

EXPERIENCES DURING A FINANCIAL RINGFENCING ASSIGNMENT



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1. Introduction

The primary objective of this project was to determine the value of the assets, liabilities, revenues and costs of the electricity undertaking and to prepare a GAAP/GAMAP compliant ongoing set of accounts (income statement, balance sheet, cash-flow statements and management reports). A secondary objective was to extract and share the learning experience, so as to improve the effectiveness and reduce the costs of similar future projects in other municipalities. The MIU, who provided the funding for the project, laid significant emphasis on the second objective and is the one which forms the subject of this paper.

The paper covers the experiences of the assignment and offers some insights to the process. The Municipality (which is described in broad terms in Clause 4) under study is not really relevant to the paper as it is typical of many smaller authorities in the country.

Merz and McLellan have played an on going role in the restructuring process but were not part of the original Price Waterhouse Coopers assignment for the Department of Minerals and Energy, and have not been party to all the recent discussions and deliberations. This was regarded as something of a setback to start with but a fresh set of eyes has provided a changed insight to the challenges and opportunities that present themselves. We will therefore not provide the same answers for the second time. Also worth noting is the fact that when the assignment was undertaken the ringfencing tool kit was not in existence in the public domain and we have therefore not been influenced by that work.

2. Background to the EDI Restructuring

The background to ringfencing is well known to this audience and there is little point in dwelling on that aspect but some brief comments are useful. The White Paper on the Energy Policy of the Republic of South Africa, drafted by the Department of Minerals and Energy, acknowledges serious structural problems in South Africa's distribution industry which lead to challenges such as:

- Difficult access to affordable electrical energy for a large part of the population;
- Difficulties in the governance of electricity undertakings which had heretofore been structured as municipal services rather than best practice utilities which yielded differential tariffs and service levels amongst local authorities on the one hand and Eskom on the other;
- Many municipalities are not always in the best financial health
- Attraction and retention of competent employees is difficult in many areas.
- Rationalisation of the tariff systems is desirable.
- Lack of investment for the refurbishment and maintenance of the networks is an on-going challenge.

The White paper proposes and commits government to the restructuring of the industry to achieve a combination of increased competitiveness and focused regulation to ensure a self-sustaining industry ultimately servicing the benefits of all of the electricity customers. The Department subsequently crafted the Blueprint (Electricity Distribution Industry Blueprint Report February 2001) to provide further direction on how restructuring will occur. It is in response to

this Blue Print that the ringfencing assignments are being undertaken. The restructuring of the Electricity Distribution Industry is probably the largest such endeavor carried out in the country and the risk to all the stakeholders is immense. The EDI has expressed concern that the restructuring process must be carried out in a well-structured and orderly manner and that there should be no big bang. The EDI Project Office has produced a framework for the process and the DME, Eskom and the Municipalities (represented by The South African Local Government Association (SALGA)) have committed to the process through the acceptance of the Co-Operative Agreement provided that all the contentious issues are dealt with appropriately. The time for implementation was originally set for the first RED to be established during June 2004 but the process has been fraught with difficulties and only two municipal undertakings have been ringfenced to date. Eskom Distribution has been active in converting their distribution networks from Seven to the required Six regions so that there will be a minimum of Distribution plant crossing RED boundaries which will facilitate the integration of the networks and systems.

In July 2003 Government established the EDI Holdings Company whose mandate requires it to manage the establishment and the development of the six REDs into autonomous, financially viable entities with shareholders in the contributing municipalities and possibly Eskom or the government. The Company has been established to oversee the establishment of the REDs. EDI Holdings will carry out the function of project managing the changes to the industry and will have a limited finite life. Appointments have recently been made in regard to the Operations Division in respect of individuals who have skill in the municipal section of the industry. Other staff

members have been recruited or seconded from Eskom to establish an experienced and knowledgeable resource.

