

A decorative graphic on the left side of the slide, consisting of three overlapping circular frames. The top frame shows a solar panel array, the middle frame shows a power plant with cooling towers, and the bottom frame shows a worker on a utility tower. The frames are connected by a blue line that curves around the top and bottom.

Eskom Presentation to the Joint Portfolio Committees on Public Enterprises and Mineral Resources and Energy

Date: 27 September 2022

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- ❑ The steam generator replacement project (“the Project”) is a **critical enabler to the life extension of the Koeberg Power Station** (for an additional 20 years post its original generation life, which is 31 July 2024).
- ❑ The **scope of refuelling Outage 225 on Koeberg Unit 2 was originally intended to include the replacement of the steam generators on Unit 2.**
 - However, Eskom had to **remove the Project from Outage 225** due to **several serious deficiencies** in the front-end loading of the Project, which would have caused significant delays to the outage, which Eskom and the country could not afford.
 - **Both Eskom and the contractor have contributed towards these deficiencies** and there are several associated disputes between Eskom and the contractor which are currently subject to dispute adjudication.
 - An example cited by the contractor regarding Eskom’s role in contributing towards the Project not commencing as scheduled **include that the facilities, which were required to house the old steam generators** once removed, were not ready for use
- ❑ Eskom management has **identified poor project management, inadequate contract management and a lack of financial discipline** (including an instance whereby no provision was made for a **R650 million order against Eskom by the Constitutional Court**) as being contributory factors towards the Project not commencing as scheduled.
- ❑ **Generation Board initiated an independent investigation** into this matter, which is expected to **be completed by end September 2022.** While the outcome of the investigation will assist management to determine remedial and consequence management actions to be taken, thus far, **three senior employees have been placed on precautionary suspension with full pay.**
- ❑ Removing the steam generator replacement work scope from the outage scope **required the outage to be completely replanned, and additional scope had to be added to inspect and maintain the existing steam generators.**
- ❑ This resulted in a **scheduled outage plan with a duration similar to the original plan.**



- ❑ Unfortunately, **during the start-up phase**, after completion of all the maintenance and project work, **emergent technical issues resulted in a delay to the return of the unit to service**, which happened on 7 August 2022.
- ❑ The **delay in Outage 225 led to an increase in loadshedding** and was a **key component of the Stage 6 loadshedding** because the delay in the return to service of the unit coincided with peak demand during the winter season.
- ❑ **If the steam generator replacement had not been withdrawn from the outage**, based on the schedule tabled by the contractor, **loadshedding would have lasted much longer**.
- ❑ As a result of the above, **the steam generator replacements are now scheduled for Outage 126 on Unit 1** (starting December 2022) and **Outage 226 on Unit 2** (starting October 2023), which does not compromise the Long-Term Operation Licence application, but it does significantly increase the work scope in these two outages.
- ❑ **This change does not alter the scope of the overall life extension plan**, but the **unexpected compensation events and contract price adjustment (CPA) increases will have an impact on the cost** of the specific steam generator replacement allocation, which is still in the process of being finalised.
- ❑ The **original cost estimate of R20 billion was done in the 2010 parameter**. If reassessed in today's values, **it would be significantly different**.
- ❑ **Eskom takes forex annually, and forex is rolled over every year**. This has **cost Eskom over R1,5 billion**. **Interest During Construction (IDC) charges are significant** because of the extended project duration, influencing the overall cost.

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Context

- ❑ In May 2000, **Eskom Holdings entered into a collective agreement** (Recognition Agreement) with **NUM; NUMSA & Solidarity** to regulate their mutual relationship.
- ❑ The Recognition Agreement (RA) is **in accordance with the provisions of the Labour Relations Act (LRA)**.
- ❑ The parties to the RA **committed themselves to the following**:
 1. *The provisions of the agreement*
 2. *To co-operate in the spirit of mutual regard and respect*
 3. *To continually promote sound industrial relations through good faith bargaining; consultation and information sharing*
- ❑ The RA is **in essence the “constitution” of how the parties thereof are going to relate** with each other.

