AMEU STRATEGIC ADVISER'S STATE OF THE SECTOR PRESENTATION

Presentation by

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Introduction

This AMEU Strategic Advisers presentation will seek to cover in reasonable detail the status of the SA power sector with focus on and in the context of the following;

1. ***The recent meetings and activities associated with the AMEU and***
2. ***Other burning, topical and related issues in the SA power Dx landscape that has/may have a potential impact on the AMEU and its membership***
3. ***In our endeavour to express our views and impart and/or disseminate information we will strive to do so in a factual, honest, professional, impartial and balanced manner***
4. ***Where necessary we will complement/supplement our views with those of recognised subject matter experts in the sector***
5. ***Although reasonable care was taken the presenter (and the AMEU) is not responsible for any errors or omissions in this presentation. The presenter (and the AMEU) accordingly advises users of information in this presentation to first check with their respective professional service providers the accuracy and/or correctness of such information before they utilise such information in any risk mitigation and/or business-related decision-making process, project or exercise.***

SOUTH AFRICA's POWER CRISIS…QUO VADIS

(…….whereto from here…the journey)

GIVING CONTEXT TO SA's POWER CRISIS(1)

1. **South Africa faces an unprecedented developmental crisis.**
2. The pandemic has served as the final straw to plunge the country into its largest economic downturn in living history
3. Unemployment levels are at their highest on record,
4. Investment ratings have plummeted
5. Many in the emerging middle class have slid back into greater levels of poverty.
6. Meanwhile, the precarious state of state-owned entities – in particular Eskom power utility – remain a large burden on the increasingly constrained national fiscus.
7. An ailing coal- fleet and chronic power cuts continue to cripple economic growth prospects at a time that South Africa needs it most.
8. Rapidly increasing global concerns about climate change pose new threats to our economy, however, these also open up new opportunities

[Source: A 500-DAY GAME PLAN FOR SOUTH AFRICA'S ENERGY SECTOR, by Dr Grové Steyn, Celeste Renaud and Lonwabo Mgoduso; Meridian Economics; June 2021]

GIVING CONTEXT TO SA's POWER CRISIS(2)

…….our understanding of the burning platform/the case for change

(attributed mainly due to the current Eskom load shedding)

The current performance of SA's power utilities (Eskom and munics included) is seemingly and arguably fast accelerating downwards in a negative spiral and if NOT arrested and turned around as a matter of urgency the consequences for the end-use customer (let alone SA Incorporated) is going to be diabolical because these power utilities may not successfully execute on their respective service delivery mandates.

GIVING CONTEXT TO SA's POWER CRISIS(3)

…….our understanding of the problem statement

How might these SA power utilities (Eskom and munics included) respond to their respective poor performances, current challenges and emerging disruptors as a matter of urgency to enable them to meet their mandated levels of service delivery on a sustainable basis

GIVING CONTEXT TO SA's POWER CRISIS(4)

…….is the current municipal service delivery model working

"Is the current model for providing basic services (includes power/electricity) contributing to increased standards of living, reduced household poverty and greater equality?

1. The current model of services delivery is unlikely ever to deliver its developmental goals, which goals are the main reason for the existence of local municipalities
2. This is not just a service delivery or a local government problem: the failure of the municipal services delivery model is undermining all South Africa's other efforts to reduce poverty and inequality
3. Within the constraints imposed by the current legislative and fiscal framework, the goal of genuinely affordable access to services cannot be achieved by most individual municipalities.
4. Any sustainable solution must clearly prioritise universal access to quality and genuinely affordable basic services, over all other outcomes, and create an enabling regulatory and institutional environment to achieve that priority "

[Acknowledgement: Dr Tracy Ledger; Report; Public Affairs Research Institute, South Africa]

ENERGY CRISIS – INTRODUCTION (1)

In furtherance it can also be stated or paraphrased that ;

SA is currently in a national energy crisis/challenge characterised by the electricity crisis and as evidenced by inter alia the severe or robust high stages of Eskom load shedding and its consequent negative impact on peoples lives and the economy

ENERGY CRISIS – INTRODUCTION (2)

7. At the same time, we can diversify our energy sources and achieve energy security in the long term.
8. A dedicated **National Energy Crisis Committee (NECOM)** has been established comprising all government departments and Eskom, led by the Director-General in the Presidency, to implement this action plan.
9. It reports directly to an Inter- Ministerial Committee comprising the Minister in the Presidency, the Minister of Mineral Resources and Energy, the Minister of Public Enterprises, the Minister of Finance, the Minister of Forestry, Fisheries and the Environment and the Minister of Trade, Industry and Competition.
10. The NECOM now has **nine (9) workstreams** to inter alia execute the work necessary to effectively and efficiently rollout/implement the national electricity crisis plan

ENERGY CRISIS – INTRODUCTION (3)

- Simply put, Eskom's current electricity crisis can be paraphrased and described inter alia as a;
  1. ***"Poverty of electrons,***
  2. ***Poverty of energy capacity,***
  3. ***Poverty of money,***
  4. ***Poverty of core competencies and a***
  5. ***Poverty of the soul crisis***"
- The presenter has intentionally used the word **"poverty"** because poverty is now generally recognised to be a man-made event or situation and therefore can be solvable.
- In 2005, Nelson Mandela gave his famous speech at the **"Make Poverty History"** rally in London's Trafalgar Square and called on world leaders to make poverty history. Madiba stated;

  "Like slavery and apartheid, poverty is not natural. It is man-made and it can be overcome and eradicated by the action of human beings."
- **In the same light SA's electricity crisis is therefore solvable**

ENERGY CRISIS – INTRODUCTION (4)

1. Load shedding is the single biggest constraint on South Africa's economic growth.
2. Government is taking action both to address the immediate crisis and to make load shedding a thing of the past.
3. We are mobilising all the resources at our disposal and will do whatever it takes to achieve energy security.
4. By applying a laser focus to a limited number of high-impact interventions, and by acting with urgency and decisiveness, we can end load shedding.
5. At the same time, we can diversify our energy sources and achieve energy security in the long term
6. We will achieve this by removing barriers to new generation capacity and unlocking energy from many different sources – including Eskom, independent power producers, businesses and households – as part of a collective national effort.

SAs ELECTRICITY CRISIS –LATEST STATUS FEEDBACK – PRESIDENCY UPDATE, JAN 2023 (1)

INTRODUCTION

In his address to the nation on 25 July 2022, President Cyril Ramaphosa announced a bold set of actions to address load shedding and achieve energy security.

The **National Energy Crisis Committee** (NECOM) has since been established to oversee the implementation of five key interventions:

1. **Fix Eskom** and improve the availability of existing supply
2. Enable and **accelerate private investment** in generation capacity
3. **Accelerate procurement** of new capacity from renewables, gas and battery storage
4. Unleash businesses and households to invest in **rooftop solar**
5. Fundamentally **transform the electricity sector** to achieve long-term energy security

The short-term objective of the Energy Action Plan is to **reduce the severity and frequency of load shedding** through immediate measures to improve the performance of Eskom's existing power stations and stabilise the energy system.

Our long-term objective is to **end load shedding altogether and achieve energy security** by adding as much new generation capacity to the grid as possible, as quickly as possible.

KEY ACHIEVEMENTS TO DATE

Schedule 2 of the Electricity Regulation Act has been amended to **remove the licensing requirement for generation projects** of any size to enable private investment at a much larger scale.

