



SIYANCUMA LOCAL MUNICIPALITY
ELECTRICITY BULK INFRASTRUCTURE CONTRIBUTION
POLICY

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i. Glossary & Definitions

Additional Capacity	Additional amount of power rated in kVA that a customer requires by increasing his notified or actual maximum demand
Authorized Capacity	Capacity per point of supply that has been provided and paid for by the customer/developer
Bulk Infrastructure Contributions	Once-off contributions made by customers/developers towards the Bulk Infrastructure costs of networks installed by the utility to meet the electricity needs of the customer/developer
Bulk Infrastructure Contribution Rebates	Amounts deducted from the Bulk Infrastructure charges due to a developer because of work done by or materials provided by a developer considered not part of their contributions
Connection Fees	Standard minimum upfront fees payable by the customer towards the cost of a new connection
Consumption	Energy used by a customer during a specific period, measured in kilowatt-hours
Dedicated Supply	Where a network or a portion of a network is considered dedicated according to the best judgement at the time
Developers	Entities who undertake the required activities of developing a particular area
Electricity Distribution Networks	Electrical infrastructure of the distributor over which electrical energy is transported from source to point of supply to customers
Firm Supply	Design standard that will ensure single contingency in security of supply (N-1 scenario)
Irrecoverable Costs	Labour, transport and contract costs of installing a network and portion of material costs that cannot be re-used when a network is removed
LV Networks	Lines, cable, switches, protection and associated equipment at voltages below 1 000V
Metering	Equipment associated to measure and calculate the quantities of electricity used
MV Networks	Lines, cables, switches, protection and associated equipment at voltages from 1 000 V to 22kV
MV to LV Transformation Networks	Transformation networks between MV and LV
Network Capacity	Maximum technical limit of load that can be delivered by a particular network before equipment life would be abnormally reduced
Notified Maximum Demand	Contracted maximum demand for a specific period notified in writing by the customer and accepted by the utility as that which the customer requires
Point of Supply	Physical point on the electrical network where electricity is supplied to a customer or where the customer's network connects to that of the utility
Replacement Value	Value of installing a new system in the year for which calculations are done
Service Connection	Equipment that connects the customer to the utility network
Subdivision	Situations where a particular piece of land is subdivided thus allowing for more than one utility service connection to be made to the development
Temporary Supply	Supply to customers that is limited to a specific short time period

ii. Abbreviations

AC	Alternating current
ADMD	After Diversity Maximum Demand
FAR	Floor to Area Ration
HV	High Voltage
kV	Kilovolt
kVA	kilo-Volt Ampere (unit of apparent electrical power, often similar in magnitude to kW)
kW	kilo-Watt (unit of electrical power)
LV	Low Voltage
MV	Medium Voltage
MVA	Mega-Volt Amperes (1000 kVA)
MW	Mega-Watt (1000 kW)
NERSA	National Energy Regulator of South Africa
NMD	Notified Maximum Demand
NPV	Net Present Value
NRS	National Regulator of Standards
SP	Single Phase
TP	Three Phase
VAT	Value Added Tax

1. Introduction

The aim was to produce a policy for the implementation of Electricity Bulk Services Contribution within the Siyancuma Local Municipal area.

Electricity Bulk Infrastructure Contributions deals with the recovery of Bulk Infrastructure from potential developers in order to be able to upgrade and/or extend existing bulk infrastructure such that these planned new developments can be serviced.

The NRS 069 (Code of Practice for the Recovery of Capital Costs for Distribution Network Assets) was used as guideline to establish this policy.

2. Background

Applications for new connections, subdivision of land, rezoning and upgrading of existing services are part of the development of the Municipality. Over time, these will cause a heavy burden on the existing electrical infrastructure and will require the upgrading or replacement thereof.

It is only fair that developers make a financial contribution towards the cost to make these required investments. If not, the normal electricity consumers will have to fund these upgrades and not receive a value for their money. Currently no policy or mechanism exist in the Municipality and the developers only pay for the infrastructure needed to connect with the existing Municipal network.

This policy seeks to establish an approach to calculate these Bulk Infrastructure Contributions for electrical services. It will provide a single line diagram cost model which can be applied by the Electrical Department. The contribution is to be paid at the approval phase of a project.

3. Underlying Principles

- 3.1 The policy must be transparent in the way it is set out and applied.
- 3.2 The policy must be easy to implement.
- 3.3 Contributions should be charged to customers only if they exceed the designed capacity originally contributed by a developer or if the zoning change and the requirements for capacity increase.
- 3.4 Tariffs should not be used to recover capital for network upgrades going forward.
- 3.5 Bulk services contributions exclude the installation of internal services specific to a development. It also excludes any link services required to link the internal services to the existing municipal electricity infrastructure. The

costs in both cases are completely for the Developer's account.

- 3.6 The Bulk Infrastructure Contributions exclude any upgrades to the Eskom NMD as a result of the requested load for the development. Any costs arising from this NMD increase shall be for the Developer's account.
- 3.7 A guiding principle of the policy must be that the developer does not benefit at the cost of the existing customers, and the existing customers should not benefit at the cost of the developer.
- 3.8 All assets financed by the Bulk Infrastructure Contributions remain the property of the Municipality. These assets can be used in the future for supplying other customers.
- 3.9 Electricity Bulk Infrastructure Contributions should be calculated by the Electrical Department.
- 3.10 It is proposed that no refund be provided to developers who funded bulk infrastructure in full once pro-rata contributions are received from other developers sharing the same infrastructure.
- 3.11 Developers that will share bulk infrastructure should agree beforehand to contribute Bulk Infrastructure Contributions on a pro-rata basis.
- 3.12 The option for the developer to install bulk infrastructure on behalf of the municipality will be allowed under special circumstances. These arrangements will have to form part of the approved services agreement.
- 3.13 Bulk Infrastructure Contributions do not replace normal connection fees which may still need to be paid as per the latest approved tariffs for each new connection.
- 3.14 Contributions should be financially ring-fenced and only be used for the purpose the Bulk Infrastructure policy was introduced.
- 3.15 Bulk Infrastructure Contributions shall be calculated based on the position in the electricity network where the customer wants to connect. Only the bulk electricity infrastructure upstream of the connection point shall be taken into account when the contribution is calculated.

