry of the sell by date” of the reform process and the ability to realise the restructuring benefits in the medium term.

Based on some research there is no conclusive evidence which suggests that there is any significant performance and efficiency difference between private and public electricity companies. Therefore, the model proposed for South Africa which will see the industry operating as a public entity with national government, local government and Eskom as the shareholders is regarded as an appropriate option. Furthermore this model will position the REDs to meet *interalia* the asset investment and electrification challenges facing the industry. Global EDI reform, where effectively implemented, indicates the following:

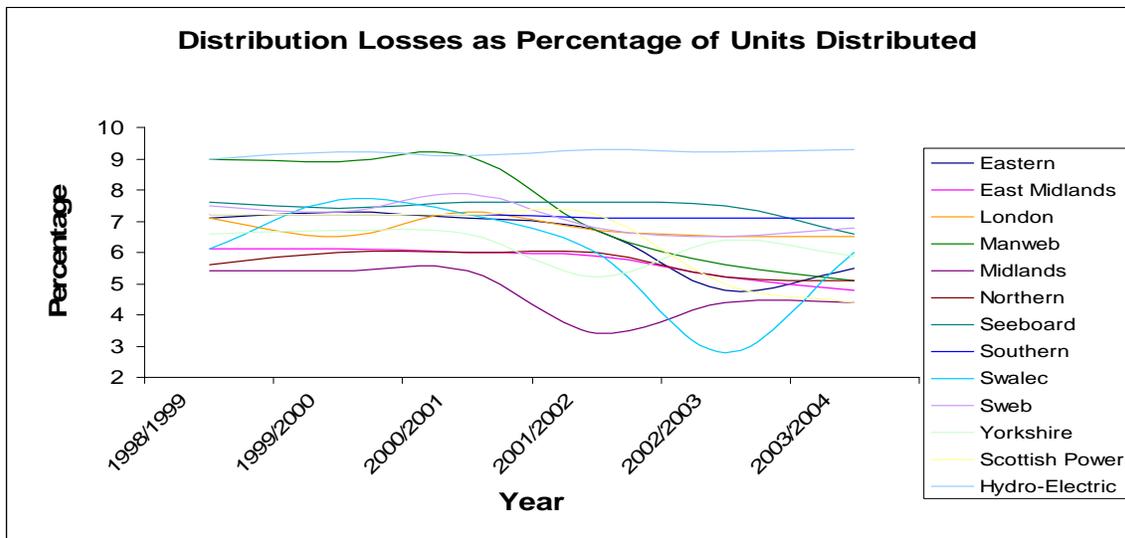
- o Improved service delivery
- o Customer supply interruption reduction
- o Improved business efficiencies
  - a. Reduction in technical losses
  - b. Reduction in non technical losses
  - c. Metering and billing
- o Total Factor Productivity (TFP) improvement
  - a. 2.14% Victoria (Australia)
  - b. 1.80% Tasmania (Australia)
- o Shared services creates opportunities and contributes to efficient businesses

The graph below illustrates the improvement over the period 2001/02 to 2005/06 in the managing of customer outages in the UK businesses which reinforces the benefits which can be derived through the correct focus.



**Source data: Ofgem**

In considering the relevance of the information reflected in the graph above it is important to note that the electricity distribution industry in South Africa has significant potential for improvement in the managing of customer supply interruptions as well as reducing the technical and non technical losses. The graph below indicates the progress made by the UK electricity distribution businesses in reducing technical losses. It is important to note, that relative to South Africa, the businesses in the UK started their technical losses improvement from a lower base than what the case is in South Africa. This implies that the opportunity for improvement in the management of technical as well as non technical losses is higher than in the case of the UK.



**Source data: Ofgem**

Furthermore the global trend clearly supports well defined wires and retail businesses with specific focus on service delivery. There are examples of restructuring initiatives with a marked focus on cost cutting, however this is clearly not a sustainable strategy and it reinforces the need for a holistic approach to efficiency improvement and business optimisation. By its nature the wires or engineering component of the electricity distribution business is a monopoly business. It is therefore important that a strong regulatory regime must be in place to ensure that the industry operates effectively, that the customers' interest is protected and that open access to the distribution networks is allowed. Furthermore a sound regulatory regime complements the risk profile of the distribution business and hence improves investor confidence which is very important. In analysing the restructuring experience in Australia there is a clear indication that it is essential for the successful functioning of the electricity market that the rules be established upfront and that the market be established. Sound administration is required to administer the legislative framework within which the market must operate and that natural monopoly businesses requires effective regulation.