A new Ministerial determination has been published for over **18 000 MW of new generation capacity** from wind, solar and battery storage.

The pipeline of **private-sector embedded generation projects** has grown to over **100 projects**, with total capacity of more than 9 000 MW.

19 projects from Bid Window 5 have signed project agreements to supply **1 800 MW of solar and wind capacity**, and a further six preferred bidders from Bid Window 6 will provide 1 000 MW of capacity.

An additional 300 MW of power has been **imported from neighbouring countries**, with work underway to increase imports from the region.

Eskom has launched a **Standard Offer Programme** to purchase up to 1 000 MW of power from companies that have existing generation capacity for a period of three years, as well as an **Emergency Generation Programme** to purchase additional power when the grid is constrained.

Various **actions have been completed** to streamline authorisation processes for energy projects:

- **Transmission infrastructure has been excluded** from the need to obtain an environmental authorisation in areas where the **environmental impact is low.**
- The **timeframe for environmental authorisations** has been **reduced** to 57 days for projects gazetted as Strategic Infrastructure Projects.
- The **timeframe for registration** with NERSA has been **reduced** from four months to an average of 19 days.
- The **timeframe for grid connection has been reduced** from nine months to six months.
- The **timeframe for land-use authorisations** for energy projects has been **reduced** from 90 to 30 days.

CLASSIFICATION OF NATIONAL DISASTER IMPACT OF SEVERE ELECTRICITY SUPPLY CONSTRAINT (1)

"We are therefore declaring a national state of disaster to respond to the electricity crisis and its effects," Ramaphosa said, announcing that a Gazette classifying the severe electricity supply constraint a national disaster had been published by the Department of Co-operative Governance prior to his speech.

"To deal more effectively and urgently with the challenges that confront us, I will appoint a Minister of Electricity in The Presidency to assume full responsibility for overseeing all aspects of the electricity crisis response."

[PRESIDENT CYRIL RAMAPHOSA, SONA, 9 FEB 2023]

[per: "ENGINEERING NEWS", 9 GEB 2023]

NOW WITHDRAWN

State President sets out roles and responsibilities of the Minister of Electricity (1)

1. In his 2023 State of the Nation Address (SONA), President Ramaphosa announced his intention to appoint a Minister of Electricity to coordinate Government's response to the electricity crisis as a national priority.
2. On 7 March 2023, the President appointed several Ministers and Deputy Ministers, including **Dr Kgosientsho Ramokgopa** as Minister of Electricity.
3. **After due consideration, President Ramaphosa has transferred to the Minister of Electricity all powers and functions contained in Section 34(1) of the Electricity Regulation Act, which were previously entrusted to the Minister of Mineral Resources and Energy.**
4. **The President has also transferred to the Minister of Electricity relevant powers and functions set out in Section 34(2) of the Electricity Regulation Act.**
5. Section 34 of the Act deals with new generation capacity and provides as follows:

[Source: Presidency press release, 26 May 2023]

State President sets out roles and responsibilities of the Minister of Electricity (2)

5. Section 34 of the Act deals with new generation capacity and provides as follows:

"(1) The Minister may, in consultation with the Regulator –

(a) determine that new generation capacity is needed to ensure the continued uninterrupted supply of electricity;

(b) determine the types of energy sources from which electricity must be generated, and the percentages of electricity that must be generated from such sources;

(c) determine that electricity thus produced may only be sold to the persons or in the manner set out in such notice;

(d) determine that electricity thus produced must be purchased by the persons set out in such notice;

(e) require that new generation capacity must –

(i) be established through a tendering procedure which is fair, equitable, transparent, competitive and cost-effective;

(ii) provide for private sector participation.

6. This proclamation will provide the Minister of Electricity with the powers necessary to direct the procurement of new generation capacity and ensure security of supply.

7. Other powers and functions contained in the Electricity Regulation Act – including those related to the implementation of determinations made in terms of section 34 – will remain with the Minister of Mineral Resources and Energy.

[Source: Presidency press release, 26 May 2023]

State President sets out roles and responsibilities of the Minister of Electricity (3) - Proclamation 121 of 2023 as gazetted

EXTRACT FROM PROCLAMATION 121 OF 2023

Schedule

Column 1 Powers and functions under the Electricity Regulation Act, 2006	Column 2 Cabinet member previous responsible	Column 3 Cabinet member to whom function is transferred and the extent of the transfer
1. Section 34(1) of the Electricity Regulation Act, 2006.	Minister of Mineral Resources and Energy	Minister of Electricity 1. All powers and functions in section 34(1) of the Electricity Regulation Act, 2006.
2. Section 34(2) of the Electricity Regulation Act, 2006.		2. Powers and functions as set out in section 34(2) of the Electricity Regulation Act, 2006, to the extent that the powers and functions are necessary or incidental to any purpose set out in section 34(1) Electricity Regulation Act, 2006, excluding powers and functions contained in sections 34(2)(a) to (e) of the Act.

s34(2) only has paragraphs (a) to (e) - no other paragraphs

State President sets out roles and responsibilities of the Minister of Electricity (4)

Unless further clarification is provided seemingly;

1. It is not clear whether the Minister of Electricity has been given the powers for developing policy as well as for implementation
2. It appears as if the Minister of Electricity effectively can only execute ERA s34(1) and actually not do anything ***'necessary or incidental'*** under ERA s34(2) per the exclusions
3. It also appears that the Minister of Electricity **can issue "determinations"** but the DMRE (per the Minister) still has or retains the legal powers for the procurement and regulations since the **IPP Office and NERSA** still falls under the jurisdiction of the DMRE.
4. Again it appears that the Minister of Electricity will have the opportunity to **predefine electricity sources (technology) and the "energy mix"**
5. Again it appears the Minister of Electricity will update the IRP and do public consultation while the DMRE Minister still retains the authority to develop the IRP from a policy perspective
6. Its also not clear going forward where the **ERA s34 ministerial deviations** are supposed to be logged;
   a) Will it be logged by the Minister of Electricity or
   b) Will it be continued be logged by the Minister of Minerals , Resources and Energy

ESKOM's CURRENT SYSTEM PERFORMANCE

(AS OF May 2023)

ESKOM SYSTEM STATUS - WINTER OUTLOOK (MAY 2023) (1)

Executive summary

- Despite several positive developments to address Eskom's challenges, loadshedding has intensified with a devastating impact on our economy.
- The winter outlook indicates an **increased risk of supply shortfall against expected demand**, with our worst-case scenario indicating that loadshedding could intensify to stage 8, if our interventions are not successful.
- The **increase in loadshedding levels does not mean there is a greater risk of a national blackout**, instead loadshedding is one of the processes we use to prevent such an occurrence by managing the demand for electricity at a given time.
- **Efforts to reduce and ultimately end loadshedding require us to work together** to drive interventions both on the supply side (improving available generation) and demand side (reducing peak demand)
- **Eskom remains committed to increase the amount of available generation**, with a specific focus over the winter period, by:
  - Reducing our unplanned losses in the generation fleet
  - Managing planned maintenance to the minimum level of maintenance required over winter
  - Increasing diesel burn at the open cycle gas turbines (OCGT)
- We are driving the **Generation Operational Recovery Programme with the support of our Board** to sustainably recover the performance of the plants over the next 24 months.
- **Leadership stability, skills interventions, partnering with industry and other Government departments** are some of the enablers we have put in place to ensure we succeed.
- Despite all these efforts, **more needs to be done to reduce the level of electricity demand specifically during the peak**. We believe **the public can greatly support efforts to mitigate impact of the energy crisis** especially over the winter period

