ENGINEERING CONTRIBUTION POLICY AND EFFECTIVE IMPLEMENTATION

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1 INTRODUCTION

NRS 069 is published and available since 2004 to guide distributors on the correct implementation of Engineering Contributions for electrical services. Over and above these guidelines, an approved policy from Council is required together with a sound methodology representing the unique arrangements of each specific distributor to ensure successful implementation.

This paper intends to address the importance of a Council approved policy being harmonised with a sound engineered methodology as well as the importance to draw these principles through into the services agreement between Local Authorities and developers.

The importance to ensure consistency and apply the same principles and basis of costing when assessing the cost of a new township development, a new service connection or an upgrade of an existing supply is fundamental in successful implementation. Applying sound principles of engineering contributions within the policy framework where the interests of all parties are equally protected ensure that an optimum solution and mechanism is developed and implemented. This will further ensure sustainability by means of controlled NMD applications, minimum stranded capacity, optimum utilization of capital investment and limit inflated electricity tariffs.

The paper makes specific reference to case studies where pitfalls, benefits for successful implementation and experience are shared for delegates to learn and initiate the processes within their licensed area of supply.

Engineering contributions deals with the recovery of capital for infrastructure development to service developments and future customers in a sustainable way. Key to the success lies in the optimum balance where developers contribute capital for infrastructure that will be recovered from property sales, and customers and rate payers finance to maintain engineering infrastructure at an acceptable level of service and attract new developments.

The purpose of this paper is also to introduce a policy that is both fair and transparent whereby exorbitant property and consumption rates are reduced and the costs of infrastructure is recovered by means of clearly defined promulgated engineering contribution tariffs.

The City of uMhlathuze has been implementing and enforcing engineering contributions to their customers for the past two decades which has resulted in sustaining an affordable and attractive basket of services. Most municipalities do not charge engineering contributions let alone have a policy guideline for the implementation thereof.

This paper highlights the lessons learnt and why a policy in this regard is important. It can be accepted that the current poor state of existing municipal infrastructure is as a result of not charging engineering contributions in the first place. A good infrastructure network with adequate capacity can be achieved by implementing and promulgating a range of engineering contribution tariffs, well defined and calculated using acceptable industry norms and standards.

2 DEFINITIONS

Engineering contributions is the **financial** recovery of shared municipal infrastructure, whether this infrastructure exists or is required for the future. It is not the service or link connection to a customer. It is important to clearly define the infrastructure and understand the difference between infrastructure and the service or link connection.

Shared municipal infrastructure (as illustrated below) is the components within a distribution network that service a multitude of customers. Thus this infrastructure is shared in terms of individual demand requirements. These components are typically large and expensive such as high voltage lines or cables, high and medium voltage substations. It is important to understand that the cost of the shared infrastructure is over and above the charge for the direct link or service connection to a single customer. It must also be clearly noted that the internal services of a private development such as a housing estate is not classified as shared infrastructure as the developer typically pays for and installs all internal services until such time as the internal services are handed over to the municipality to operate and maintain.

The service or link connection is the direct connection from a customer to the shared infrastructure. It can be supplied at any distribution voltage depending on the nature and size of the customer.

For the purpose of a uniform policy, customers are typically defined as follows:

- Single residential
- Single commercial
- Single industrial
- Complex – bulk supplied, individually metered such as townhouses, residential estates and malls

Single residential is further classified into the three known forms of housing:

- Low cost housing, which is typically Municipal Infrastructure Grant (MIG) funded
- Medium cost housing, where the average price of the property including dwelling does not exceed R750 000, and
- High cost housing, where the municipal value of the property exceeds R750 000.

3 LEGISLATION & STANDARDS

Engineering contributions are payable in terms of the Town Planning and Township Ordinance, Ordinance 15 of 1986 and Development Facilitation Act, Act No 67 of 1995.

The policies relating to electricity service provision applied by municipalities and is regulated by NERSA which should be consistent with the NRS 069 standard being established by the Electricity Suppliers Liaison Committee (ESLC).

Policies and implementation must be in line with both national and international industry best practices. It is a known fact that the principle of engineering contribution has already been in force in many countries around the world for decades.

Implementation should always be based on sound business principles where a win-win situation is established for all parties to add value and encourage future developments.

