



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

for

Follow-up Meeting on Oversight Visit to Koeberg Power Station: 31 August 2022

Response to National Union of Mine Workers letter and questions

8 September 2022

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## Summary

The Joint Portfolio Committees on Public Enterprises and Mineral Resources and Energy (“the Committee”) undertook an oversight visit to Eskom Koeberg Power Station on 19 April 2022. On 31 August 2022, a follow-up meeting to the oversight visit was scheduled by the Committee to finalise on the letter by the National Union of Mineworkers (NUM) to the Portfolio Committee on Public Enterprises and the System Status. At this point, Eskom had not finalised its response to NUM’s letter and the questions raised by the honourable members of the Committee during the oversight visit. This submission provides Eskom’s response thereto.

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## **1. Response to steam generator project, Koeberg life extension and NUM letter**

### **Preamble**

Eskom respects the institution of Parliament and the right every citizen of the country has to approach Parliament with any matter whatsoever, and that Parliament has a right to investigate and consider any and all complaints that are submitted to it. Therefore, we do not wish to derogate from that residual right that Parliament and its committees have in any way.

### **Background on NUM letter**

The Portfolio Committee on Public Enterprises received a letter from NUM with allegations of irregularities and mismanagement of the steam generator replacement (SGR) project, for the benefit and protection of the international contractor, at the expense of its employees. Eskom was requested to provide a project status report of the SGR, the Koeberg life extension programme, and respond to NUM's allegations.

### **Response**

#### **Update on SGR and Koeberg life extension programme**

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's 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.

Upon being informed of the above, the 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. This delay in Outage 225 led to an increase in load shedding and was a key component of the Stage 6 load shedding 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, load shedding 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. So, 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.

### **NUM allegations**

Eskom has a disciplinary policy and code that have been validated in proceedings before the CCMA and the Labour Court. Eskom has a Recognition Agreement with the three recognised trade unions (NUM; National Union of Metal Workers of South Africa; and Solidarity), which sets the prescripts of interaction between the representatives of the unions and Eskom, and which contributes towards a stable labour environment.

The Eskom Whistle-blowing policy was compiled and implemented in 2003 and is reviewed regularly for relevance and effectiveness. The policy is highly aligned to the Protected Disclosures Act. 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 openly make the disclosure in good faith and in a responsible manner. The Whistle-blowing procedure was established to guide employees on how to report and to seek protection. The policy makes provision for employees to report anonymously which is also a form of protection for whistle-blowers.

Eskom has established a reporting mechanism to receive disclosures confidentially. This mechanism is managed by an independent service provider to preserve the integrity of the process. The whistle-blower may choose to remain completely anonymous, partly anonymous or disclose their identity. The mechanism is communicated to employees regularly and its details are available on the intranet and the internet for other stakeholders. Additional mechanisms are also available for the

convenience of employees and includes emails, as well as walk-ins to the Forensic Department.

In terms of the Whistle-blowing policy, employees may also make a protected disclosure through their union's representation, to the Minister of Public Enterprises and the Public Protector. The reporting mechanism established by the Department of Public Enterprises has been communicated to employees.

Forensic is the custodian of the policy and facilitates the protection of whistle-blowers should any concerns or victimisation be reported to Forensic or management. Threats of physical harm against employees who have made a protected disclosure, are evaluated in line with the Security Policy. Security is then provided in line with the threat.

The letter to the Portfolio Committee on Public Enterprises was written by a shop steward at Koeberg Power Station. While Eskom fully appreciates that all citizens have the right to engage Parliament and that Parliament has a reciprocal duty to hear complaints of citizens; it is Eskom's respectful view that not following established protocols, creates a risk whereby Eskom's legal position and the rights of employees could be significantly hampered where confidential information is shared without permission and out of context. It also opens the floodgates whereby Parliament may become inundated with spurious allegations. In this instance, NUM's concern regarding the suspension of non-bargaining unit employees is interesting. It goes without saying that thus far, no action has been taken against bargaining unit employees, however, this situation could change depending on the outcome of the investigation mentioned earlier.

Eskom management has identified a trend of underperforming managers and executives who claim protection under the Protected Disclosures Act (PDA) when confronted with consequence management and evidence of poor performance.

## 2. Load reduction and communication

Load reduction takes place in Soweto, in all areas where Eskom is experiencing illegal connections. 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. Therefore, 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 load shedding:** 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.

## 3. Installation of meter boxes in Soweto and the case of the indigent community

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.

#### **4. Eskom tariffs set by NERSA and additional capacity**

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.

In addition, 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.

## **5. Repurposing of power stations**

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.

## **6. Return to service of units, trips, cost of diesel, and different prices for same product**

### **Return to service of units and trips**

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, one unit is on a planned outage, scheduled to return in the next two weeks. The Koeberg unit, on an extended outage, returned to service but unfortunately tripped over the weekend and is expected to return in the next 10 days.

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.

Currently, at 15:00 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 are currently 19 units on unplanned outages or late in

returning from a planned outage. Most of these are 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. So, 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 of 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.

## **7. Upgrade of Transmission infrastructure**

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.
- A 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 load shedding**

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, in fact, the last resort and will only be implemented to protect the integrity of the national grid.

## **The difference between dispatchable and 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, it will, and 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.

## **8. Curtailment of renewable IPP plants**

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 21 to July 22,

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

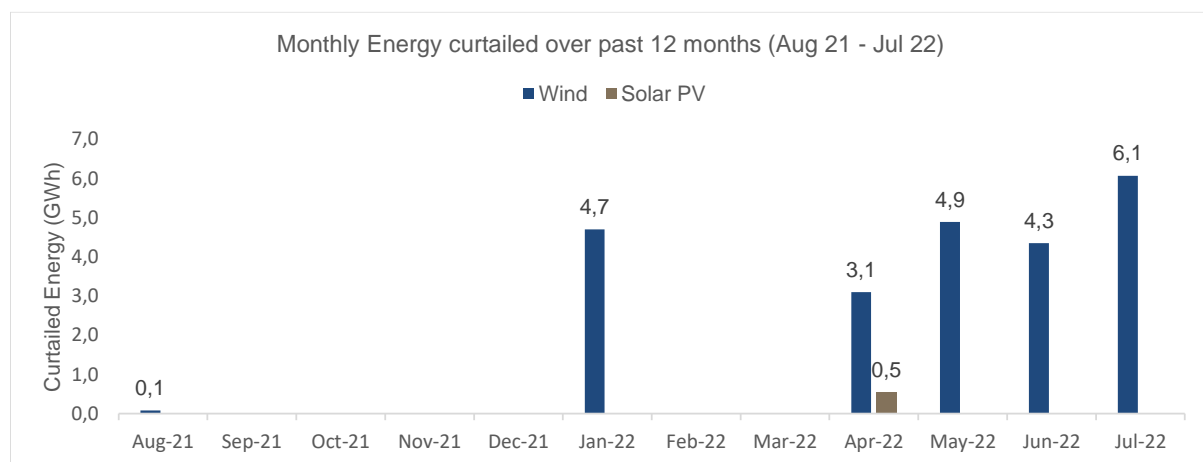


Figure 1: Monthly energy curtailed between August 2021 and July 2022

## 9. President's announcement

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.