Note: Presenter VP shapes/font are in "RED" colour on the slide

ESKOM SYSTEM STATUS - WINTER OUTLOOK (MAY 2023) (2)

Despite several positive developments to address Eskom's challenges, loadshedding has intensified impacting the economy

	Developments	Impact
Establishment of NECOM, EAP and appointment of electricity Minister	• Intergovernmental structure established, followed by the President's Energy Action Plan overseen by the Electricity Minister	✓
MES / air quality consultation panel	• Independent advisory panel to assess impact of MES / air quality challenges and consider mitigations to security of supply • Exemption for Kusile temporary solution	✓
Positive developments in Eskom's financial challenges	• NERSA determination with NT debt relief solution is a positive development towards a sustainable FSI	✓
EAF deterioration	• EAF has deteriorated from target of 60% at the time and currently 52% • Load losses associated with Flue gas duct incident at Kusile and delays to Koeberg resulting in loss of ~ 3080 MW generation capacity **EAF = +- 52%** (VERY WORRISOME	!
Limited impact from sec 34 determination REIPP BW5&6, RMIPPP, etc.	• Developers experienced delays in reaching commercial close (global economic challenges) - 279.2 MW added since April 2022, • BW 5 and 6 anticipated to come online 2024 and 2025 respectively • Release of **RFP** for **BW7 & Gas Programme** highly dependent on available grid capacity _Grid constrained//Evacuation challenges	!

Impact

- 2022 experienced the highest levels of loadshedding
- Reduced Q3 real GDP growth by **2,1 percentage points**
- R300 bn cost to the economy
- ~ 5% of SA GDP lost in 2022

Worrisome ! - Renewables curtailment maybe necessary in the short term to make "grid space"

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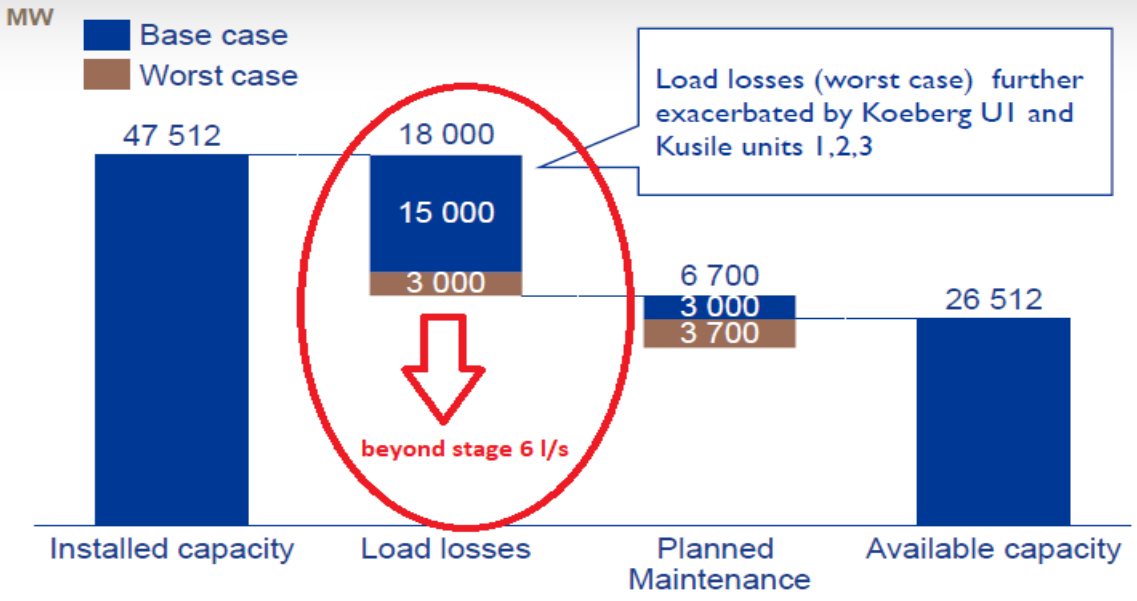
ESKOM SYSTEM STATUS - WINTER OUTLOOK (MAY 2023) (3)

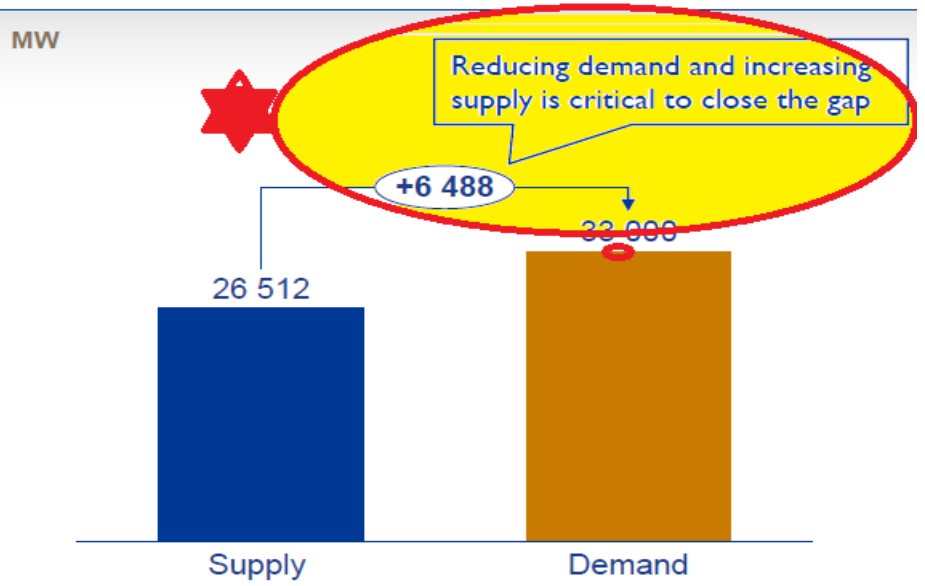
The winter outlook indicates significant risk of demand and supply imbalance

Eskom

Available supply based on winter outlook (Base case + 3000MW)



Available supply against forecast peak demand



- Unplanned load losses have deteriorated to ~16 000 MW, impacted by Kusile, 1-3, 5, Medupi U4, and Koeberg U1
- **Should load losses deteriorate to 18 000 MW (base case +3000)** and the forecast peak demand materialise – **this could result loadshedding beyond stage 6 driven by variance of ~4000MW in UCLF.**
- Efforts are underway to return units from outages, reduce partial load losses and maintain planned maintenance between 1300 - 3000 MW over the winter period
- Eskom will be **intensifying demand side management** and **increasing diesel production** to reduce the supply deficit within stage 6 loadshedding

Note: Presenter VP shapes/font are in "RED" colour on the slide

ESKOM SYSTEM STATUS - WINTER OUTLOOK (MAY 2023) (4)

Winter period comparison between 2022 and 2023 shows a net reduction in Capacity ~3000MW over winter