What clearly influences the level of performance of any business is the quality and ability of the leadership and management to ensure that shareholder value is created, that the customer interest is looked after and that the business meet its socio economic responsibilities. Hence the correct recruitment and placement of the right leadership and management is critical.

While it is important to learn from the global experience, the RED establishment experience in South Africa, and in particular RED 1, should not be ignored. In June 2005 RED 1 was established as a Municipal Entity, wholly owned by the City of Cape Town. Due to the absence of an asset transfer framework which could facilitate the transfer of the electricity distribution related assets from Eskom and the City of Cape Town to RED 1, a contractual mechanism had to be designed to allow RED 1 control over the electricity business within the area of jurisdiction of the City of Cape Town. Furthermore staff transfers could not take place, agreement could not be reached on compensation for asset contribution and therefore the business arrangement had to be structured through contractual arrangements between RED 1 and the parent entities while these key aspects were still to be negotiated. The absence of appropriate enabling legislation further complicated the establishment of RED 1. RED 1 was liquidated by the City of Cape Town during 2007 and the Service Delivery Agreement which the City had with RED 1 was cancelled. What is however important to note is the contribution made by RED 1 during its period of operation which *interalia* includes:

- o Significant progress towards an integrated electrification delivery
- o Introduction of effective control mechanisms to manage the Eskom related power supply limitations

- Introduction of benchmarking
- Highest infrastructure capital investment in their area of supply

## 5. Conclusion

The EDI restructuring history in South Africa dates back to the early 90's and while it is recognised based on the international experience that reform in the electricity industry takes time, it is essential that the EDI reform in South Africa will very soon see the first REDs up and running. Progress is essential to provide comfort to the 8, 3 million customers served by this industry, to create investor confidence, to support the projected economic growth and to provide security to the 31 000 employees directly employed in this industry.

If the ESI is not restructured and an effective electricity market is not developed, it is most unlikely that Independent Power Producers (IPPs) will come and invest in the South Africa energy market. It is essential that a well defined market must be established to provide clear business signals to energy producers as well as customers and investors. Without a defined market and appropriate market rules it is very difficult to predict future opportunities, production requirements, returns, cost signals and investment risks. In the absence of a defined market and no certainty about the ESI business model, it is essential that the restructured EDI be positioned in such a way that it will be able to respond effectively to any future market structure. South Africa can not afford another "electricity distribution industry restructuring within a restructuring". The complexity of selecting an appropriate business model and to restructure an electricity distribution industry in an environment with so many aspects pertaining to the market undefined must not be underestimated.

To date the distribution industry was very fortunate that the focus on the generation and transmission capacity challenges overshadowed the challenges in this sector. However considering a potential economic growth of 6% and taking into account what Eskom is currently investing in addressing the generation and transmission challenges, it is a given that should the EDI continue at its current level of performance, it will not be able to sustain the potential economic growth and power failures will increase and the cost to operate will follow the same trend. It is therefore essential to ensure through transparent regulation and clearly defined mechanisms that effective electricity service delivery takes place and that the restructuring of the EDI be accelerated while there is still limited time to rescue the current situation.

Based on international research and the realities of the South African experience, it is evident that the critical success factors for a successful EDI reform and sustainable REDs are interalia:

- Enabling legislation
- An established electricity market
  - Well defined rules
  - Clear and transparent energy trading regime
  - Well defined and transparent tariff regime
- Strong credible regulation for the wires business and a single Regulator
  - Incentives for good performance
  - Incentives for meeting future growth demands
- Oversight to ensure grid integrity
- Open access to the distribution wires underpinned by defined access rules and charges
- Customer protection
- Customer choice
- Agreement with the key legacy asset owners to participate in the RED establishment
- Well defined RED governance structure
  - Sound leadership, effective management and competent staff
- Managed reform process

While the journey towards sustainable REDs might be challenging at times all the research indicates that EDI reform in South Africa has all the potential to go down in history as a successful case study. The challenge is ,however, to get the right level of stakeholder commitment and for the current industry leadership to recognise that the national interest, the growth of the country and the long term sustainability of both the EDI and the legacy entities are more important than the potential short term gains achieved by any particular entity resisting the process.

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