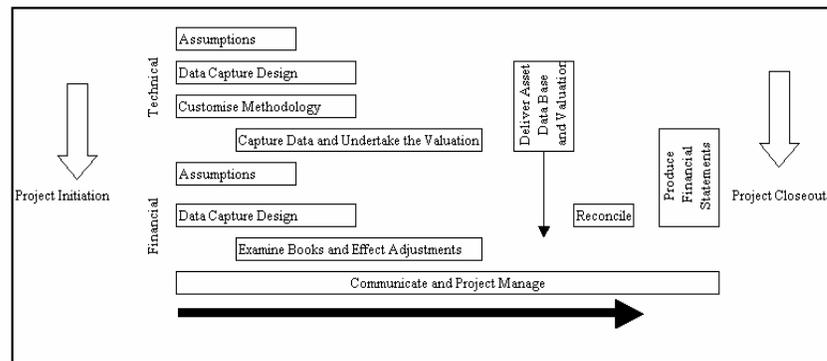
The Industry's concern centers around the financing of other municipal services (e.g. roads clinics, libraries etc), which had previously been funded from surpluses generated by the sale of electricity. One of the options is that revenue will accrue to the shareholders (Municipalities) by way of dividends and/or levies to replace the net revenue streams. Discussion is however on going and financial support for the Municipalities may well be effected from the fiscus. The intention is to ensure that the municipalities themselves remain financially viable once the electricity undertakings are removed and that they will not be financially worse off than is presently the case. An aspect that has perhaps not enjoyed adequate attention is the likely impact on the country's electricity customers. The savings in operating more efficient REDs and the realisation of economies of scale have been mentioned but the transition will result in adjustments to the tariff and service delivery performances. A clear business case for the restructuring has also not been publicised.

3. Project Approach and Methodology

The approach to the project in broad terms is shown in Figure 1 which shows that the assignment was split into two activity streams for the technical and financial parts of the work.

After the project initiation the assumptions for the activity streams were agreed and the process put in hand. The technical evaluation was finally fed into the financial stream to complete the financial statements before the project was consolidated into a draft report.

Figure 1 Project Approach



4. Municipality Description

The municipality is located in the Free State and forms part of a District Municipality. The Local Municipality, the subject of the study, was established in 2001 with the amalgamation of five former transitional councils. The area of jurisdiction is some 4 000 km² in extent and accommodates 400 000 people. It has three urban nodes located in the form of a triangle.

The area is well served with access roads and railway lines. One of the urban nodes is a medium sized town with a well-developed Central Business District and a significant local industry content. The Second embraces a large number of rural electrification customers and there is little economic activity forcing the head of the household to work elsewhere and send money home to the families. The third village is a small community, which accommodates some domestic and business clients and has been an existence for many years.

The study soon revealed that the three municipalities, which had earlier been independent local authorities, had not yet been properly integrated to form a new entity entirely. Each had an independent power supply from Eskom and a separate tariff for their customer. Many of the employment practices and conditions of employment had not yet been combined. Whilst it was considered to be a complication to start with it presented an opportunity to evaluate a microcosm of the final RED consolidation and perhaps provide some insight on a small scale as to what the restructuring is attempting to achieve. I will focus on the electricity

supply elements but there are many other business, financial and practical issues which need attention for the remnant Municipality. Many of the investments and insurance policies had not been combined or rationalised as an example.

5. Asset Valuation Methodology Available

GAMAP 113 defines the carrying value to be assigned to an asset for the purpose of preparing the financial statements for an undertaking. The value is based on historical cost with due attention being paid to depreciation. The assets in this case were however acquired under the fund accounting system where the cost of many of the assets was expensed directly and the historical cost as recorded in the books of account does not reflect the value of the assets to an acceptable degree of accuracy.

The DME Blueprint discusses three different valuation approaches namely:

- Discounted cash flow (DCF).
- Underlying asset based.
- Market based approaches. (This method was not considered relevant in the study due to there being no history of such transactions in the South African EDI)

A fourth method has often been used in South Africa when distribution assets have changed hands between municipalities and Eskom in the past where the value of the asset has been set at the value of the outstanding loans on the project scheme. This last option will not be useful in the case of the municipality, as the loans cannot be uniquely linked to the assets of the electricity undertaking of the

municipality. This situation is quite common in the municipal environment in South Africa.

The **discounted cash flow** method of valuing the assets was preferred in the Blueprint but is not favoured as the assumptions that are required in the assessment of the future cash flows are subjective and the data-gathering load is considerable. In an adversarial environment the results can be easily challenged. An extensive network supplying low-income consumers is unlikely to prove to be a sound business proposition and this valuation method was not considered to be good representation of the value of the assets of the enterprise. Some coarse sensitivity analyses were conducted which confirmed that a

relatively small adjustment to the basic assumptions resulted in an inordinate change to the result. The **depreciated replacement cost** method was adopted.