Participative Structures

- ❑ The RA makes provision for several participative structures wherein parties engage with regards to matters of mutual interest.
- ❑ The following is synopsis of the participative structures provided for by the RA:

	Name of Structure	Purpose	Schedule
1	Strategic Forum	Share information on strategic issues with leadership of the parties	4 times a year
2	Restructuring Consultative Forum	Consult on restructuring matters	Monthly
3	Central Bargaining Forum	Negotiate conditions of service; salary increases & organizational rights	Annually
4	Central Consultative Forum	Consult and share information on Eskom wide matters	Bi-monthly
5	Divisional Forums	Consult and share information on divisional matters	Bi-monthly
6	Business Unit Forums	Consult and share information on business unit matters	Bi-monthly

Parties may if there is a need convene adhoc meetings over and above the scheduled meetings

Koeberg Issues

- ❑ In the normal course of events, the issues raised by NUM at Koeberg are **supposed to have been addressed through the Koeberg Business Unit** participative structure.
- ❑ The **reason there are participative structures in place** at different organizational level is to:
 1. **Make sure that matters are addressed at an appropriate level** by the appropriate management
 2. There is **proper escalation and coordination of matters**
- ❑ It is therefore **regrettable that NUM chose not utilize the appropriate participative structures** but exploit the presence of parliamentarians at Koeberg
- ❑ The matters should be **redirected to the appropriate business forum for engagement**

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- Whistleblowing Policy and Whistleblowing Procedure are in place.
- Its purpose is to **set out principles governing the disclosure of unlawful and irregular conduct** by Eskom or its employees and to protect those who make the disclosure in good faith and in a responsible manner.
- In compliance with the Protected Disclosure Act, Eskom has **established an independently managed and toll-free Fraud Hotline 0800 11 27 22 and email (eskom@whistleblowing.co.za)** where stakeholders including employees can report known or suspected incidents of fraud, corruption, financial and general irregularities without disclosing their identities.
- Furthermore, employees **can report known or suspected incidents to the Forensic and Anti-Corruption Department** at forensic@eskom.co.za.
- The Forensic and Anti-Corruption Department **has been established in terms Treasury Regulation 33**, and reports functionally to the Audit and Risk Committee and administratively to the GCE.
- **Whistleblowers' identity is always protected and not shared with management**, management has no influence in the work of the Forensic and Anti-Corruption Department
- **Employees are continuously encouraged to anonymously report incidents** of fraud and corruption and reference numbers issued for follow up purposes
- There is no requirement for a whistle blower to consult with anyone prior to reporting
- **Forensic is the custodian of the policy and facilitates the protection of whistle blowers** should any victimization or threats of physical harm against employees who have made a protected disclosure be reported.

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Load Reduction

- ❑ Load reduction **is applied to all areas where networks are overloaded** and transformers, in the main, explode due to overload **as a result of electricity theft due to; meter tampering, illegal connections and illegal vending**. This is exacerbated by vandalism of the infrastructure in the same communities.
- ❑ **Eskom is rolling out the installation of prepaid meters** to protect its **income statement**, in an effort to secure revenue that is due to Eskom and **to prevent electricity theft**, which unfortunately is still rife in many parts of the country. Eskom had to intervene to secure the revenue.
- ❑ The **campaign for installing prepaid meter boxes** is run by Eskom Distribution business, and **communication or sharing of information with residents** on the intention to install these prepaid meters **is done in advance**.
- ❑ In some instances, these **installation teams are not welcomed by residents** because this will impose an obligation on them to pay for electricity that they have not been paying for.
 - **Eskom sometimes meet with resistance** that may include violence directed against its teams.
 - In those instances, **Eskom have no alternative but to withdraw and then resume load reduction measures** to protect the infrastructure from overloading, which causes the transformers to explode, creating a number of safety risks.
 - This is a difficult situation for Eskom.

Communicating Loadshedding

- Eskom starts by **communicating a high risk of load shedding**.
- The statement is issued to **every media house**, followed by a **voice note in English and relevant Nguni language**.
- **As soon as the load shedding is declared**, another statement is issued **to all media houses** together with a **voice note** in two languages.