- 3.16 Proposed After Diversity Maximum Demands (ADMD) to be used for new developments.

Table 1 – Proposed ADMDs to be used for new developments

Load Type	ADMD
Informal Settlement	1,5 kVA
Residential Low Cost Housing (Government Subsidized Housing)	2,0 kVA
Residential Normal (RES4/RES3)	2,5 kVA
Residential (RES 2)	3,0 kVA
Residential (RES 1)	4,0 kVA
Residential (Upmarket)	6,0 kVA
Residential (Three Phase 40A)	9 kVA
Residential (Three Phase 60A)	13,5 kVA
Commercial, Business, Offices, etc.	80VA/m ²
Light Industrial, etc.	40VA/m ²
Industrial	120VA/m ²
Agricultural, Nursery, Scrap Yard, etc.	20VA/m ²

Note:

a. Apart from the residential developments, the developer must determine the correct connection size for his development.

b. If not available, the VA/m² values listed above shall be multiplied by the maximum building area taking into consideration the FAR and the local municipality land use act/policy.

c. It is therefore crucial that the Developer have clear requirements which his electrical consulting engineer can assist with.

4. Methodology in Calculating Bulk Infrastructure Contribution Charges

This section will clearly explain the steps that were taken to calculate the Bulk Infrastructure Contribution charges.

- 4.1 The Douglas supply network was divided into three functional levels from where a developer could source a connection (POS – Point of Supply):
- Medium Voltage (22 kV) – The new network to connect onto the existing 22 kV infrastructure. The developer will provide his own MV connection, miniature substation / transformer and low voltage network.
 - Bulk LV (400 V) – The new network to connect at an existing miniature substation/transformer. The developer to provide his own low voltage network.
 - Low Voltage (400/230 V) – New connections directly onto existing low voltage infrastructure.

- 4.2 Calculate the Net Present Value (NPV) of the three segments identified above to indicate current replacement value of infrastructure. A generic model is used to simplify the calculation that is based on the general Siyancuma configuration.
- 4.3 Calculate the total transformation capacity of each segment based on the installed capacity.
- 4.4 The contribution charges are then calculated as an R/kVA by dividing the replacement value of a segment by the capacity.
- 4.5 Depending on the connection point downstream, the cumulative costs up till the connection point will provide the final contribution to be paid.

5. *Determination of Bulk Infrastructure Contributions*

- 5.1 In consultation with the developer, determine the type of development, additional or new capacity required and the nearest suitable connection point in the existing network. A connection size (kVA) should be the outcome of the exercise.

It remains the responsibility of the Developer to ensure the connection size is sufficient. Should nuisance tripping occur, the municipality has the right to disconnect the supply and require the Developer to increase the connection size. All costs involved in this process (upgrading of infrastructure and Bulk Infrastructure Contribution) will be for the Developer's account.

For standard load types Table 1 should be consulted.

- 5.2 All technical requirements for new infrastructure to be installed by the Developer should be finalized with the Municipality. Should larger capacity infrastructure be required by the municipality from the developer, it must be concluded at this point.
- 5.3 Using the R/kVA tariffs provided, calculate the contribution due by the developer.
- 5.4 The value of work to be done by the developer for the Municipality must be calculated. This includes larger capacity infrastructure, upgrading or installation of new bulk infrastructure. The value of this work will be subtracted from the contribution calculated.

Professional fees must be included in the calculation.

- 5.5 The final contribution to be made to the Municipality must be stated in writing. The Bulk Infrastructure Contribution must be paid before approval is provided for the development to continue.

- 5.6 The Municipality is to issue a Tax Invoice to the Developer on acceptance of the calculated amount.

6. Exemptions and Special Conditions

Bulk Infrastructure Contributions shall not be levied under the following instances:

- 6.1 Temporary supplies with an agreed usage period of maximum twelve months.
- 6.2 When the developer installs bulk electrical infrastructure on behalf of the Siyancuma Municipality, with the following taken into account:
- 6.2.1 Where the Municipality requires larger capacity networks than what is needed for the development, the proportional cost of the larger network shall be determined and subtracted from the calculated contributions.

7. Recommendations

- 7.1 It is recommended that this policy be approved and adopted by the Siyancuma Municipality.
- 7.2 The policy should be reviewed and updated every two years to keep track with realistic material and labour costs that influence the replacement costs.
- 7.3 The payment of the Bulk Infrastructure Contributions shall be required before approval is provided for a new development, subdivision or upgrade of existing electrical connection to continue.
- 7.4 The contributions arising from this policy be financially ring-fenced and used exclusively for the purpose it was intended for.
- 7.5 The Bulk Infrastructure Contributions are to be paid by all entities who seek capacity from the Siyancuma Municipality's electrical network.

8. Examples of Calculation

The following examples shall illustrate the calculation of the Bulk Infrastructure Contribution of likely scenarios.

Examples, models and costing to be included in future revisions of this document.