In order to get some idea of the impact of the two methods of valuing the assets a calculation was made of the efficiency of the utilization of the assets for the three networks to reach a comparison of the number of electricity units processed per annum per unit (Rand) of asset value. It may have been argued that the sales figures would have been a more correct measure but the method adopted allows for the manageable elements on technical and non-technical losses and other inefficiencies. This should be adequate to the purpose since the relative rates are more important than the absolute values.

Network Section	Total Asset Value Percentage	Units Processed KWh (%)	Average Unit Processed per Rand of asset per annum kWh/Rand
Village 1	15%	34%	1.71
Village 2	84%	64%	0.58
Village 3	1%	2%	3.29
Total	100%	100%	0.76

Table 2 – Relative Asset Values

Using the assumption the processing of electricity units is a very rough proxy for the ability of the network assets to generate a revenue stream and hence cash flow in relative terms. The above table indicates that in the microcosm of the combination of the three old municipal entities into the new one that the Village 3 assets are relatively the most valuable. There are explanations and pitfalls in this assumption. The nature of the customer base is loaded towards conventional credit domestic and the advanced age of sections of the networks explains it to an extent. This may mean however that additional expenditure and refurbishment may be necessary in the near future. Clearly the valuations must enjoy the judgement of an experienced individual as the figures of themselves do not provide a realistic valuation for the entity. The figure of merit (average number of units processed per unit of capital value) in the table varies by a factor of almost six indicates that the use of only the DCF or the DRC methodologies will not be fully adequate to satisfy all the stakeholders that a realistic measure for the

compensation for the asset forfeited by the municipality has been achieved.

The depreciated replacement cost approach is one of the **underlying asset based** approaches discussed by PwC in their workshops and is often applied in valuing an electricity network as it gives an indication of the intrinsic worth of the undertaking. The network has no value other than in supplying electricity to its customers as the residual value of the assets on retirement is a small fraction of the asset value and approaches the scrap value of the materials comprising the asset. The DRC approach has been used in many instances in South Africa in the purchase and sale of assets. It is therefore likely to find most favour when the final transaction of the incorporation of the entity into the RED occurs. It is also most likely to be useful for the other reasons for valuation i.e. tax and regulation.

The realistic absolute value for the assets of an undertaking are not as important as the relative values of all the constituent

parts of the future RED. The methodology should therefore be the same for all valuations carried in terms of the national ringfencing initiative. The DRC approach was thus adopted for the assignment as it most likely to be repeatable and stand adversarial scrutiny in future. The requirements of the National Electricity Regulator are also most likely to be satisfied with this approach.

6. Asset Valuation Methodology Adopted

A database of inventory items is established with thought being given to the detail and accuracy to which the valuation is to be carried out. The more detailed the study the more accurate the result and hence the greater the study cost. Inventory levels were chosen to include items like feeder bays rather than individual components like circuit breakers and instrument transformers etc. The items are then classified into a manageable number of classes, which are then costed with provision being made for the supply delivery and installation of the plant and for engineering, supervision, and commissioning of the class of asset. GAMAP does not permit the capitalization of interest in municipal systems and no allowance was made for IDC.

Having established the assets register as described above and using a spreadsheet with a look-up table for the pricing of the entries the present day replacement value is calculated.

The next stage in the process is to calculate the residual life of the elements of the data base and make provision for the loss of use due to ageing and other factors, which is usually done by way of depreciation on a straight line basis. The calculation of the residual life was made using the principles of life expectancy commonly used in the insurance industry. If the maximum life of an element when new is assigned and the present age is known (from rating plate or anecdotal information) the residual life can be read off the curves presented in figure 2. The estimation of the maximum life will be addressed later in the section covering the assumptions made for the assignment. The arithmetic applied in the methodology is relatively sensitive to the life assigned to the assets.

Having established the present day replacement cost and the remnant life the present day replacement cost is calculated using the straight-line depreciation principles. Provision is also made for the residual value of the asset elements when they are retired.