SS

Eskom

Capacity		Demand
Decrease of 3080 MW due to unavailability of Kusile 1,2,3, and Koeberg 1		Demand in winter 2023 is expected to be similar to 2022 at around 34 000 MW
Planned maintenance reduced over Winter to range of 1300MW - 3000MW, however same principle between 2022 and 2023		151 MW increase in Demand Response (DR) from April 2022 to April 2023
IPP of 75 MW has been added to the grid and a 100MW Standard Offer participant has signed to deliver by winter		DSM is 57 Mw higher in April 2023 than in April 2022
290 MW from the Emergency Generator Programme is expected during winter 2023		Power alert delivers up to 270 MW at peak, but is mature and not expected to increase

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ESKOM SYSTEM STATUS - WINTER OUTLOOK (MAY 2023) (5)

The scenarios of the winter outlook indicate loadshedding could intensify to stage 8 if our interventions are not effective

SS

Eskom

Winter 2023 – 1 April -31 August (153 days)

Scenarios		Base case: 15 000 MW UCLF		Base case +1500MW : 16 500 MW UCLF		Base case + 3000 MW 18 000 MW UCLF	
Number of LS days OCGT costs		122 Days R 12.1bn		152 Days R 12.5bn		153 Days R 12.5bn	
Highest stage of LS		Stage 5		Stage 6		Stage 8	
Month	Peak residual forecast	Load reduction days	Max load reduction stage	Load reduction days	Max load reduction stage	Load reduction days	Max load reduction stage
May	32 499	27	5	31	6	31	7
June	32 572	18	3	30	6	30	7
July	32 378	28	5	31	6	31	8
August	31 413	28	5	31	6	31	8

If **unplanned outages average 18000MW** for the winter period, **load shedding** will be required **every day and will be implemented up to stage 8**

Possible Stage 8 l/s - worrisome !

Note: Presenter VP shapes/font are in "RED" colour on the slide

ESKOM SYSTEM STATUS - WINTER OUTLOOK (MAY 2023) (6)

Note: Presenter VP shapes/font are in "RED" colour on the slide

ESKOM SYSTEM STATUS - WINTER OUTLOOK (MAY 2023) (7)

CALL TO ACTION for WINTER: Protect our electricity supply – we can reduce stages if we do our bit

MB

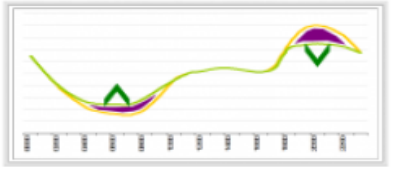
Eskom

1 What have we done…

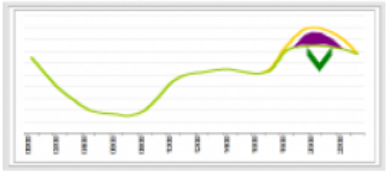
1. Eskom has **ACHIEVED 4500 MW** (Demand programs)
2. Eskom launched a **national incentive program targeting 1450MW over 3 years**
3. **SMART metering is being deployed** (>300 000) – customer support required
4. Aggressive Media campaign for a **CALL TO ACTION**
5. We have **implemented** a number of **pilots across various sectors**

2 What are we doing…

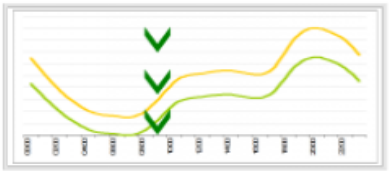
Program 1:
Load Management Programme (LM)



Program 2:
Residential Load Management (RLM)



Program 3:
Energy Efficiency (EE) Programme



3 What can you do….

How can you help to reduce loadshedding:

1. **Use only** the **electricity you need**
2. **Switch off** what is not needed
3. **Protect the electrical infrastructure** in your area
4. **Stop the Izinyoka** – they leave you in darkness
5. **Pay and be legal**
6. **Delay charging** should be implemented for **inverter systems**

NOTE: **Many of the munics/metros are also implementing Programs 1,2 and 3. However funding and resource constraints are hampering the accelerated rollout of these Programs**

Note: Presenter VP shapes/font are in "RED" colour on the slide

NRS048-9 – Edition 3 progress

How far is it, how far left to go..

Done so far:

- Comments received and divided into 8 task teams
- Task teams finalized results
- Results included into a “first” final draft of NRS048-9 Edition 3
- This was presented to the NRS048-9 working group. It was generally accepted, with some time given for further comments
- Comments received from various stakeholders including Dx.

- To do for NRS048-9 Working Group:
  - Finalise document addressing new comments. And submit to NRS Management Committee
- Beyond NRS048-9 Working Group
  - NRS Committee to recommend the document to NERSA
  - NERSA to hold public participation meetings
  - NERSA to declare Edition 3 a license condition.

GRID VALUE - SEEMINGLY GRID VALUE IS VIEWED CONTEXTUALLY

1. **Mineral Resources and Energy Minister Gwede Mantashe** said that **"grid unavailability" was the single biggest challenge in the country's ongoing energy crisis.** "Notably, the single-most challenge we face to address the energy crisis is the grid unavailability that is beginning to be this big problem, because you can increase the generation, but if there's no grid capacity, the impact is not the same. **So, we must pay attention to grid capacity**." ***[EWN News, 16 May 2023]***

   (see value in the grid)

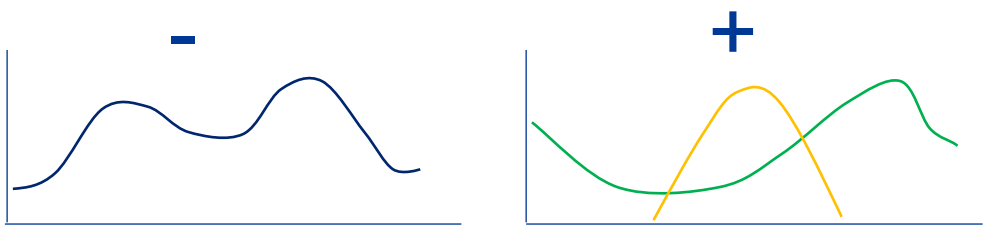
2. "Billions of pounds' worth of green energy projects are on hold because they cannot plug into the UK's electricity system, BBC research shows. **Some new solar and wind sites are waiting up to 10 to 15 years to be connected because of a lack of capacity in the system** - known as the "grid". **"We currently have one of the longest grid queues in Europe,"** according to Zoisa North-Bond, chief executive of Octopus Energy Generation. ***[BBC News]***

   (see value in the grid)

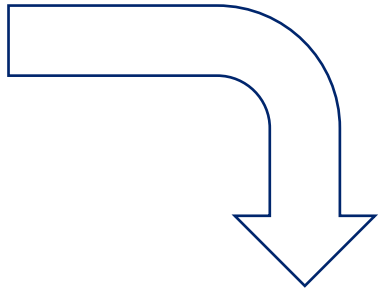
3. Up to 5 Western Cape towns **to be taken off the grid** as province tries battery-powered units In the next week Cape Town will also announce a tender for 500MW of dispatchable power that will be available 'at the flick of a switch' ***[Times Live, 24 March 2023]***

   (Seemingly do not see value in the grid)