Communicating Load Reduction

- **Notice of load reduction** gets communicated way ahead and **every day** through:
 - local and regional media, social media, community radios, broadcasters, and written media.
- The statement for load reduction is issued by **that particular province**.



- ❑ **Indigent users can apply to their local municipality** to be supplied with a **free basic electricity allowance** amounting to 50 kilowatt-hours per month.
 - This is an attempt by the government, **funded by the Department of Mineral Resources and Energy (DMRE)**, to ensure that indigent people in South Africa **can enjoy access to a certain minimum amount of electricity**, and to provide energy to the poorest of the poor.
- ❑ Eskom noticed that the **uptake of this free basic electricity programme has not been as positive** as it would have liked.
- ❑ It appears that **either people are unaware of the programme or they find the application process too onerous**. Therefore, Eskom **still have to contend with illegal connections and electricity theft**.
- ❑ **It is correct that there is a disconnect** between the political accountability attributable to local councillors and the supply of a crucial public service such as electricity.
- ❑ Eskom has therefore **entered into discussions over the past two years** with the City Council of Johannesburg to **transfer Soweto to the municipality**.
- ❑ The idea behind this is to ensure that **Eskom can perform service delivery with political accountability**. Eskom had some **challenges with fluctuations and turbulence at mayoral level**.
- ❑ **Hopefully, Eskom will soon be in a position to make progress** on this important transaction, which Eskom believe **will resolve many of the frustrations experienced by the residents of Soweto and the councillors**. It will also benefit Eskom by enhancing revenue security.

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Eskom Tariffs

- The Eskom **tariffs are regulated by NERSA** and are not discretionary. Eskom does not impose them in a vacuum.
- Eskom do so **in strict compliance with the directive that Eskom receive from NERSA**. Eskom does not have the **discretion to deviate** from what has been regulated.

Additional Capacity

- Eskom **cannot procure additional generation capacity** and is not in a position to **build new plant without section 34 approval** provided by the Minister of Mineral Resources and Energy in terms of the Electricity Regulation Act.
- Eskom **can no longer be regarded as the supplier of last resort**. It is further important to note that Eskom do not make policy but implements policy
- **Procurement of new capacity is done through the Independent Power Producer (IPP) Office**, located in the DMRE, and the IPP Office that runs the bid windows is responsible for bringing more capacity onto the grid.
- The question about progress on **adding new capacity to the grid** will be best directed at the DMRE and the IPP Office, who would be in the best position to answer the question. Similarly, questions regarding the National Treasury are best directed to that department.
- Eskom has **seen several municipalities exploring the opportunity to enter into power purchase agreements** with independent power producers. Some of those are in the **Western Cape, and others are in Gauteng**, so it is not confined to a particular province.
- Eskom thinks that **this is a positive development for Eskom because electricity is currently generated from its open-cycle gas turbines**. This means that **Eskom is using diesel at a significantly higher cost than can be recovered** from consumers. Therefore, the **burden on the grid is alleviated** by more electricity being generated by independent power producers and bought directly by those municipalities.
- **Eskom will be able to reduce the consumption of diesel**, and this, which will be a **significant cost saving to Eskom** and ultimately also to the South African electricity consumer.



- ❑ Eskom is **pursuing projects to repurpose and repower power stations** that have reached the end of their lives.
 - The first example in this instance is the **Komati Power Station**. This power station **has been operating since 1961**. It has now passed its useful operating life. **Only one unit out of nine is left operating**, and that unit is scheduled to be shut down before the end of this year.
- ❑ Eskom **will be investing in a number of different projects** to provide **job security** that the honourable member refers to.
- ❑ Eskom will **build a 100-megawatt PV solar plant and install a manufacturing line to manufacture modular microgrids** on site to create employment at that plant.
- ❑ Eskom is **exploring opportunities with the local community to develop agri-voltaic projects** where the aim is to develop farming communities as well as electricity generation.
- ❑ Eskom is **looking at the opportunity of building a 40- to 70-megawatt wind farm**.
- ❑ **Importantly**, Eskom is also going to **collaborate with the Cape Peninsula University of Technology to establish a training centre to retrain, reskill, and upskill workers** in the coal value chain to become solar and PV technicians with accredited qualifications.
- ❑ Eskom is **launching a very extensive programme to ensure that the energy transition**, which owing to technological developments is inevitable, **will be just**. That is a very important element that the **Eskom management team and the Board of Eskom are committed to achieving**.

