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Impact of loadshedding on municipal finances and services survey

Development Dialogue - Loadshedding and the implications for Industrial Policy

April 24, 2023

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Introduction

- SALGA acknowledges the challenges faced by the country due to loadshedding, as a result of failing generation infrastructure and lack of maintenance to Eskom's generation fleet

- Loadshedding is further incentivising paying customers to seek alternative options for their energy needs,

- This is evidenced by the speed at which larger energy users are going off-grid. **The result is declining revenue from electricity sales**

- Loadshedding overall has had a negative impact to the country and municipalities, not only in terms of revenue, but also in **terms of additional expenditure, damage and vandalism to infrastructure, theft of electricity, over-time, and so on**

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Introduction cont…

- ✓ On February 14, 2023 the SALGA NEC took several resolution
- ✓ In respect of government response to the current electricity crisis:
  - Local government must have a voice in the NECOM as one of the most affected spheres of government with also some means to contribute towards the solution
  - **SALGA must conduct a survey on the impacts of loadshedding on municipal services and finances**

Purpose of the Survey

- The purpose of the survey was to assess the impact of loadshedding on municipal finances, electrical infrastructure, and electricity and water services and to determine the associated resource needs of municipalities
- The objectives of the survey were to:
  - Quantify revenue losses due to unserved energy as a result of loadshedding
  - Determine the costs that municipalities have incurred in terms of:
    - Theft and vandalism of infrastructure
    - Security installations and security to safeguard infrastructure
    - Extra parts and spares for damaged, vandalised or stolen electrical equipment
    - Staff overtime hours remuneration and payment for utilities staff and contractors
    - Costs of using fuel generators for wastewater treatment works and other facilities
  - Identify short, medium and long term solutions to alleviate the impact of loadshedding

Methodology

- A Circular was sent to all municipalities requesting information on the impact of loadshedding on their infrastructure and finances. They were requested to complete an online questionnaire (https://forms.office.com/r/zQ1WJV9Exd) and to submit their responses by Wednesday, 01 March 2023.

- 89 municipalities completed the questionnaire (including licensed municipal distributors and water services authorities)

- The data was analysed and a set of preliminary findings have been made

- Further work is required to draw out conclusions from these findings and to make a set of recommendations

Province	Municipalities that responded to the Survey
EC	Amahlathi, Buffalo City, Blue Crane Route, Dr Beyers Naude, Joe Gqabi, KSD, Kouga, Matatiele, Mbizana, Raymond Mhlaba, Sakhisizwe, Sundays River Valley
FS	Masilonyana, Matjhabeng, Nketoana, Setsoto, Tselopele, Mafube, Kopanong, Dihlabeng, Letsemeng, Tokologo, Maluti A Phofung, Mohokare, Nala, Ngwathe
GP	Midvaal, Emfuleni, Mogale City, Rand West City, City of Johannesburg, City of Ekurhuleni, Lesedi, City of Tshwane
KZN	uMngeni, Newcastle, eThekwini, Msunduzi, Nquthu, Ray Nkonyeni, Langalibalele
LP	Greater Tzaneen, Polokwane Local, Ephraim Mogale, Mopani, Blouberg, Makhuduthamaga, Lephalale
MP	Bushbuckridge, City of Mbombela, Govan Mbeki, Dr Pixley Ka Isaka Seme, Emakhazeni, Dr JS Moroka, Dipaleseng, Chief Albert Luthuli, Steve Tshwete, Emalahleni, Lekwa, Mkhondo, Msukaligwa, Gert Sibande, Thaba Chweu,
NW	Ngaka Modiri Molema, Rustenburg, JB Marks
NC	Karoo Hoogland, Khai-Ma, Ubuntu, Nama Khoi, Hantam, Richtersveld, Kai - Garib
WC	Bergrivier, Witzenberg, Beaufort West, Breede Vallei, Knysna, Swartland, Hessequa, Langeberg, Laingsburg, City of Cape Town, Bitou, Swellendam, Saldanha Bay, Theewaterskloof, Mossel Bay, Garden Route, Cape Agulhas, Overstrand, George