4 TYPES OF DEVELOPMENTS

Developments can primarily be categorized as follows:

- Township development/Extension of boundaries of townships
- Rezoning/change of land-use right/Special or Temporary Consent of Greater Tzaneen Municipality/Permits\
- Subdivision of property
- Increased services requirements exceeding the original designed and provided services limits

Although rural networks are significantly different than urban networks, the principles and methodology to calculate engineering contributions are similar with the latter being more capital intensive.

5 PRINCIPLES FOR DETERMINATION OF ENGINEERING CONTRIBUTIONS

The following points form the basis of the electricity engineering contribution policy and guidelines:

- A consistent approach should be applicable throughout
- The approach should be in harmony with sound practices employed within South Africa and internationally
- The approach should be consistent within different utilization and zoning categories
- Contributions for each service should be financially ring-fenced
- Contributions should be targeted at developers to service properties up to the full capacity according to the new zoning
- Contributions should be charged to customers exceeding the designed capacity being contributed by the developer or that associated with the zoning
- No double charging of services through tariffs and engineering contributions must be allowed
- Assets financed by engineering contributions remain the property of the distributor
- Assets financed by engineering contributions may be used for other customers
- The principle of contestability of dedicated networks being funded by customers should be supported
- Recognition must be given in the long term to community benefits from all network extensions for the utility to gradually extend and expand distribution networks effectively to the benefit of all
- The standards must be transparent in the way it is set out and applied
- The approach should be relatively easy to implement and practical

Calculations must be based on the fundamental principle that customers or subsequent customers should not benefit from a new development at the cost of the developer, or that the developer should not benefit at the cost of customers.

Establish a uniform basis for the calculation of engineering contributions in the Municipality's area of jurisdiction as a whole. Calculation of engineering contributions is based on specific applications and guidelines to be set out for the various services.

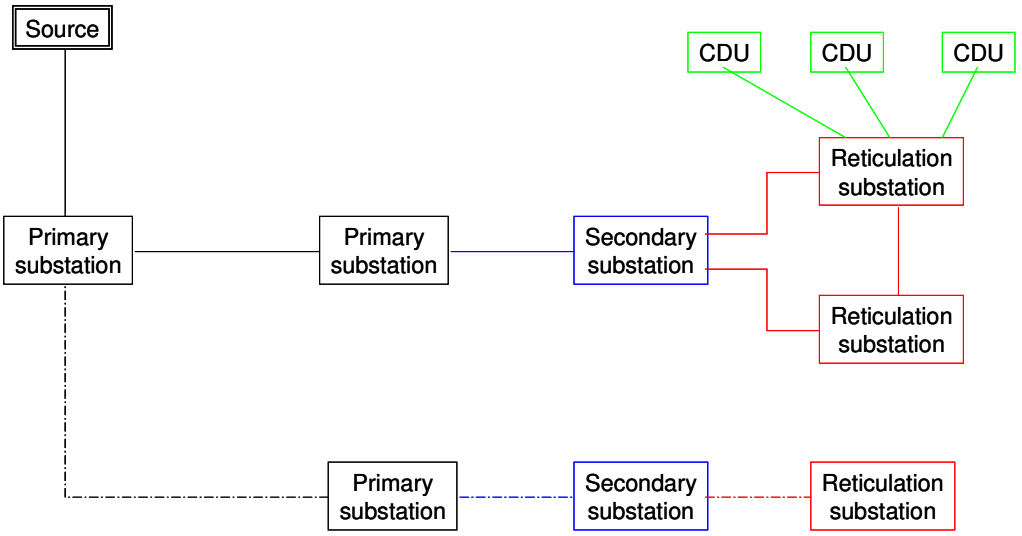
Capital components in the consumption tariffs should be limited to spare capacity that will eventually be recovered from future engineering contributions. It is the municipalities' responsibility to ensure the level of spare capacity is limited as this places risk and an unfair burden onto customers.

Customers, who have funded bulk infrastructure networks in full through engineering contributions, should be compensated with the additional pro-rata contribution once other developments pay engineering contribution or sharing of infrastructure by other customers is increased. Refunding of contributions should be avoided where possible and be limited to a set window period. A window period of 5 years is proposed to be used by NRS 069.