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- ❑ The recovery of Medupi Unit 4 is expected to be complete by August 2024, and the remaining two units at Kusile are expected to be commissioned by mid-2024.
- ❑ There are no Lethabo units on forced outage, however, Unit 4 was on a planned outage but returned to service on Monday morning, 26 September 2022.
- ❑ Koeberg Unit 2 was on an extended outage and returned to service on 07 August 2022. The unit unfortunately tripped in the early hours of Saturday, 03 September 2022, due to a technical challenge. The unit returned to service on Sunday afternoon, 25 September 2022.
- ❑ Obsolescence of some systems is an issue at some power stations. This is a natural phenomenon and requires systems to be updated or replaced, typically as part of the mid-life refurbishing projects. These are some of the projects that have been unable to be executed in the past because of capacity and funding constraints.
- ❑ Trips of units are unacceptably high, and trip reduction is thus a focus area and is one of the areas in the 9-Point Plan. Despite these efforts, trips remain high, largely because of the degraded nature of the plant after many years of “hard running” of an ageing fleet with minimal maintenance and performance improvement investment.
- ❑ Several potential operating, maintenance, and engineering skills that may assist Eskom have been identified and are being evaluated. Some have already been engaged.



- ❑ **On 5 September 2022, Eskom was experiencing approximately 14 000 MW of unplanned unavailability.**
 - **This is split approximately equally between full load losses** (where a unit is not producing any electricity) and **partially load losses (PLLs)** (where a unit is unable to produce the total amount of electricity that it is designed to produce).

- ❑ **There were 19 units on unplanned outages or late in returning from a planned outage.**
 - Most of these were expected to return **before the end of September**, a few in **early October**, **one in late October**, and **one in November**. It should be noted, however, that **as a result of many years of very high utilisation creating virtual capacity** (“hard running”) with **limited investment**, caused by a lack of capacity and below prudent and efficient cost-reflective tariffs, the **current plant condition results in more units failing or tripping**.
 - **As some return to service, others replace them on the list of unavailable units.** This is despite the many interventions and programmes being implemented by Eskom.
 - Similarly, even now, **resource and maintenance space constraints** mean that many of the **fixes for the PLLs are only temporary or require long outages in the future to address**.

Cost of diesel

- Eskom could **spend up to R2.4 billion a month** on diesel for the OCGTs, as this is the **maximum that can be accommodated in terms of logistics**.
- This is thus **the worst-case scenario**, but should the coal-fired units perform better, **this amount could be significantly less**.

Different prices for the same product

- Eskom has a **merit order based on the cost of generating from various technologies and various power stations** and maximise dispatch from the **lowest cost and minimise dispatch from the highest cost**.
- However, Eskom is **overtaken by demand and therefore also have to generate high-cost electricity**, even though the full cost cannot be recovered from customers.
- Although **Bid Windows 1 and 2 prices were significantly higher** than Eskom's cost of generation, **these costs are fully recovered from consumers** because of a pass-through in the tariff allowed by NERSA..

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- ❑ **The Eskom Transmission Development Plan (TDP) is reviewed annually** to determine the new infrastructure that would be required to integrate new generation capacity and the demand and reliability requirements of the system and published annually. However, **it takes time to establish new transmission infrastructure** (especially building long lines and substations) mainly **because of servitude acquisitions and constructability challenges**.

- ❑ Eskom is **aware of these challenges and is making every effort to expedite** the building programme by engaging key government and private sector stakeholders. In the interim period, Transmission has taken the following steps to assist IPPs:
 - The **Grid Connection Capacity Assessment (GCAC 2024)** document **on Eskom’s website gives an indication of available network capacity** elsewhere on the system that could be considered for integration of renewable energy (RE) projects. While **network capacity may be limited/restricted in the broader Cape areas**, there is available capacity inland, for example, Free State, Northwest, Mpumalanga, and Limpopo, that can be considered for the integration for Bid Window 6 (BW6) IPPs.