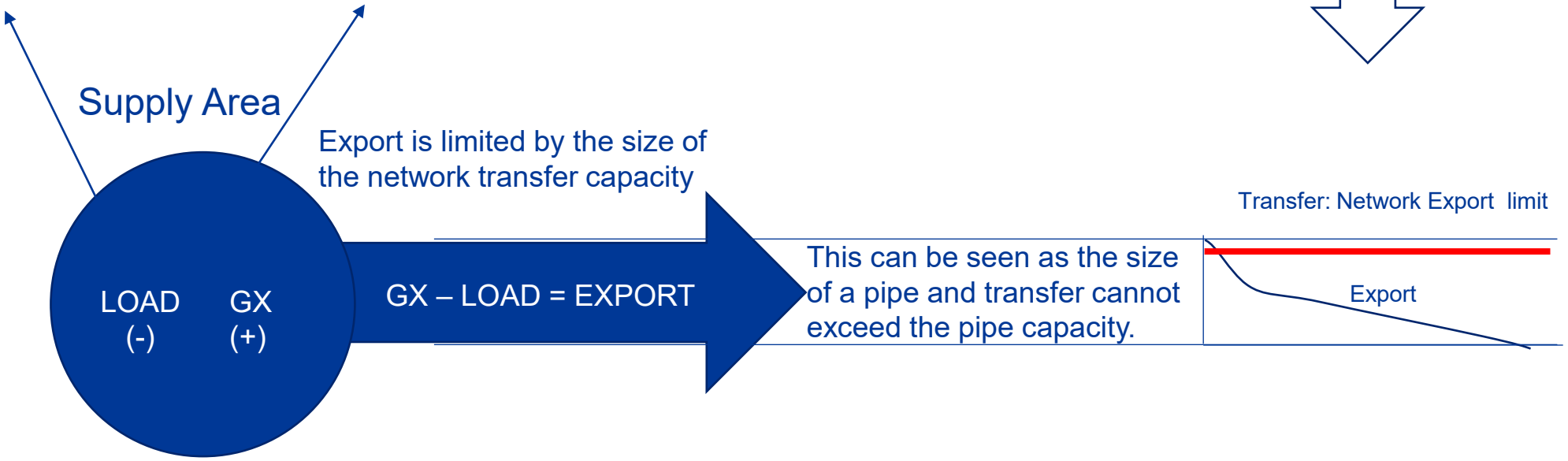
Need to increase generation connection capacity with curtailment lever



The instantaneous load and generation is the export or import from the supply area. For the export case eg more generation in the supply area than load.



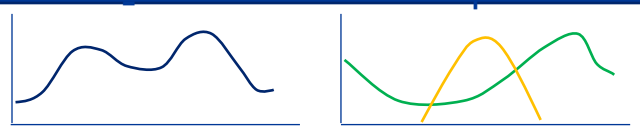
The network transfer this power to other supply areas within the transfer capacity of the network.



- **ADDRESSING ESKOM's GRID/EVACUATION CONSTRAINTS IN THE SHORT TERM THROUGH RENEWABLES CURTAILMENT (1)**

Note: Presenter VP shapes/font are in "RED" colour on the slide

Curtailment is enabling increased generation connection capacity



Supply Area

LOAD (-) GX (+)

GX – LOAD = EXPORT

Network Export limit

Export is limited by the size of the network transfer capacity

Supply Area

LOAD (-) GX (+)

Tx Expansion

Required Network Export limit

Required Network Expansion

Increase generation connection will exceed existing network limits. Expansion will be required to enable transfer of all energy.

Supply Area

LOAD (-) GX (+)

Curtailment

Existing Network Export limit

Addition energy

Increase generation connection with curtailment and still respect network export limits

Note: Presenter VP shapes/font are in "RED" colour on the slide

TID ROLLOVER – PROPOSED NATIONAL TREASURY ("NT") TRANSVERSAL CONTRACT

1. The eminent NT Transversal Contract is envisaged to essentially cover the audit and TID conversion of existing prepayment meters and the supply, installation, management and maintenance of smart metering solution for a limited period by appointed service providers
2. As background there is a pending business risk to the prepayment metering industry that requires urgency of action to circumvent it.
3. The token identifiers (TID) used to identify each credit token will run out of available numbers in November 2024, at which point all STS compliant meters will stop accepting credit tokens.
4. The remedy is to visit each meter and enter a special set of key change tokens to reset the meter memory.
5. Electricity and water service providers as a further remedy will also have the option of installing smart meters (NRS049 compliant) onto their networks to replace existing meters and to integrate with a smart city end solution.

Feedback from SALGA

- 77 weeks to go
- 3.9mil meters metros + munics
- 0.7mil have been reset (18%)
- Remainder = 8.3k per day
- Quarterly workshops