**Residual lives of assets versus present age of assets
(for different maximum possible asset lives)**

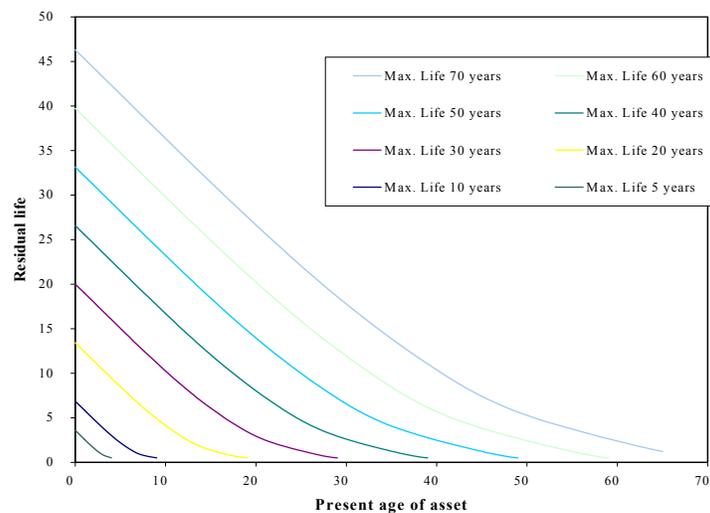


Figure 2 – Remnant Lives of Assets

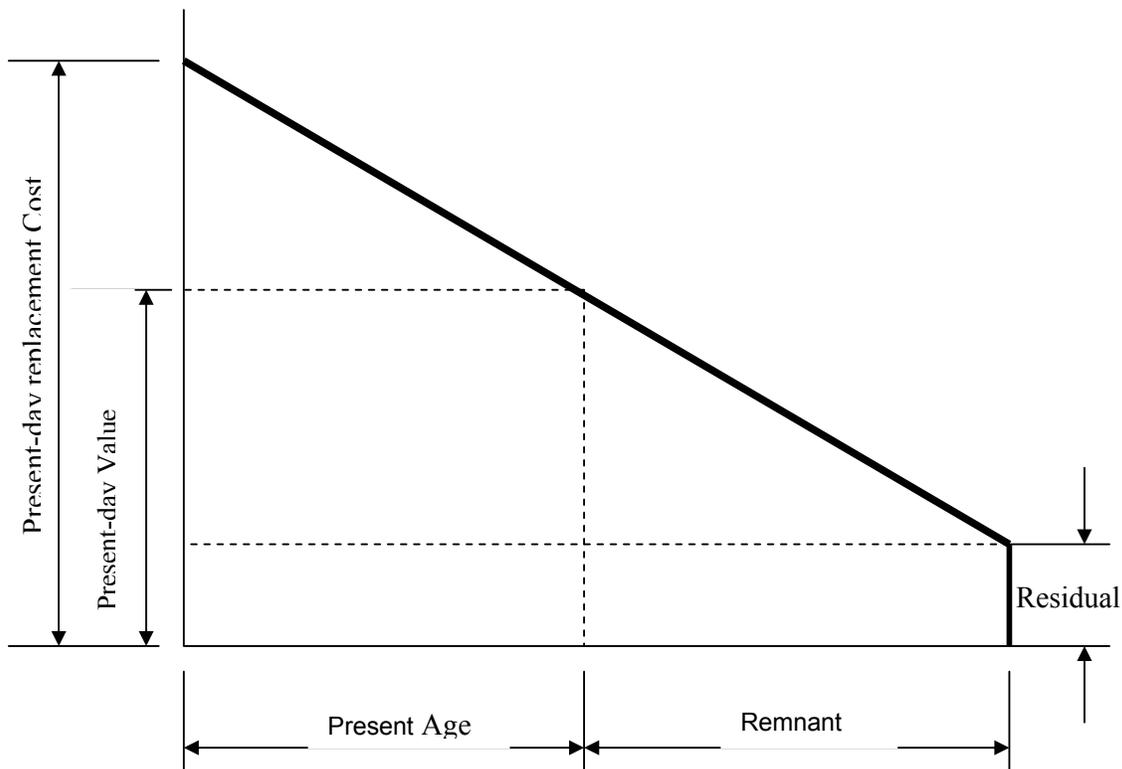


Figure 3 – Valuation on the Basis of Present-day Replacement Cost with Straight line Depreciation

7. Valuation Assumptions

The most important assumption to be made is the remnant life of the Asset.