 - Transmission is **currently exploring opportunities to fast-track projects across the network**, especially in areas with interest and potential to integrate RE resources.

 - A **TDP Delivery Steering Committee**, a subcommittee of the Transmission Board, has been established to **oversee the TDP implementation programme and assist with “unblocking” of challenges** that may be needed, for example, engagements with DMRE/DPWI and DPE to assist with servitude challenges, dtic to address localisation and supplier capabilities and opportunities, etc.

 - **Land is being made available around the power stations in Mpumalanga to facilitate adding RE** in these areas where the grid is the most developed to evacuate large amounts of power – especially as Eskom phases out coal generation in the coming years.



- **Wind studies have been conducted**, and a number of **areas identified that would be suited for this type of generation in other than coastal areas.**
- **Number of strengthening infrastructure projects** have been prioritised and are being fast-tracked.
- Eskom is **preparing proposals for procuring ancillary services** from sources other than just Eskom generators **to ensure stability of the grid** and build these requirements into the upcoming bid windows.
- Eskom is **actively working with the Energy Crisis Committee workstreams on all initiatives** regarding strengthening the network, among others **acquiring servitudes, PPPFA exemption, EIA exemptions** where applicable, and **procuring more power from our neighbouring countries.**
- It is looking at **securing more emergency resources** such as pump storage.

Timing of loadshedding

- Loadshedding is **implemented to match demand with available capacity** while maintaining a safety factor.
- Regrettably, **demand is highest during the evening peak** (especially in winter), and hence Eskom has no alternative but to impose load shedding if required during that peak period or **any other given period when supply cannot match demand**.
- It must be emphasised that **load shedding is the last resort** and will only be implemented **to protect the integrity of the national grid**.

The difference between dispatchable & self-dispatching electricity

- **Most of the IPP generation plants are procured on a self-dispatch basis**. This means that if the IPP can produce electricity, Eskom has to buy such, irrespective if the **electricity produced by the said IPP is needed at that specific time** to balance the demand versus capacity.
- **Dispatchable electricity**, on the other hand, is **where a generator (IPP or Eskom) bids in the available electricity on a day-ahead basis** (hourly) and national control then **dispatches the electricity as needed**.
- The **self-dispatch plants can be curtailed** (asked to reduce electricity production) **in times of low demand**, like in the middle of the night. However, in such cases, **Eskom has to pay the IPP as if it were generating** because it could supply electricity if not curtailed.

- ❑ **Curtailment occurs when there is too much electricity supply on the system**, and the Eskom System Operator has to instruct some generators to reduce output to maintain system stability.
- ❑ **It most often impacts wind IPP facilities but occasionally also impacts solar PV IPP facilities**, typically during periods of **low demand in the system**, which is in the **early hours of the morning (00:00–04:00)**.
- ❑ There is a **higher frequency of curtailment incidents during the winter months** (see Figure 1), but the **amount of energy curtailed is fractional compared to the total energy generated** by these IPP facilities. Table 1 shows the percentage of energy curtailed relative to the energy generated over the past 12 months, which is less than 1%.
- ❑ **Since the inception of the REIPPP Programme**, the solar PV facilities have been **curtailed on only two occasions**, with the most recent occurrence in April 2022 shown in Figure 1

Table 1: Total energy generated vs energy curtailed in the period August 2021 to July 2022,

Technology	Energy generated (GWh)	Curtailed energy (GWh)	% Energy curtailed
<i>Wind</i>	8 843	23	0,3%
<i>PV</i>	5 005	0.5	0,01%