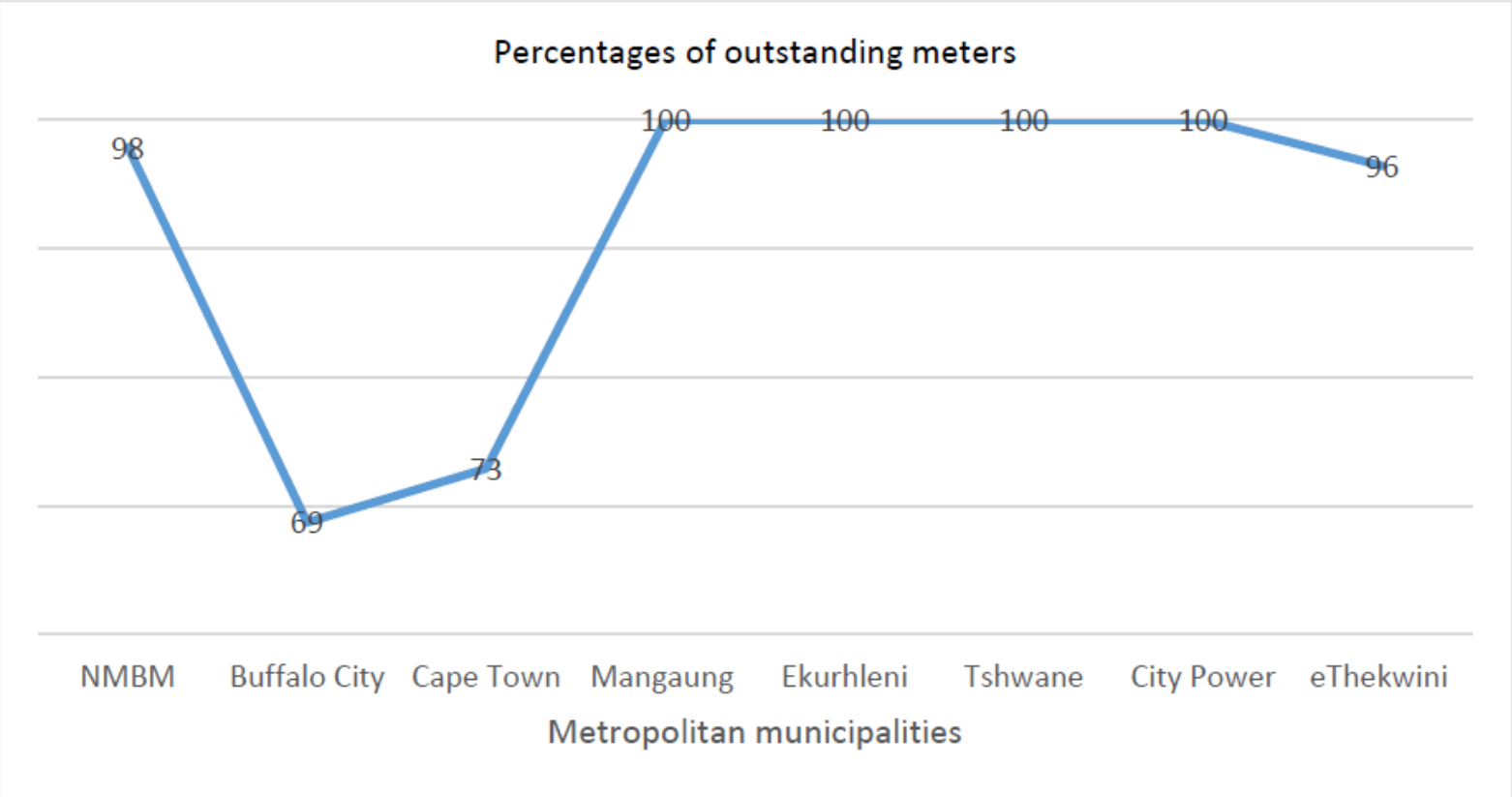


Figure 7: Percentages of outstanding prepayment meters for resetting project

Feedback from STSA

- Eskom is starting in August 2023
- 226 (46%) of 487 Munics + Town Councils have started
- 86 (30%) of 286 sub-metering vendors have started
- Several independent service providers are active in the field
  - Some have reported 30% revenue recovery as a result of revenue protection performed at the same time
- The STSA continues to support the industry with information and guidance

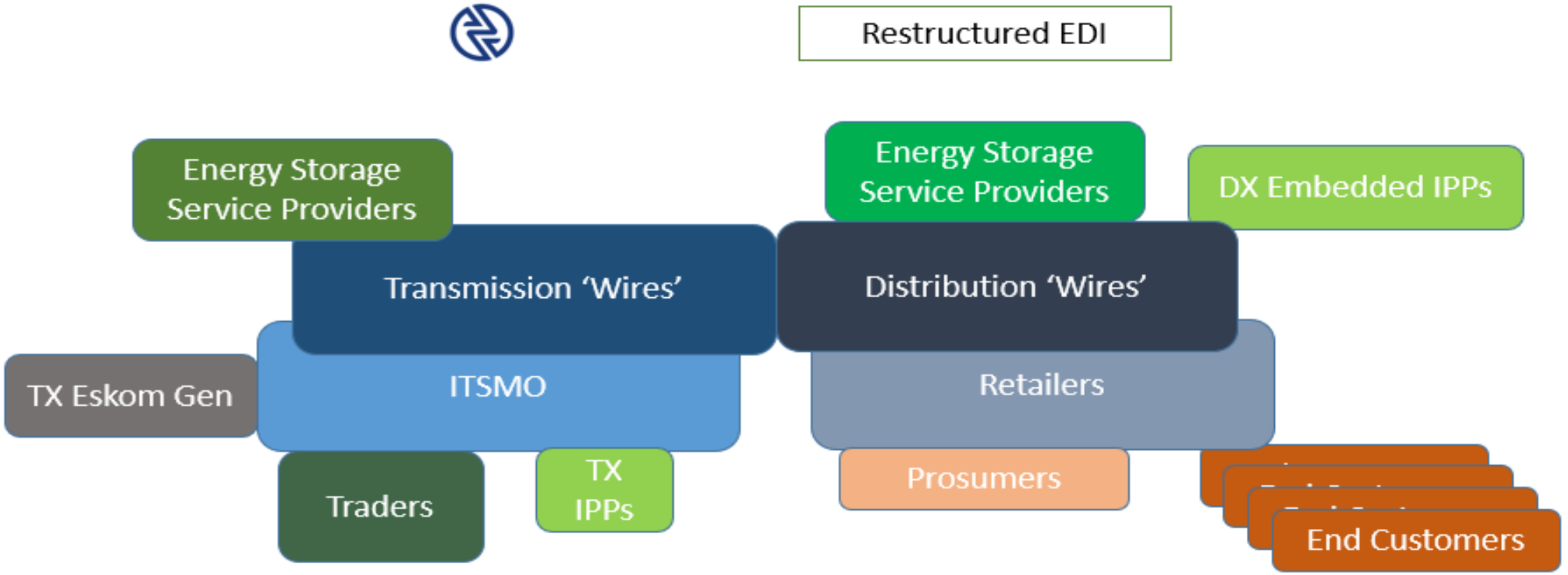
Erroneous media statements and myths

- STS prepayment meters have reached end of life and need to be replaced by smart meters(NOT TRUE)
  - Current STS meters only need replacement if they are faulty
- TID rollover will not eliminate ghost vending (NOT TRUE)
  - Meters that are reset also receive a new encryption key
  - Ghost vendors only have access to old keys, thus they can no longer vend to the meters
- KRN 2 meters do not need to be reset (NOT TRUE)
  - The indicative criteria is for the meter to be coded from base date 1993 to base date 2014, a parameter which is present in the vending system database

WHEELING MATTERS

1. A national wheeling framework is being coordinated by one of the NECOM workstreams (WS9) of the national electricity crisis committee, which aims to expedite the framework's establishment.
2. The drafting process is complex due to the diverse interests of many stakeholders.

What is the ‘End Game’?



UNDERSTANDING THE CURRENT CHALLENGES OF WHEELING WITHIN MUNICIPAL NETWORKS (1)

1. When trying to integrate wheeling principles within current municipal frameworks, there is a lack of harmony, tariff discrimination and, in many cases, the loss of revenue to the municipality.
2. Recovery of costs on the distribution grid is carried out via cost pooling per voltage level. This methodology is regulated amongst municipalities. This cost recovery method will either be a kWh recovery, a kVA recovery, or a combination of both.
3. The costs allocated to the voltage pool, the number of customers participating, the loading size and the load factors are essential factors in determining the cost recovery method.
4. In times of high growth coupled with high load factor customers, a kWh recovery method is most plausible as it spreads costs amongst a more prominent aspect of a tariff component.
5. The kWh recovery method has the effect of reducing the average tariff for all customers.

[Source: "Wheeling of Electricity: A Friend or Foe in the Energy Transition" by Leshan Moodliar, eThekwini Metro Elect; Innocent EA Davidson, DUT; Elutunji Buraimoh, DUT;]

IMPORTANCE OF WHEELING?

1. Notwithstanding the challenges associated with wheeling, there must be a progressive implementation plan, as it is not only policy driven but is now becoming a crucial component of connecting private generators to off-takers.
2. If there is a failure to accommodate wheeling, there is a risk of underutilised generators.
3. Moreover, the relationship between private generators and off-takers is becoming economically more robust in value as grid-priced electricity continues to grow above inflation yearly.
4. Municipalities will therefore continue to feel the pressure to implement wheeling frameworks to enable the virtual flow of energy from private generators to off-takers.

[Source: "Wheeling of Electricity: A Friend or Foe in the Energy Transition" by Leshan Moodliar, eThekwini Metro Elect; Innocent EA Davidson, DUT; Elutunji Buraimoh, DUT;]

THE WAY FORWARD – POSSIBLE WHEELING MODELS FOR MUNICS (1)

***1. Option 1*: Recover Network Charges Independent of Energy Usage**

To shift the revenue recovery mechanism of network charges away from the voltage surcharge. Shifting the network charge recovery away from the voltage surcharge would make the network recovery costs independent of the amount of energy that flows within the network. Enabling such a shift means that an additional 31% of network costs must be collected through kVA charges rather than kWh charges. This shift would significantly increase customer demand charges and exceed the NERSA benchmarks

2. *Option 2*: Municipalities remain agnostic to wheeling

Considering the cross recovery of network charges via energy rates, any form of wheeling will lead to an under-recovery. A simple yet effective means to avoid this scenario and implement wheeling speedily is to retain the voltage surcharge on the pre-wheeled consumption.