Developments sharing bulk or link infrastructure should be done on a pro-rata basis and based on infrastructure cost and capacity.

6 INFRASTUCTURE

Shared municipal infrastructure can be illustrated using the following diagram:



Typically it can be shown that a connection from any primary, secondary or reticulation substation or a low voltage consumer distribution unit (CDU) will be based on the available capacity at the point of supply and the up-stream networks. For example, a shared connection at a reticulation substation such as a miniature substation will be dependant on the capacity of the miniature substation, the cable ring network feeding out from the secondary substation and the high voltage supplying the secondary substation.

7 THE CONNECTION RELATIONSHIP

The connection relationship will be based on how a customer connects to the shared infrastructure and how it is paid for.

Single residential – not within a private estate/development

Typically the municipality sells the property to a customer, which does not include a service connection. Engineering contributions towards the entire shared infrastructure is recovered in the initial land sale. This means that the municipality pays upfront for the infrastructure and recovers the costs from individual residential customers through the land sale transaction. For example, the selling price of the stand will include the cost of the up stream capacity that is made available to that site. The customer pays up front for the engineering contributions over and above the service connection. If a customer sells to another customer, the property is sold with the connection including the allowable demand. If the new customer requires an increase in supply, the additional demand is payable at the prevailing promulgated engineering contribution tariff. Typical increases are from 60 A single phase to 60 or 80 A three phase.

Single residential – within a private estate/development

A developer pays for and installs all the internal services within the development. In addition to the internal services, the developer pays for a bulk connection to the municipality's shared infrastructure (external to the development) and pays engineering contributions towards the shared infrastructure. This should be covered in a separate services agreement to the sale agreement. The land sale to the end customer will thus include the cost of internal services, bulk

connection costs and engineering contributions. The following illustrates how a developer recovers all these costs:

$$ESC = \frac{x + y + z}{\sum p}$$

where:

ESC is the electrical servicing cost per stand/property,
x is the engineering contribution paid by the developer to the municipality,
y is the bulk connection cost to the shared infrastructure (external of the development),
z is the internal servicing costs, and
p is the total number of properties within the development

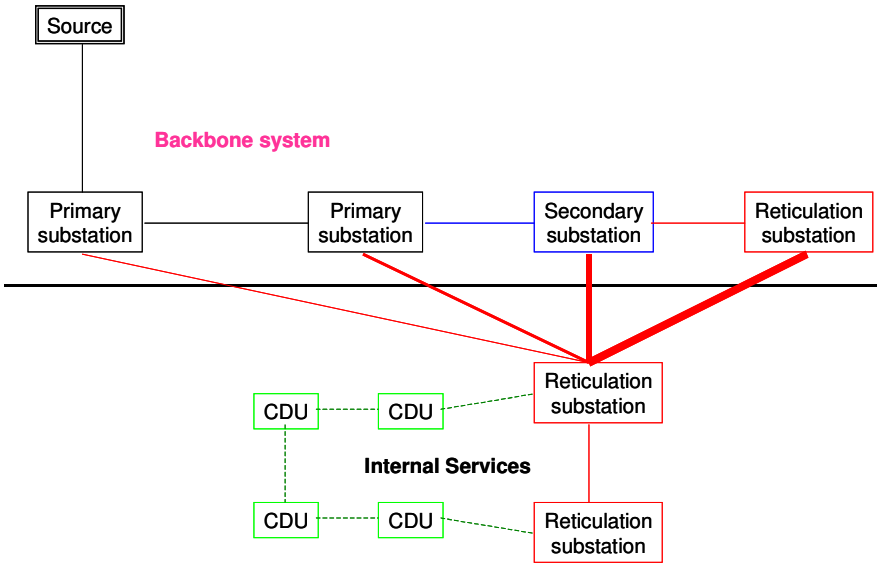
Commercial/Industrial

For low and medium voltage commercial/industrial customers, the same principles as in 4.1 and 4.2 above apply. The only difference will be the tariff itself as the connection is taken at a higher voltage level, which means less infrastructure between source and customer.