Other jurisdictions, notably Australia, New Zealand and Singapore have established statutory or regulatory lives which have

developed over time with more and more agreement between the parties as experience improves. This simplifies the provisions for depreciation on a straight-line basis to large extent. It is interesting to note however that these lives vary between jurisdictions to a considerable extent.

The following table provides a selection of the Regulatory lives in Australia at the present time:

Asset Category	Asset Life (Years)	Maximum Asset Life (Years)
33 kV Overhead Lines	55	80
11 kV Overhead Lines	55	90
33 kV Underground Cables	45	80
11 kV Underground Cables	60	90
33 kV Circuit Breakers	45	60
11/22 kV Circuit Breakers	45	70
33/11 kV Transformers	50	60

The other jurisdictions indicate a much shorter life with Singapore averaging 20 years and New Zealand somewhere between the two. In the absence of a regulatory life for assets in South Africa we have adopted the methodology based on the principles of life expectancy, which follows those related to the expectation of human life, which is commonly used by

the insurance industry which has been described earlier. On that basis, the adjustment for depreciation depends on the probable residual life of the asset and not a prescribed duration as adopted in Australia and New Zealand. We have adjusted the maximum possible lives, using engineering judgment and experience of the lives of similar

equipment to take account of the condition of the equipment observed in the field and recorded by the municipal staff members

engaged in the data gathering for the assignment.

8. Results

MUNICIPAL ASSET VALUATION

Valuation Summary

Description	Present Day Cost to Replace Per Unit of Total	Residual Value Per Unit of Total Present Day Replacement Cost	Present Day Value Per Unit of Total Present Day Replacement Cost
Total Overhead Lines	0.0904	0.0044	0.0673
Total Main Substations	0.1087	0.0050	0.0737
Total Medium Voltage Underground Cables	0.0733	0.0147	0.0609
Total Village 1 Substations	0.0233	0.0024	0.0160
Total Electricity Consumers	0.6364	0.0313	0.5097
Total Village 3- Pole Mounted Transformers and Minisubs	0.0017	0.0002	0.0007
Total Village 1 - Pole Mounted Transformers	0.0006	0.0001	0.0003
Total Village 1 Remote Pole Mounted Transformers	0.0020	0.0002	0.0015
Total Village 1 Minisubstations	0.0120	0.0012	0.0077
Total Village 2 Mini Substations	0.0165	0.0017	0.0082
Total Village 2 Pole Mounted Transformers	0.0311	0.0029	0.0255
Total Electricity Equipment			
Total Other Assets	0.0041	0.0008	0.0041
Grand Total	1.0000	0.0647	0.7756

The Table shows a summary of the results of the valuation and demonstrates the asset classification applied. Overhead lines are 11 and 22 kV, all 380 volt lines and aerial bundled conductor lines have been included as part of the "consumer" category, which has allowed for all the assets from the low voltage bushings on the transformer. A point to note is that the data collected referred to aerial bundled conductor medium voltage lines as open wire type and system studies are based on those parameters so we have adopted the same rationale in the asset register as it is consistent with our functionality approach. The non-core

assets of the streetlights and other social services are excluded from the valuation of the electricity assets.

The "Other Assets" classification and include plant and vehicles, tools and inventories.

9. Financial Statements

The development of a set of financial statements proved to be quite challenging. The assumption cannot be made that the municipality's current set of accounts are without audit endorsement and accurately reflect the financial state of the authority.

Support from financial staff soon waned once the scale of the problem became apparent. Much of the required data was not available or in a condition to generate the statements without a fair degree of assumption interpolation and estimation. The identification of **Investments** fully associated with the Electricity Department could not be achieved with confidence. Note should be taken that most of the investments of the Municipality were only possible because of the revenue generated by the sale of electrical energy. It was however possible to show that the electricity department had sufficient investments to cover their reserves.

Long Term Debtors included a number of staff loans which varied from individual to individual and were governed by separate HR policies of the constituent municipalities. Incorrect PAYE deductions resulted in the staff being granted loans to cover large amounts owing to the SARS.

