

CESA BRANCH PRESENTATION

Collaboration - Electricity Sectors

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Status.



O1 ETHEKWINI METRO OVERVIEW



ASSET BASE OF ETHEKWINI

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Asset group	Extent	Unit
Major HV Substations	113	No.
HV Transmission Circuits	948	km
MV/LV Substations	10 589	No.
MV/LV Network circuits	23 612	km
Residential Customer connections	752 197	No.
Streetlights	235 799	No.



Capital Replacement Cost - 2024



02 ENERGY DEMAND TRENDS



Actual eThekwini Load 1950 1900 1850 1800 Load (MVA)) 1750 1700 1650 1600 1550 1500 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 Year

- State of the economy
- July 2021 Unrest
- Interest rates
- April 2022 floods
- Load shedding
- Investor confidence
- Electricity tariffs
- THD business rescue
- COVID-19
- Demand Side Management



03 TRANSMISSION NETWORK MASTER PLAN

Master planning process

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Source: Transmission Network Master Plan, Netgroup - 2011

Original Transmission Network Master Plan

- a) The first Transmission Network Master Plan (TNMP) was developed by Netgroup and was released in 2011.
- b) The load forecast was a crucial input to the network master plan. The load forecast was developed using regional demographic and historical load growth patterns.
- c) Kayamandi Development Services was appointed to develop an economic and demographic model to forecast expected population and economic growth in the study area.
- d) The results from the model was used as input to the **load forecast to produce the expected electricity needs** of the study area.
- e) The plan presented a low, medium and high growth scenario for power demand for the period 2009 to 2029.
- f) It was found that in the first few years since the release of the TNMP, that **actual power demand was lower than the forecasted power demand**, even for the low growth scenario.
- g) Contributory factors were that the Durban Harbour Exapnsion, Cato Ridge Container Terminal, Hammarsdale, Shongweni, Durban Dug Out Port, Back of Port developments did not move to execution stage.







- 1. MV/LV power applications on hand
- 2. Automobile supply park in Illovo by Dube Trade Port
- 3. Brickworks development
- 4. Caneridge development
- 5. Cement and smelter plant in Amanzimtoti
- 6. Durban Film Studio
- 7. Shongweni Development
- 8. Port of Durban expansion
- 9. Whestone Business Park Development
- 10. Northern suburb development



- **1.** Closure of refining activities at Engen Refinery and at Sapref Refinery.
- 2. The business rescue of Tongaat Hulets Development
- **3.** Reduction in power demand by Mondi. Mondi also intends generating power locally from coal and wood chips.
- 4. Move to gas for heating by residential and commercial.
- 5. Large industrial users like Toyota have embarked on **rooftop solar installations** to satisfy energy efficiency and CBAM.
- 6. Embedded generation by existing customers residential, commercial and industrial.
- 7. Major shopping malls installing **roof top solar pv and battery storage**:
 - a) Gateway 1 MW installed, planned end state 7.3 MW
 - b) Cornubia 4.3 MW installed
 - c) Frametex 3.7 MW installed







04 DEVELOPER CONTRIBUTIONS



The following Acts are applicable

- Constitution
- Municipal Systems Act
- Spatial Planning and Land Use Management Act (Amended)
- Municipal Planning and Land Use Management By-law
- Municipal Fiscal Powers and Functions Act (Amended)
- Municipal Finance Management Act
- Development charges policy

Legal framework dictates that contribution be made by developers

External engineering services comprise of HV and MV infrastructure

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The components that make up the external engineering services









Link infrastructure

Bulk infrastructure

Connection infrastructure

Connection infrastructure

Source: Development Charges Policy



Contribution towards bulk engineering services

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Bulk engineering services are capital infrastructure assets

- Benefit of **multiple users** or the community
- Municipal special development framework (SPLUMA) identifies the services as Water, Electricity, Sanitation, Roads & Stormwater and Transport services
- **Catalytic projects** is a large-scale spatial development project (>R500 million)
- **'Benefit principle' of public finance** those who benefit or caused the off-site impacts, pay their fair share
- Needs to be applied fairly and equally without creating an imbalanced playing field between developers
- Developer **must enter into an engineering services agreement** with the Municipality

A developer or new residents should not unduly benefit at the cost of the existing residents

SPLUMA is Spatial Planning and Land Use Management Act, 2013



The charge is levied on the landowner as a condition of approving the land development

- The cost is to cover the installation of **new infrastructure or upgrading existing infrastructure**
- The **bulk engineering services** are external to the development
- Development charges are calculated and **payable by the developer** to municipality
- Equitable and sustainable for financing capital infrastructure
- Recover **portion of capital cost** attributable to developments
- Mitigate risk of inadequate infrastructure
- Development charge is calculated on basis of the increased impact on existing infrastructure
- Calculated as a proportional share of the bulk engineering services
- Electricity to use After Diversity Maximum Demand as a kVA measurement unit
- Developer **pay the Municipality prior** to developing the land
- No internal or link services to be connected prior to full payment of development charges

Source: Development charges policy, 2023



Options available for installation of bulk engineering services

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- **1. Developer installs full or part of external engineering services** on behalf of the Municipality
 - a) Must be an engineering services agreement specifying the details of external services to be provided
 - b) Upon completion the infrastructure becomes the assets of the municipality
- 2. Developer pays the full calculated development charges, and the Municipality installs the external engineering services
- **3. Developer takes supply at High Voltage** and implements his/her own internal engineering services

Chosen option is subject to agreement



FINDING SOLUTIONS THROUGH COLLABORATION







- Membership of all electricity distribution utilities
- Affiliate membership open to commercial companies providing goods and services to the electricity distribution utilities.
- Industry activities are coordinated by a number of specialized committees, officers and a secretariat to the association (Education & Training, Legal & Statutory, Tariffs, Publicity & Papers, Technical).
- A special branch promotes the interests of women in the electricity distribution industry.



South African Institute of Electrical Engineers



- Formed in 1909 and has ± 6000 members professionally engaged in various engineering activities
- Sectors covered include academic research, manufacturing, electronics, telecommunications, measurement and control, mining, and power infrastructure services
- Members make meaningful contributions to the quality of life in communities and the steady advancement of technology.
- Hosts Continuing Professional Development (CPD) training courses offered through the SAIEE Training Academy
- Comprises of interest groups, sections, chapters, centres, committees and SAIEE council
- Has numerous corporate partners





- CESA has been in existence for over 70 years
- The CESA membership base is made up of companies that are wholly locally owned and operated as well as some that are locally operated but owned by multi-national groups.
- Member companies offer consulting engineering services that include a comprehensive range of planning, design and project delivery services
- CESA seeks to continuously improve the quality of life of people by interpreting the environment and pioneering change in partnering with all key stakeholders
- Pro-active, targeted, effective, and constructive engagement with all relevant stakeholders
- Influence Procurement Policies and Practices to Ensure Best Practice in Infrastructure Procurement

THANK YOU