

PUBLIC LIGHTING MANAGEMENT – THE ROLE OF PRIVATE SERVICE PROVIDERS IN THE FUTURE



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1. Introduction

The past number of years following the demarcation and consolidation of municipalities, and parliament's approval of the RED's model for the EDI, has seen the issue of the future provision and maintenance of public lighting becoming a popular topic of discussion at many a meeting of members of the lighting fraternity. It was generally agreed that this service had never been seen as a core function of electricity, but rather as a service to the ratepayers – so what would its position be in the future RED's environment?

The one school of thought held that public lighting was such a visible indicator of electricity service delivery, and its supply so intertwined with electrical distribution networks, that its provision and maintenance should reside with the RED. The other school of thought held that the ownership, provision and maintenance of a public lighting network was a municipal service, and since it would become a non-core activity and an expense to a RED, it should be excluded from the trading services to be provided by a RED.

These uncertainties were recognized by both SANCI and the AMEU, and following numerous appeals and papers on this matter, the AMEU Executive established a Public Lighting Working Group during June 2003 to evaluate the position of the industry and to come up with recommendations on its future with regard to the following:

- ownership
- provision of capital
- responsibility for the service

The AMEU Working Group recommended that ownership of the public lighting network should remain with the municipality, as it is not foreseen that a RED would want to participate in non-profitable activities or non-core services like public lighting. The municipality should also remain responsible for the provision of capital and remain the service authority (SA) responsible for the service. As the SA, the municipality would have the option to enter into a Service Delivery Agreement (SDA) with the RED to act as service provider (SP), either on its own, or outsourced to a specialist private service provider who manages the service on behalf of the RED, or to enter into a SDA directly with a private service provider.

It is interesting to note that Eskom has since taken a firm stance that a RED should not become involved in either accepting responsibility for the service of public lighting, or to make it a function of the RED. These principles were followed with the award of the first public lighting management concession contract by the City of Cape Town, where the entire Eskom distribution area within the metro was outsourced, as well as areas where private contractors provided the maintenance service. The City itself has yet to follow this example, and guidance from EDI Holdings in this regard would be to the benefit of all involved.

2. The current status of public lighting networks

2.1 Procurement

The result of the consolidation of numerous councils of the previous dispensation, all with their own standards, into larger municipalities, district councils and metro's, have resulted in fragmented public lighting networks that boast a range of products spanning an age from brand new to up to half a century old, made up of many suppliers, models and lamp sources. This has been aggravated by the poor procurement standards practiced by many municipalities, where few considerations were given to quality, life cycle cost, performance, guarantees or standardization. In most cases, the only consideration was price, however, in other cases, relationship marketing also seemed to do the trick.

Many suppliers have over the years closed down in South Africa, and spares for their products are either not available or extremely costly. Due to the vast number of suppliers, models and lamp sources, the cost of procurement and stockholding of spares has become extremely expensive.

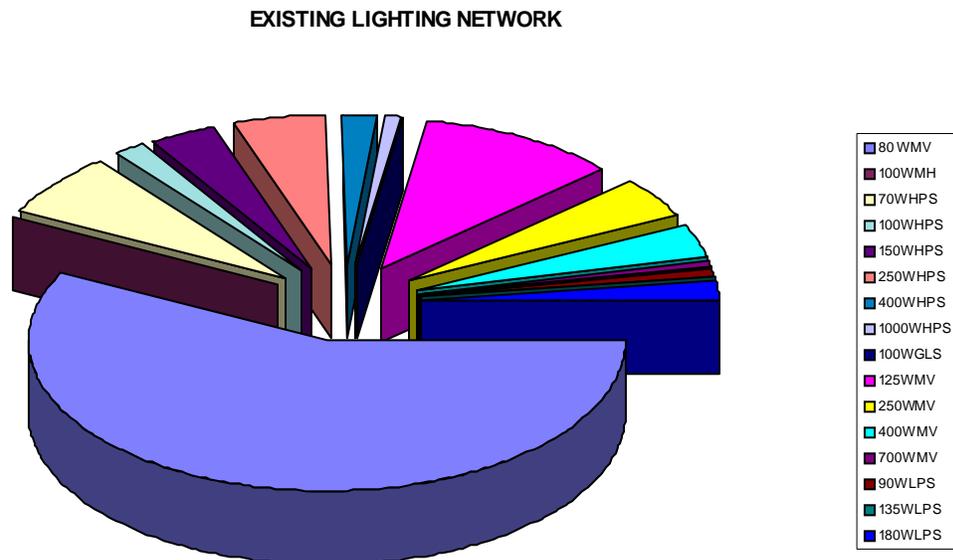


Figure 1: Distribution of different lamp types within a typical metropolitan municipality

2.2. Maintenance

Most councils utilise their own maintenance staff, often in conjunction with private contractors. Irrespective, maintenance practices are based upon the following:

- a reactive maintenance system, essentially spot replacement and repairs of single lamps or luminaires, once a complaint has been received
- random installation of products, leading to poor photometric performance and uniformities
- lamps are replaced only once they have failed, which happens at random
- no group lamp replacement schemes
- no long-term maintenance contracts
- poor lighting knowledge of maintenance staff
- no up to date GIS based public lighting inventories

Maintenance has thus degraded into a breakdown system, where only essential repairs are conducted and no preventative maintenance takes place. The result of this is that as much as 80% of maintenance budgets are spent on operational expenses, with the average maintenance cost per luminaire installed in current municipal networks exceeding R200 per annum.