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Preliminary findings

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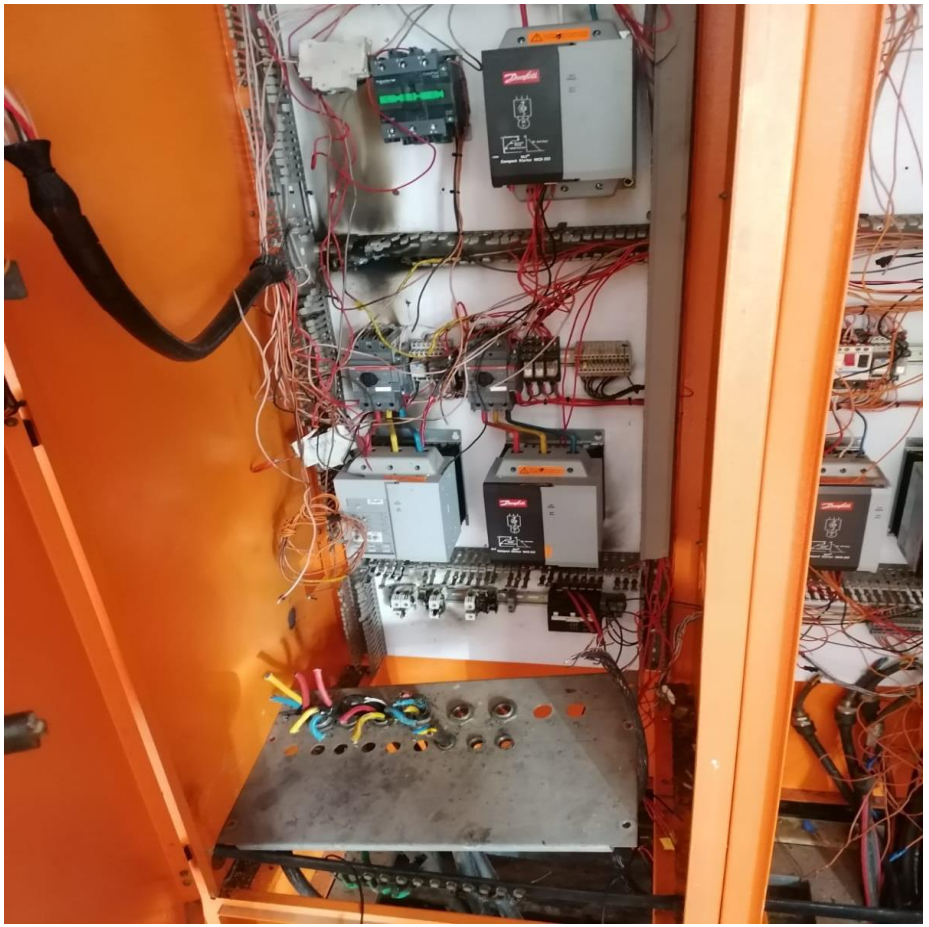
Theft and vandalism of infrastructure and equipment

- The **frequency and intensity** of cable theft and vandalism of infrastructure has increased during loadshedding, where 12% of the theft and vandalism recorded were more than 100 incidents per loadshedding per day
- Of all infrastructure affected by loadshedding, cables and transformers are most affected through damage or theft, and account for 25% and 23% respectively.
- The costs to replace or repairing damaged (**due to excessive switching**), vandalised or stolen electricity distribution network equipment across the 89 municipalities amounted to R1 602 300 000 million in this financial year
- The estimated cost across all licensed municipal distributors for replacing and repairing the infrastructure is in excess of R3 billion.

Vandalised infrastructure



Vandalised infrastructure cont…

Vandalised infrastructure cont...