The **Inventory** control policies were very loose resulting in all inventory being recorded in the books at zero value.

The **Debtors** age analysis reflected inordinate amounts owing to the Municipality for longer than 90 days. It is assumed that a large portion of this will never be recovered and the apportionment of the loss so sustained will no-doubt still be a cause for contention.

The **Bank and Cash** accounts could not be adequately reconciled, whilst the VAT input and outputs had not been raised for months.

The issues mentioned above are but a sample of the problems encountered and the purpose of reporting this is simply to make the statement that the preparation of the financial statements for the municipality's electricity department was not a simple desk study in this instance.

Returning to the Asset valuation once more the asset value recorded in the municipality's books of account based on a historical cost basis was approximately 16% of the Depreciated Replacement Cost indicating the difference between these two methods.

10. Key Learning Points and Recommendations for Future Financial Ringfencing Assignments

The assignment was started with a significant level of uncertainty in regard to the full scope of work required of the consultants. More time should be spent on ensuring that the Terms of Reference are clear and unambiguous. The requirements of this specific assignment are somewhat unique as the requirements for the "pilot" elements were not fully appreciated.

The success of an assignment depends in large measure on the co-operation and attitude of the staff and officials of the Client. They need to be advised of the importance of the work and that the results are of value to their employer. The Auditor General endorsed the financial Statements of the Municipality and the figures used in the assignment are compromised.

One unexpected occurrence was the fact that the municipalities, which were amalgamated to form the Municipality, had not completed their integration process and many business practices, assets and liabilities were not common. This covered a number of matters including staff rules regulations and practices and insurance and other financial issues. These could lead to serious consequences in the future.

As the assignment progressed it became clear that the financial and operational ringfencing should have been undertaken simultaneously in order to execute the work more efficiently.

Many of the principles to be applied to the separation of the electricity undertakings from the municipalities and their subsequent integration into the REDs still form the subject of debate. Clarity is needed so that the practitioners can be properly briefed and that the debates do not occur whilst the consultants are attempting to finalise the work.

The resources can be most efficiently deployed if the assignments are undertaken in a continuous establishment and not on a stop start basis.

EDI Holdings Company is in the process of developing a "Ringfencing Toolkit". The methodology and detail of the work is not yet in the public domain and it remains difficult to comment on the efficacy of such an initiative. Given the complexity of the data and systems encountered in The Municipality and the state of the financial statements in general, we would recommend that the Toolkit is not overly prescriptive and mechanistic as a fair amount of professional judgment and skill has had to be brought to bear on the assignment.

The purpose of the ringfencing and valuation need to be confirmed as there is some doubt that the methodologies adopted will not be regarded as a sound basis for the transfer of the assets and for the payment (in cash or otherwise) to a local authority for forfeiting the right to generate revenue from their electricity undertakings.

The interest of the National Electricity Regulator has not been given much attention in this assignment and due care should be adopted in future to insure that all the role-player valuation requirements are properly addressed.

11. Conclusion

The task of ringfencing all the electricity departments of the municipalities in the country remains an enormous and vital task for the Restructuring of the Industry. All of the contentious issues have not been ironed out and experience gained on assignments such as the one described must be fed back into the system. There

is little doubt that some of the valuations and compensations allowed in the establishment of the REDs will be adversarial and there is no identifiable best practice of note internationally for guidance.

The experiences described are but a selection of those actually encountered and have been presented as such.

The formation of the REDs will require additional ongoing studies in relation to the responses to the condition of the plant, maintenance costs, system development and cash flow requirements and tariff rationalisation.

In conclusion reference is made to an assignment undertaken by Merz and McLellan for the AMEU, which was prepared to identify the "Optimum Number of Financially Viable REDs for the EDI in South Africa". The economist who undertook the work made it clear that viability depended on the tariff policy and level and the result is unlikely to emerge from continued analyses of the figures in the system. The electricity networks were established by the municipalities in South Africa for the provision of services to their residents, businesses and rate payers. Tariffs were set for associated reasons including the subsidisation of the rates bill and the attraction of people to the Municipality. I trust that we bear this in mind as we attempt to massage the industry into Best Practice utilities using business principles alone.