8 WHY AND HOW MUCH SHOULD CUSTOMERS PAY ENGINEERING CONTRIBUTIONS

infrastructure as defined above, is typically shared amongst all classes of customer. If for example a private developer does not pay engineering contributions for a private development, then the question is asked who then pays? Is it fair or justified that the local external rate base should then pay for the shared infrastructure that will service the private development? Engineering contributions are thus structured to recover shared infrastructure servicing costs based on existing and future capacity.

The size of engineering contributions is dependant on the location of the connection to the shared infrastructure. The following diagram attempts to illustrate this statement:



If a connection is taken from a primary substation close to the source, then the total engineering contribution payable will be based on the demand requirement at a promulgated tariff at a higher voltage level while a connection taken from a reticulation substation will result in a total engineering contribution based on a demand requirement at a promulgated tariff at a medium or low voltage level. Hence, the high voltage tariff payable will, obviously, be less than the medium and low voltage tariffs depending on the cost of the infrastructure between the source and point of

connection. Promulgated engineering contributions should be well developed in terms of a sound framework and industry norms.

9 POLICY GUIDELINES

One of the important challenges is the correct application of engineering contributions that will attract the correct customer or developer. Thus a municipality should develop a uniform policy applicable to all classes of customer.

Low cost housing

Low cost housing development is normally 100% MIG funded due to the social upliftment of disadvantaged communities. In addition to other services, electrification is funded through the National Electrification Fund. In many cases the bulk infrastructure can also be funded through the same fund made available from the Department of Energy. In this case, end customers do not pay engineering contributions, as their connection is totally subsidised.

Medium cost housing

There is no known policy on how engineering contributions should be applied to medium cost housing. The definition for medium cost housing has never been well defined. For the purposes of this paper, the author has selected a value of R750 000 or less inclusive of property and dwelling. This is based on the current economic climate (2009) and can vary from municipality to municipality. This housing market is typically aimed at the middle income group.

The proposal is to charge at least 65 - 75% of the promulgated engineering contribution tariff and cross subsidise the remaining balance from the local tax base, which will strike a good balance between affordability and an extra rates generating base.

High cost housing

If medium cost housing is defined as R750 000 or less, then any property in excess of this value should be charged the full promulgated engineering contribution tariff with no cross subsidisation from the local rate base. This housing is aimed at individuals or families who can afford and demand the luxury of a full basket of services.

Commercial/Industrial

A great challenge in attracting commerce and industry is the availability of services and the supporting infrastructure. A key issue facing any developer or investor is the engineering contributions and the locality of the development. Normally a well sited development close to existing infrastructure makes it easier and more economical than a development which is far removed from the . Large commercial developments apply the same principle of engineering contribution cost recovery as illustrated in residential estates in 4.2 above. For example, a shopping mall may recover the cost through market related rentals, which includes a portion of engineering contributions. In many cases the size of the demand results in a large contribution payable, some amounting to millions, which can be structured to suite both developer and local authority. If for example a shopping mall requires a final demand of 10 MVA, with only 5 MVA required in the first 3 years, then the developer pays for 5 MVA up front. The remaining 5 MVA is then paid by the developer after year 3 at the prevailing promulgated tariff.

Large industrial giants are unique in that their demand requirements command large infrastructure systems. In this case the municipality may not charge a separate engineering contribution but enforce a proportional payment for the cost of new or upgraded infrastructure depending on the demand requirement. For example, a Ferrochrome smelter located 5 km away from the nearest requiring 150 MW will pay 100% for a dedicated off the substation located on the boundary of the plant and 50% of the cost for a new 300 MW substation that is required to serve this plant. The balance that the municipality funds will then be recovered through future contributions as and when capacity is taken up.

10 IMPLEMENTATION ISSUES

Engineering contributions due by the developer shall be a condition for granting development/subdivision/rezoning approval.

Engineering contributions should be calculated and charged as soon as possible in the application process.

Payments should in all cases be made as follows:

- Townships, extension of boundaries of a township & rezonings: Prior to proclamation of the town/extension of boundaries/amendment scheme.
- Special, Written or Temporary Consent of Council: Within a period of thirty (30) days from date from approval by Council
- Subdivisions: Prior to issuing a certificate confirming that all conditions imposed by council relating to the approval have been complied with.
- Permits: Within a period of thirty (30) days from date of issuing a Permit by the Department of Local Government & Housing.
- Any consent given by Council which may require upgrading of the network.