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Wastewater treatment works (WWTW) and water treatment facilities

- From the 75 WSA (out of 144), the local government is spending at least R443 640 000 to fix WWTWs facilities that have been damaged and vandalised during load shedding
- Municipalities are spending at least R480 287 756 on procurement of back-up gensets and R482 517 300 per annum on fuel for generators during loadshedding
- Thus, the cost for fixing the damaged WWTW and water purification facilities, procurement of back-up generators and diesel is R1 406 445 056 across the 75 WSA
- The estimated cost across all WSAs for fixing damaged WWTW and water purification facilities, procurement of back-up generators and diesel is R3.5 billion.

Revenue losses on unserved energy

- The total revenue loss due to unserved energy across those 65 municipalities is in excess of R10 826 252 000 per annum.
- **65 municipalities** (5 metros and 60 local municipalities) provided data on loss of revenue due to unserved energy
- The total loss for 5 metros due to unserved energy amounts to R3 976 000 000, which is an average loss of R795 200 000 per annum per metro
- Averaged across all 8 metros, this amounts to nearly R6.4 billion per annum

$$X = \frac{R3\ 976\ 000\ 000}{5\ (Number\ of\ munics\ that\ submitted\ the\ data)}$$

$$X = R795\ 200\ 000\ (per\ metro)$$

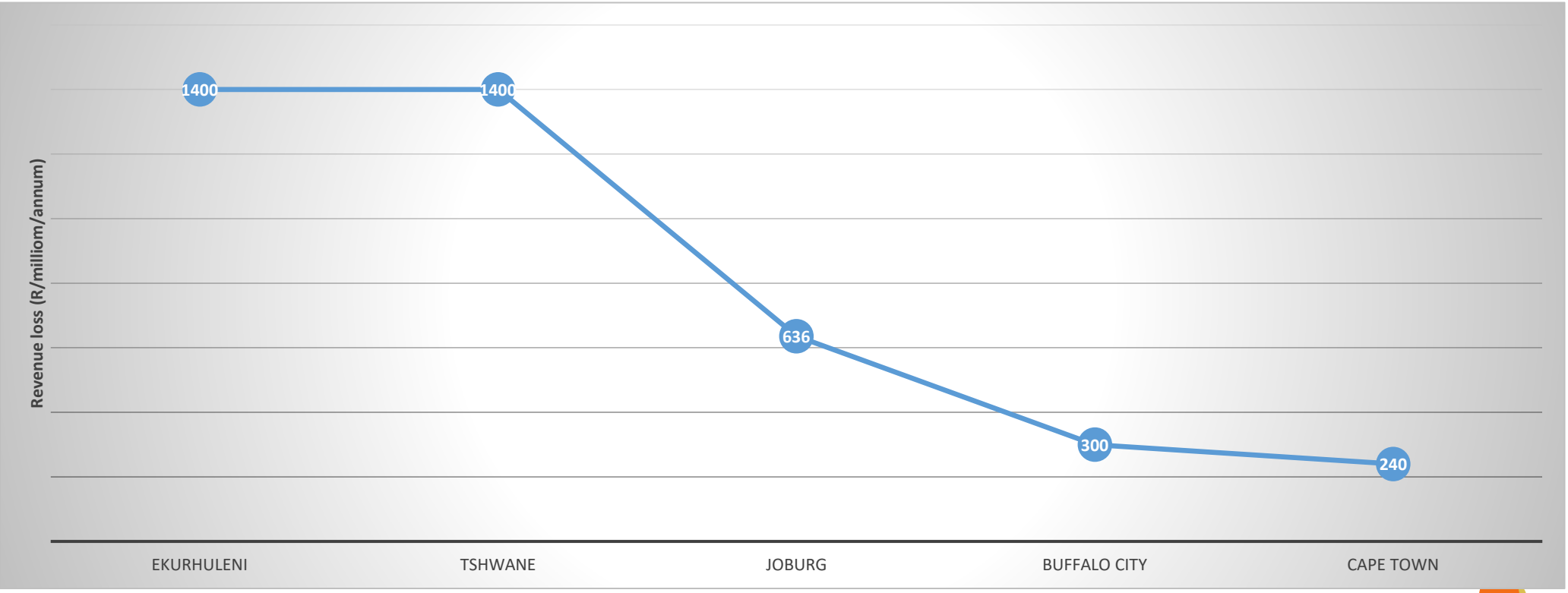
X=R795 200 000 x 8 (metros)