2.3. Energy costs and environmental issues

Few councils currently consider these aspects in their public lighting network. In addition, the lack of GIS based inventories has resulted in a lot of guesswork with regard to interdepartmental debits for the energy cost used by public lighting networks. There is also no mathematically calculated cost per kW at which this energy cost should be debited. Within one metropolitan municipality, it has been found that these rates vary from as little as 8c/kWh to as much as 35c/kWh! Hopefully, the efforts of Eskom Demand Side Management to highlight the importance of energy efficiency, in view of the country being under the threat of running out of peak generation capacity by as early as 2007, will not be ignored for much longer.

The conclusion is that the unfocused approach to public lighting has contributed to it being highly fragmented with very high operational costs and energy costs, as well as poor service delivery, to the extent that it has become a popular news item, with recent articles such as "Residents are living in the dark ages" and "The city is kept in the dark, because it can't find the right bulb", a tongue in cheek referral to the lack of standardisation of the numerous different types of streetlights and lamps in use within our metropolitan municipalities. Due to a lack of capital, resources, capacity and focus, this is not expected to change in the near future. Should this therefore be a service that is provided by a future RED?

3. Options for private sector participation

During 1997, the government established the Municipal Infrastructure Investment Unit (MIIU) to assist municipalities in addressing their problems with service delivery, by finding innovative solutions to critical problems with the financing and management of municipal services such as water supply, sanitation, waste, energy, fleet management, etc. These solutions include the involvement of new parties in service delivery, in various forms of public/private partnership arrangements. The MIIU has identified the following types of private sector participation, of which hundreds have already been implemented successfully:

- **Service Contract:** A municipality pays a fee to a private firm to provide specific operational services such as meter reading, billing and collection, and operating facilities. Typical duration: 1 – 3 years.
- **Management Contract:** A municipality pays a fee to a private firm to assume overall responsibility for operation and maintenance of a service delivery system, with the freedom to make day-to-day management decisions. Typical duration: 3 - 5 years.
- **Lease Contract:** The private firm rents facilities from the municipality and assumes responsibility for operation and maintenance. The lessee finances working capital and replacement of capital components with limited economic life, but not fixed assets, which remain the responsibility of the municipality. Typical duration: 5 - 10 years.
- **Concession:** A private firm handles operations and maintenance and finances investments (fixed assets) in addition to working capital. The firm or the municipality can own the assets for the period of the concession. Where the firm owns the assets, they will be transferred to the municipality at the end of the concession period. The project is designed to generate sufficient revenues to cover the private firm's investment and operating costs, plus an acceptable rate of return. Typical duration: 10+ years.
- **Build-Operate-Transfer (BOT):** A form of concession, with an emphasis on construction of new stand-alone systems. The municipality may or may not receive a fee or share of profits. Typical duration: 15+ years.

- **Privatisation:** A municipality sells off an asset to a private firm.

4. Which is the most suitable option?

Although many municipalities have service contracts, and even some management contracts with private service providers in place, these options do not address the real issues. This is because of the fact that these contracts merely continue the provision of a reactive service, without addressing the underlying problems related to the lack of capital, resources and capacity to effect a once off technical intervention that would result in a new, standardized and energy efficient public lighting network, which can be properly managed on a proactive basis by a focused specialist private service provider. This is only possible under a concession contract.

5. International trends

South African municipalities' problems with the management of their public lighting networks are not unique. The International Institute of Energy Conservation (IIEC) states that many cities worldwide have already entered into contracts with private service providers, in various formats, to provide the capital required, improve service delivery and generate savings in the operational and maintenance costs associated with their public lighting networks, as well as to address environmental issues such as greenhouse gas (GHG) emissions, global warming and climate change. Many cities in South Africa have also become signatories to the International Council for Local Environmental Initiatives (ICLEI) and have joined their Cities for Climate Protection (CCP) campaign.

6. Public lighting Energy Service Companies (ESCO's)

An ESCO is a specialised business whose operation and primary revenue is linked to saving other parties money on energy consumption, maintenance costs and related services. ESCO's utilise their own capital to carry out a technical intervention or energy efficient retrofit for the client, which will result in long-term cost savings to the client. It also subsequently harbours the responsibility for the maintenance of the new network through a renewable term maintenance contract, typically 5 years. ESCO's guarantee a minimum amount of savings accruable to the client under the terms and conditions of the Service Level Agreement (SLA) signed between the two parties. ESCO's can address the inefficiencies and corresponding spiraling maintenance and energy costs, associated with the provision of a public lighting service, as has been proven internationally where ESCO's have been introduced to provide capital, expertise and capacity, and tasked with generating savings and improved service levels through retrofits and renewable term maintenance contracts.