[Source: "Wheeling of Electricity: A Friend or Foe in the Energy Transition" by Leshan Moodliar, eThekwini Metro Elect; Innocent EA Davidson, DUT; Elutunji Buraimoh, DUT;]

THE WAY FORWARD – POSSIBLE WHEELING MODELS FOR MUNICS (2)

3. ***Option 3***: **Municipalities participate in the wheeling arrangement to enhance revenue generation**

A more innovative strategy would be to establish a mutually beneficial relationship around wheeling, which would contribute to a more substantial business case for the municipality. For example, a situation in which a wheeling entity could provide a scenario in which the wheeling of electricity would increase the municipality's revenue. This arrangement would be a "win" – "win" scenario that would encourage municipalities to implement wheeling as a diversified revenue stream instead of the conventional value-neutral virtual transaction

[Source: "Wheeling of Electricity: A Friend or Foe in the Energy Transition" by Leshan Moodliar, eThekwini Metro Elect; Innocent EA Davidson, DUT; Elutunji Buraimoh, DUT;]

4. Eskom is also piloting a virtual wheeling framework with Vodacom

THE PROPOSED DEVELOPMENT OF A MARKET MODEL FOR ELECTRICITY UTILITIES (1)

1. The AMEU Strategic Adviser, Vally PADAYACHEE informed the last AMEU Tariffs Committee meeting that discussions (still work in progress) are on the go amongst key stakeholders including Eskom, SALGA, AMEU, etc to develop an appropriate market model for electricity utilities in SA that could include the following aspects:

   a) A fully non regulated free market model

   b) A semi regulated market model incorporating a central purchasing institution

   c) A bilateral market model

2. It is anticipated that munics in good standing will participate in all three models,(a), (b) and (c]. Munics in not good standing may only be allowed/capable to participate in (b) and (c] only

AMEU CONVENTION 2023 (1)

1. The Convention would take place at the CSIR Convention Centre in Pretoria, with the gala dinner to be held at the Times Square venue nearby.
2. Deposits have been paid, and agreements have been signed.
3. The AMEU Affiliates have also paid deposits for the exhibition space at the CSIR.
4. The Call for Papers deadline was extended to the end of May.
5. Letters inviting VIP speakers and guests have been sent.
6. Sponsorships are being confirmed; however, the first spouse's day still lacks a sponsor.
7. The President Elect confirmed that planning for the convention was in progress at the municipality.

AMEU AWARDS 2023 (1)

1. Mr. Padayachee, AMEU Strategic Adviser informed the last AMEU Papers and Publicity Committee meeting that new criteria and awards are being developed and will be shared with the leadership soon.
2. It was AGREED to share the new draft format with the Executive Council rather than the standing committee to widen the consultation and input scope.

SALGA MATTERS (1)

1. Dr. Silas Mulaudzi, SALGA advised at the last AMEU L&S Committee meeting of a study done by SALGA and its associates to determine the cost impact of Eskom load shedding on local government, including cost impacts on water reticulation, grid maintenance, and lost income.
2. Eighty-nine (89) municipalities participated in the survey.
3. A total cost of R24 billion was arrived at.
4. Ms. Mlambo, Eskom indicated that load shedding is also enormously costly to Eskom for similar reasons.
5. Mr. Padayachee indicated that the costs of load shedding are also being considered by Workstream Nine of the National Electricity Crisis Committee.
6. SALGA asked for guidance on the best use of this loss information going forward.
7. Members suggested that a large number of customers are building their own generation now, and it is unlikely that those customers will ever come back to the grid, meaning the losses caused could be permanent. Most large power users are indeed building their own generation now.

ESKOM MATTERS (1)

1. Eskom advised that the separation date for Transmission out of the single Eskom corporate structure will now only take place in 2025 due to PFMA and licensing issues.
2. Transmission, generation, and distribution are, however, functionally already separated, and each entity has a mock board in place, and new company names are registered.
3. Ms Refilwe Mokgosi, AMEU Immediate Past President mentioned that Eskom/NERSA Circular 124 proposes a basis for dealing with municipal debts to Eskom, but the circular is not clear and may, in its current form, lead to litigation. She requested further consultation on the matter.
4. As of Feb 2023 the municipal debt owing to Eskom was R58,5 billion. Dr Les, CoCTN indicated at the last AMEU Tariffs Committee meeting that there is national problem of affordability. There should be a joint approach to solving e.g Emfuleni munic's current challenges which also reflects a 75% unemployment rate

ESKOM SUPPLY STATUS (1)

1. Ms. Mlambo, Eskom informed the last AMEU Technical Committee that the Eskom leadership would soon release a media statement about the winter demand and generation forecast but could not share the details before the media release.
2. Members emphasized the importance of informing municipal utilities and large energy users about the expected energy supply during the winter months.
3. They also mentioned the lack of transparency surrounding the status of generation units compared to the open disclosures that Eskom do for their nuclear power station.

ECSA MATTERS (1)

1. Mr. Msibi, ECSA presented extensively at the last AMEU L&S Committee meeting in April 2023 on the various processes involved in accrediting engineers professionally, as well as on continued professional development requirements.
2. The focus was particularly on the **Identification of Engineering Work (IDoEW)** of allowable work to engineers with specific qualifications and experience backgrounds.
3. ECSA is amenable to do this presentation at municipalities for their professional engineering staff.
4. Members complained that the total fees for professional registration to ECSA and the respective Voluntary Associations are very high and that municipalities must please assist members with funding.
5. Eskom has apparently stopped paying for the professional registration fees of their engineers.

NERSA RELATED MATTERS

1. NERSA issued the following documents for public comments:
   a) Net billing
   b) Recommended tariff increase for munics of approx. 15%
2. Still awaiting finalisation of NMD rules
3. NERSA still working on new pricing methodology
4. NERSA will have consider final wheeling framework for legal mandating etc
5. NRS 048-9 Edition 3 – will be sent to NERSA once the Management Committee of the NRS Association of SA approves same
6. The NRS Association of SA comprises the following members ie all metros/munics, Eskom Holdings, NERSA and SABS

NET BILLING (1)

1. Net-billing is a mechanism used to compensate customers when the customer's generation is synchronised with the grid (grid-tied) and some energy is exported.
2. This compensation is based on an export tariff.
3. The customer still gets charged a full tariff for energy consumed and capacity provided.
4. The utility or another party does not purchase this energy; the energy still belongs to the customer using the Distribution grid as a bank.
5. Net-billing can be easily implemented, provided bi-directional metering is installed, tariffs are properly unbundled, and the export tariff is set at a rate that is equal to the avoided energy purchase cost.