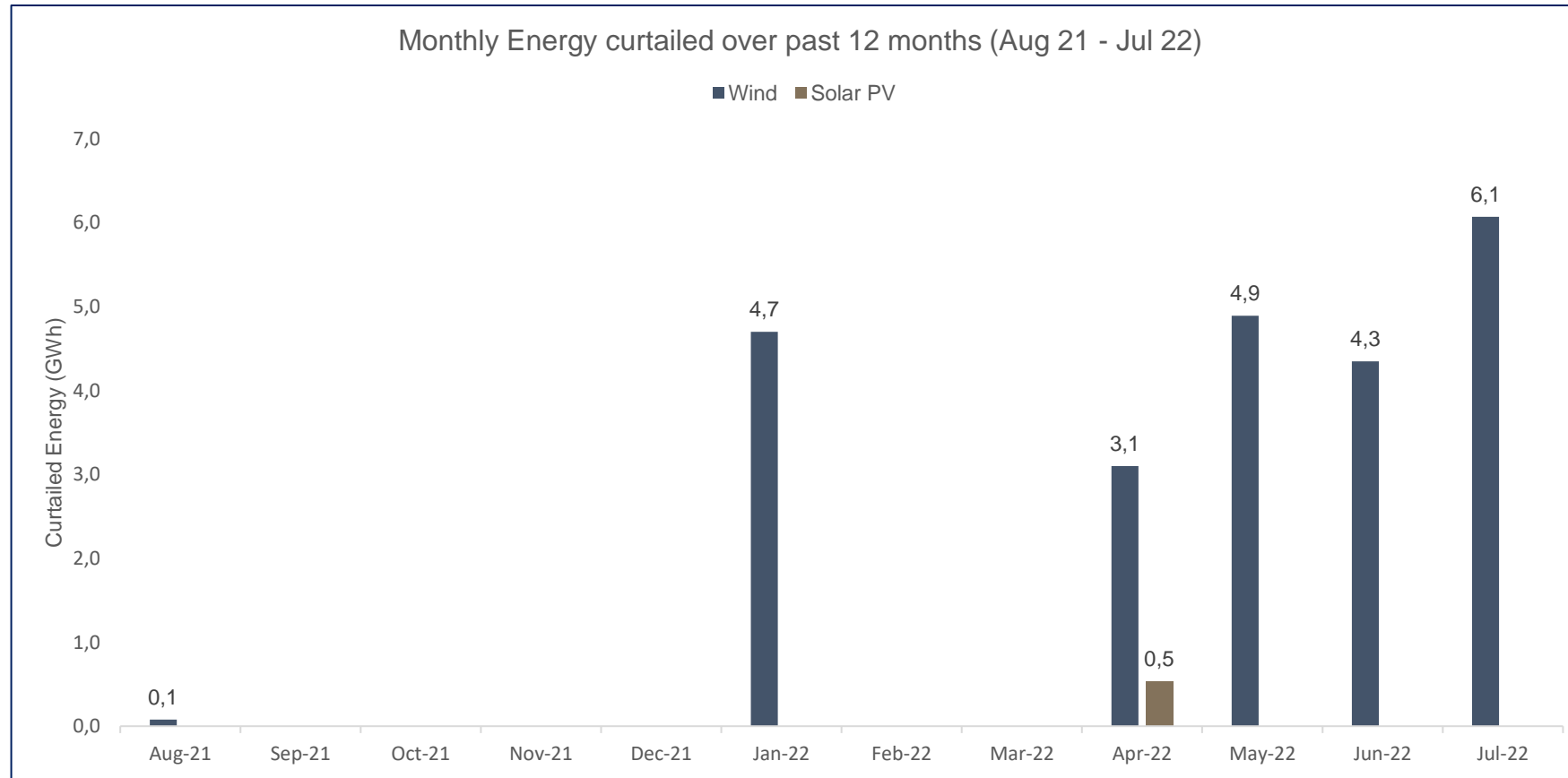


Figure 1: Monthly Energy curtailed between Aug 2021 and July 2022

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- ❑ In terms of the announcement by the President, the **National Electricity Crisis Committee (NECOM)** was established, and there is a **structure called Natjoints**, which comprises the relevant Directors-General and senior executives of Eskom and other entities, and there are a **number of workstreams operating under the Natjoints**.
- ❑ **Since this is a presidential initiative**, the documents generated by NECOM are **classified as secret**.
- ❑ **Eskom is not at liberty to disclose information from them** and, therefore, directs the committee to the Presidency to respond in greater detail on the function of the committee.

Conclusion