The manner in which payments are made for each service must be flexible but should be agreed upon at the time of the signing the Services Agreement, alternatively it should be determined in the resolution of Council, letter of approval issued by Council, etc. Acceptable alternatives are:

The provision of a bank guarantee provided that it makes provision for escalation to the planned date of construction.

Cash payment.

Phasing of the payment according to predetermined milestones such as pro-rata contribution per phase, subject to acceptable bank guarantee for the balance of the amount.

The physical provision of infrastructure to the value of the calculated contribution required for that service, forming part of the Services Agreement.

Contributions will be applicable for developments exceeding the original designed capacity for each development as per approved contribution fees.

The zoning can be changed during the planning process, based on new information/requirements. Where a downgrading of zoning takes place after payment of contribution was made, no rebate will be made of contributions already paid. The supply requirements may however increase in future up to the original service level, without any further contribution.

The municipality must refer to the respective supply authority for the conditions to be met in respect of the electricity service certificates.

The electricity contribution fees should be published with the annual municipal rates and tariffs.

A developer has the right to contest a quote from the utility and use a contractor to do the work to the utility's prescribed standard.

11 ENFORCING THE POLICY

A municipality should formulate a sound framework for the implementation of engineering contributions. This framework will provide the basis of calculating the tariffs based on local conditions and industry norms. The Municipal Council should approve a clear and transparent policy once this has been completed. Once the tariffs have been calculated, the process of approval as dictated by the Municipal Finance Management Act (MFMA) should be followed to allow the municipality to effectively promulgate and implement the tariffs.

The tariffs must be enforced at all levels of customer. In specific, private developments following the Development Facilitation Act (DFA) route are required to enter into service agreements with the municipality. The services agreement provides a clear indication of responsibilities in terms of

all the services required. The same agreement is used to enforce the payment of engineering contributions.

12 CONCLUSION AND RECOMMENDATIONS

Engineering contributions are driven mostly by the Electricity Departments in isolation at this stage. The Municipality should coordinate and adopt a uniform consolidated approach to harmonize engineering contributions for all municipal services to have a clear understanding of all the costs involved for developments. This includes electricity, water and roads as storm water is regarded to be an integral part of the roads infrastructure.

A mechanism must be introduced to ensure that all contributions are paid before development, change in land-use, etc. are approved as outlined above.

Accepting the policy and introduce contributions will in a consistent way assist to prioritize areas where pressure exists for development and confirmation that bulk engineering services are available or could be made available, and will also assist with developments in harmony with the Municipality's IDP.

The electricity consumption tariffs should be aligned with the implementation of the Electricity Engineering Contributions to ensure that the capital component in the consumption tariffs is reduced with the reduction of outstanding loans and capital allowance.

Equipment replacement values must be updated and contribution fees recalculated annually to keep trend with realistic replacement costs.

When applying this policy in a consistent and justifiable approach to all developments where the interests of both parties are protected, an optimum sustainable solution and mechanism will be implemented. This will also ensure controlled NMD applications, minimum spare capacity, optimum utilization of capital investment and limit inflated electricity consumption tariffs.

This policy should not cover socio-economic impact nor incorporate subsidies between categories of customers. It must be based on technical facts and costs and mechanisms to ensure a sustainable recovery of capital expenditure required to service developments. Council may however adopt specific resolutions to waive or reduce the engineering contributions for socio-economic developments. The advantage of this policy is that it will assist Council to assess the true value of such resolutions. It will further assist council to make quantify applications for grant funding for subsidised developments.

Perceptions that engineering contributions will hamper developments must be carefully considered and the lessons learnt by municipalities that have successfully implemented and apply engineering contributions. It must be emphasised that engineering contributions paid by developers are recovered in the selling price of properties. Where no or under-recovery of engineering contributions takes place, the burden will be transferred to rate payers and recovered from all customers via consumption tariffs and developers gain this as profit. Fundamentally this is the reason for recovery of capital contributions to prevent cross subsidization and was also ruled by the Venter commission to be avoided.

Experience from municipalities who have effectively implemented engineering contributions has demonstrated that infrastructure leads development.