NET BILLING (2)

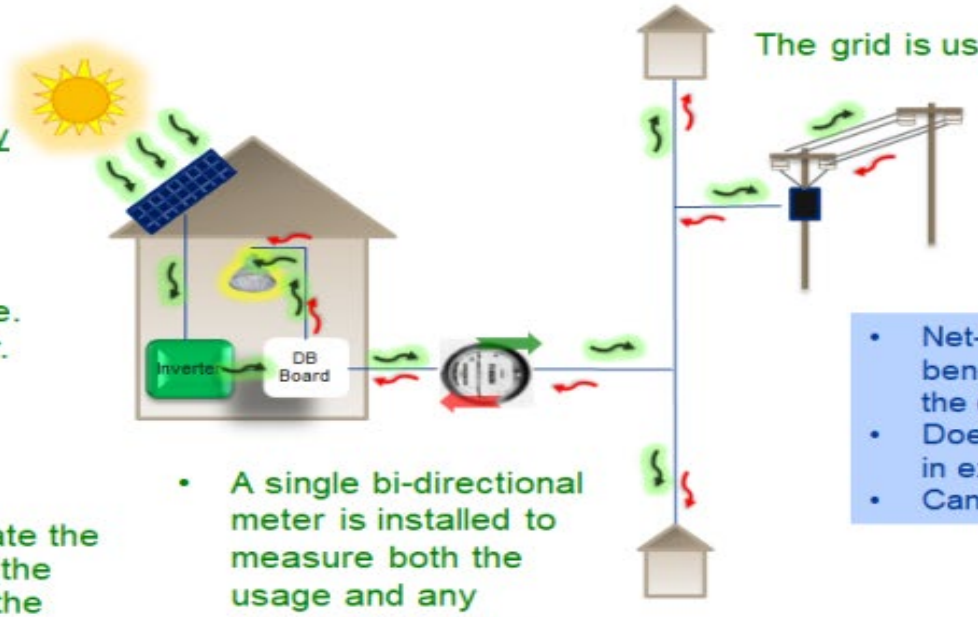
The following figure explains how net-billing works:

The customer owns and operates an electrical generating device and this is operated in parallel with the utility's system (grid-tied).

Net-energy metering is where the customer gets a credit on the electricity bill for energy produced that is not consumed immediately (financial balance)

The energy is not sold to any party i.e. this energy is owned by the customer.

The credit is usually at the same rate the utility pays for energy, cost of fuel (the avoided cost) or a rate lower than the energy only charge.



- A single bi-directional meter is installed to measure both the usage and any exported energy.
- Can be smart or "dumb" metering.

- Net-billing provides significant benefit as it is at same rate as the consumption tariff
- Does not credit any generation in excess of consumption
- Can work together with a FIT

[Source: NERSA]

AMEU TECHNICAL TRAINING COMMITTEE MATTERS

1. Johan Knoetze (“Ballie”), NMBM is the new chair of this committee. Pieter has retired
2. The committee is still continuing with virtual meetings
3. There is still a serious issue wrt qualified artisans getting their trade test certificates timeously from the SETAS

ELECTRICITY RESALE OR ELECTRICITY RESELLING - WHAT IS THE LEGAL STATUS OF ELECTRICAL RESELLING IN SOUTH AFRICA?

According to Schedule 2 of The Electricity Regulation Act, 2006 (Act No. 4 of 2006) ("the Act") published on 12 August 2021 as a Government Gazette (No. 44989): (EXTRACT)

a) a **"Reseller"** means a person who purchases electricity from a **trading entity** in order to sell such electricity to a **customer.**

b) **(s3.5)** The trading of electricity by a reseller in circumstances in which;

c) **(s3.5.1)** the price charged by the reseller to customers does not exceed the tariff that would have been charged to such customers for the electricity if it had been purchased from the **holder of a distribution licence** for the area in which the electricity is supplied to the customer; and

d) **(s3.5.2)** the reseller has **entered into either a service delivery agreement in accordance with the Municipal Systems Act, (Act No 32 of 2000)** (where the licensed distributor is a municipality) or a similar agreement with the distributor (where the licensed distributor is not a municipality) that regulates the relationship between the reseller and the holder of the distribution licence and the obligations of the reseller in respect of the quality of supply to customers; and the Regulator has ratified the general terms and conditions of such service delivery agreement.

ELECTRICITY RESALE OR ELECTRICITY RESELLING - (LODGING COMPLAINTS)

Yesterday (8 Sept 2022) I received the following confirmation from NERSA wrt customers wanting to lodge a complaint if they are unhappy on any aspects regarding purchase of electricity through a RESELLER. The following steps must be followed:

1. **STEP 1:** Approach the said Reseller (or it's appointed or contracted Agent)
2. **STEP 2**: If complainant is unhappy with STEP 1
3. **STEP 3**: If complainant is still unhappy with STEP 2 then the complainant can approach NERSA directly at **complaints@nersa.org.za**. NERSA's decision will be final

PART I – STASTISTICS

Date of exam	Candidates enrolled	Candidates wrote exam	Successes	Percentage passes
Nov 2022	**464**	**292**	**88**	**30.1%**
June 2022	329	208	47	22.6%
Nov 2021	417	263	75	28.5%
June 2021	402	244	83	34%
Nov 2020	488	233	127	54.5%
June 2020	Due to COVID 19, no June exams			
Nov 2019	493	310	164	52.9%
June 2019	433	305	113	37%
Nov 2018	448	303	107	35.3%
June 2018	375	255	108	42.3%
Nov 2017	350	246	124	50.5%
June 2017	349	234	149	63.7%
Nov 2016	494	338	185	55%
June 2016	315	216	121	56%

employment & labour

Department:
Employment and Labour
REPUBLIC OF SOUTH AFRICA

Distribution of marks: (previous examination in brackets)

%	Number of candidates
0 – 9	**7** (0)
10 – 19	**17** (14)
20 – 29	**46** (38)
30 – 39	**70** (58)
40 – 49	**64** (51)
50 – 59	**44** (29)
60 – 69	**31** (11)
70 –79	**12** (7)
80 – 89	**1** (0)
90 – 100	**0** (0)
Candidates	**292 (208)**

employment & labour

Department:
Employment and Labour
REPUBLIC OF SOUTH AFRICA

1.

PART I – STASTISTICS

Date of exam	Candidates enrolled	Candidates wrote exam	Successes	Percentage passes
Nov 2022	**448**	**300**	**110**	**36,7**
June 2022	371	247	10	4
Nov 2021	479	321	82	25,5
June 2021	462	318	75	23,6
Nov 2020	545	349	133	38,1
June 2020	Examination was cancelled due to Covid-19 pandemic			
Nov 2019	469	309	55	17,8%
June 2019	492	313	104	33,2
Nov 2018	507	378	141	37,3%
June 2018	487	335	105	31,3%
Nov 2017	401	303	48	15,8%
June 2017	414	286	109	38,1%
Nov 2016	381	295	63	21,4%
June 2016	429	296	81	27,4%
Nov 2015	352	307	46	14,9%
June 2015	428	336	109	32,4%
Nov 2014	437	345	48	13,9%
June 2014	529	365	107	29,3%

Distribution of marks: (previous examination in brackets)

%	Number of candidates
0 – 9	**1** (6)
10 – 19	**16** (35)
20 – 29	**34** (91)
30 – 39	**64** (76)
40 – 49	**75** (29)
50 – 59	**58** (10)
60 – 69	**38** (0)
70 –79	**11** (0)
80 – 89	**3** (0)
90 – 100	**0** (0)

Statistics

Certificates issued after June 2022 examinations

- Electrical Engineer's = 13
- Mechanical Engineer's = 15

Total to date

- Electrical Engineer's = 3961
- Mechanical = 4953

Q & A

Thank you