7. Key features of a public lighting ESCO contract

- It is based on the concession principle with a minimum duration of 5 years, renewable.
- The ESCO would be required to provide all the capital, infrastructure, plant, equipment and labour to finance, design, construct, operate and maintain the new network.
- All inefficient and outdated equipment are to be replaced with new, energy efficient equipment, with all other remaining equipment to be refurbished to an as new state.
- This technical intervention leads to savings in maintenance and energy costs, which are then shared between the council and the ESCO for the duration of the initial contract.
- The provision of the service would be specified as outputs in a SLA between the ESCO and the council.
- The SLA would include, amongst other aspects, compliance with all relevant SABS codes and guides, required lighting levels, response times, percentage of failures, and so forth.
- Compliance to the SLA would be audited and monitored by the council, through monthly inspections of the network and computerised KPI reports.

- The ESCO may make use of innovative and creative solutions to provide a focused, quality and value for money service.
- The cost for the provision of the service would be recovered by making monthly charges, payable by the council from the maintenance budget.
- A percentage of the payment to the ESCO would be at risk for non-performance, on a sliding scale, as determined by the council during the auditing and monitoring process.

8. Advantages of a public lighting ESCO contract to the council

- It provides the council with a means to bring forward capital projects in disadvantaged communities that it cannot finance by normal means.
- It guarantees savings in maintenance costs and energy costs, as well as a reduction in GHG emissions, meeting the objectives of the CCP campaign.
- It results in a new, standardised and energy efficient public lighting network
- It improves safety to road users and the public, as well as reducing crime, while providing an efficient, world class service to ratepayers.
- It creates new job opportunities and builds capacity due to its capital investment, guaranteed savings, refurbishment and scouting contracts.
- It places the council on par with international practice, and in line with government policies on private sector participation.

9. Choosing a service provider

The Municipal Systems Act (Act No. 32 of 2000), specifically Chapter 8, Sections 76 to 84, sets out the terms for the provision of services and service delivery agreements in detail. Section 78 of the Act specifies the criteria to be applied and the process to be followed when deciding on a mechanism to provide a municipal service, or to review any existing mechanism. For convenience the process may be understood as taking place within three distinct phases, each separated by a council decision.

9.1 Phase 1 - Initial internal assessment

In this phase the Act requires municipalities to assess:

- the direct and indirect costs and benefits if the service is provided through an internal mechanism, including the expected effect on the environment and on human health, well-being and safety;
- the municipality's capacity and potential future capacity to furnish the skills, expertise and resources necessary for an internal mechanism;
- the extent to which the re-organisation of the municipality's administration and the development of its human resource capacity could be used to provide the service through an internal mechanism;
- the likely impact on development, job creation and employment patterns in the municipality;
- the views of organised labour; and
- any developing trends in the sustainable provision of municipal services (s 78(1)).

Following this review the council must take a decision to:

- decide on an appropriate internal mechanism to provide the service; or
- before it takes a decision on an appropriate mechanism, explore the possibility of providing the service through an external mechanism (s 78(2)).

9.2 Phase 2 - Further assessments

In the event that a decision is taken to explore external mechanisms, notice must be given to the local community of this decision, and the various service delivery options must be assessed in terms of the same criteria used in Phase 1 of the process (s 78(3)).

Following the review of external options the council must decide on an appropriate internal or external mechanism. Council's decision should take into account the criteria that municipal services must:

- be equitable and accessible;
- be provided in a manner that is conducive to the prudent, economic, efficient and effective use of available resources and the improvement of standards of quality over time;
- be financially sustainable;
- be environmentally sustainable; and
- be regularly reviewed with a view to upgrading, extension and improvement (s 78(4)).

9.3 Phase 3 - Implementation

Should the council elect to use an external mechanism, it is obliged to establish a consultation mechanism, with which to consult with the community during the process of finalising the service delivery agreement (SDA) between the municipality and the final service provider. The nature of the process varies, depending on the nature of the selected service provider.

10. Conclusion

Municipalities are under heavy pressure to extend and improve the delivery of municipal services. Given the scale of service backlogs - relative to municipal capacity – municipalities can no longer afford to ignore the benefits that they can accrue from entering into a public private partnership with a private service provider. The process of choosing a service provider, although made out by some to be an onerous process, is as simple as submitting the reports required by the Act to the council for approval, and following a simple consultation process. Where contractors currently maintain the network, it is not even a requirement to follow the Section 78 process.

The successful implementation of ESCO's, energy performance and term maintenance contracts in various parts of the world is an inspiration to those of us serious about making a difference. In addition, the development of Private Finance Initiatives (PFI's) in other parts of the world, which involves the provision of new public lighting installations under Build-Operate-Transfer (BOT) contracts, is indicative of the capabilities of private service providers and the services that will become available to municipalities in the near future.

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