$$X = R6\ 361\ 000\ 000$$

Revenue losses on unserved energy cont…

Loss on unserved energy

- This is typically a value (in R/kWh) that is placed on a unit of energy not supplied due to an unplanned outage or loadshedding



Revenue losses on unserved energy cont…

Loss on unserved energy

- Similarly, the total loss due to unserved energy from 60 local municipalities amounts to R6 850 252 000, with 156 licensed local municipal distributors.

$$X = \frac{R6\ 850\ 252\ 000}{60\ (Number\ of\ munics\ that\ submitted\ the\ data)}$$

$$X = 156\ x\ R114\ 170\ 866\ (Loss\ per\ municipality)$$

$$X = R17\ 810\ 655\ 096$$

Therefore, the total local government loss due to unserved energy is R24 172 255 096 **(Excludes loss from customers that are going off-grid, partial loss from customers that are installing embedded generation)**

Private security and staff overtime

- Municipalities are spending in excess of over R596 200 000 per annum on private security to assist in preventing theft and implementation of early warning detection of cable theft because such equipment is vulnerable during loadshedding.
- Municipalities are incurring an annual average of R1 107 583 200 on staff overtime and contractors during loadshedding

  ✓ *In KSD municipality overtime is limited to 40 hours per month, however, there has been an increase in the time taken off per month.*

  ✓ *Rustenburg municipality is not incurring overtime cost as they use a shift system with no overtime payable.*

  ✓ *Breede Valley municipality has measures in place to reduce overtime expenditure and thus has not incurred an increase in their overtime expenditure.*

Private security and staff overtime cont…

- The study recommends that, based on the fact that loadshedding is most likely to continue for the next 24 months, municipalities should budget extra 50% of the overtime and maintenance.
- This recommendation is based on the following:
  - ✓ *The rate of theft and vandalism is high*
  - ✓ *Municipalities have lots of infrastructure from electrical to water services, which attract thefts during loadshedding hours*
  - ✓ *Loadshedding is most likely to continue for the next 24 months*
  - ✓ *The extra funds incurred thus far on overtime and contractors*

Short to medium term solutions to alleviate the impact of loadshedding

- There are 7 main key interventions to the damage caused by loadshedding, ensure uninterrupted power supply to WWTWs and safeguard equipment and infrastructure are:
  - ✓ Implementation of the Embedded Generation,
  - ✓ Procurement of gensets,
  - ✓ Municipal IPPs,
  - ✓ Implementation of Demand Side Management (DSM),
  - ✓ Ensure security-safeguard the infrastructure against theft and vandalism,
  - ✓ Battery Energy Storage System (BESS),
  - ✓ Ensuring that municipalities have skilled human personnel

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Conclusion

- The loss and cost incurred as a result of vandalism and theft is unaffordable and unsustainable
- Plan was to identify areas of support including accessing National Disaster resources through Regulation 4(e), government has withdrawn the state of disaster.
- Thus, NO FRAMEWORK against which applications for financial and other assistance can be made in terms of costs and damage incurred related to loadshedding.
- SALGA to lobby provincial COGTA for support to municipalities (funding, technical assistance and skills development)
- NECOM workstream 9: Distribution-safety and security sub-workstream to assist in preventing vandalism of infrastructure

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Thank you

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