COAL, POWER PRODUCTION AND CORRUPTION IN SOUTH AFRICA:

AN ANALYSIS

Gordon Institute of Business Science
Centre for Business Ethics

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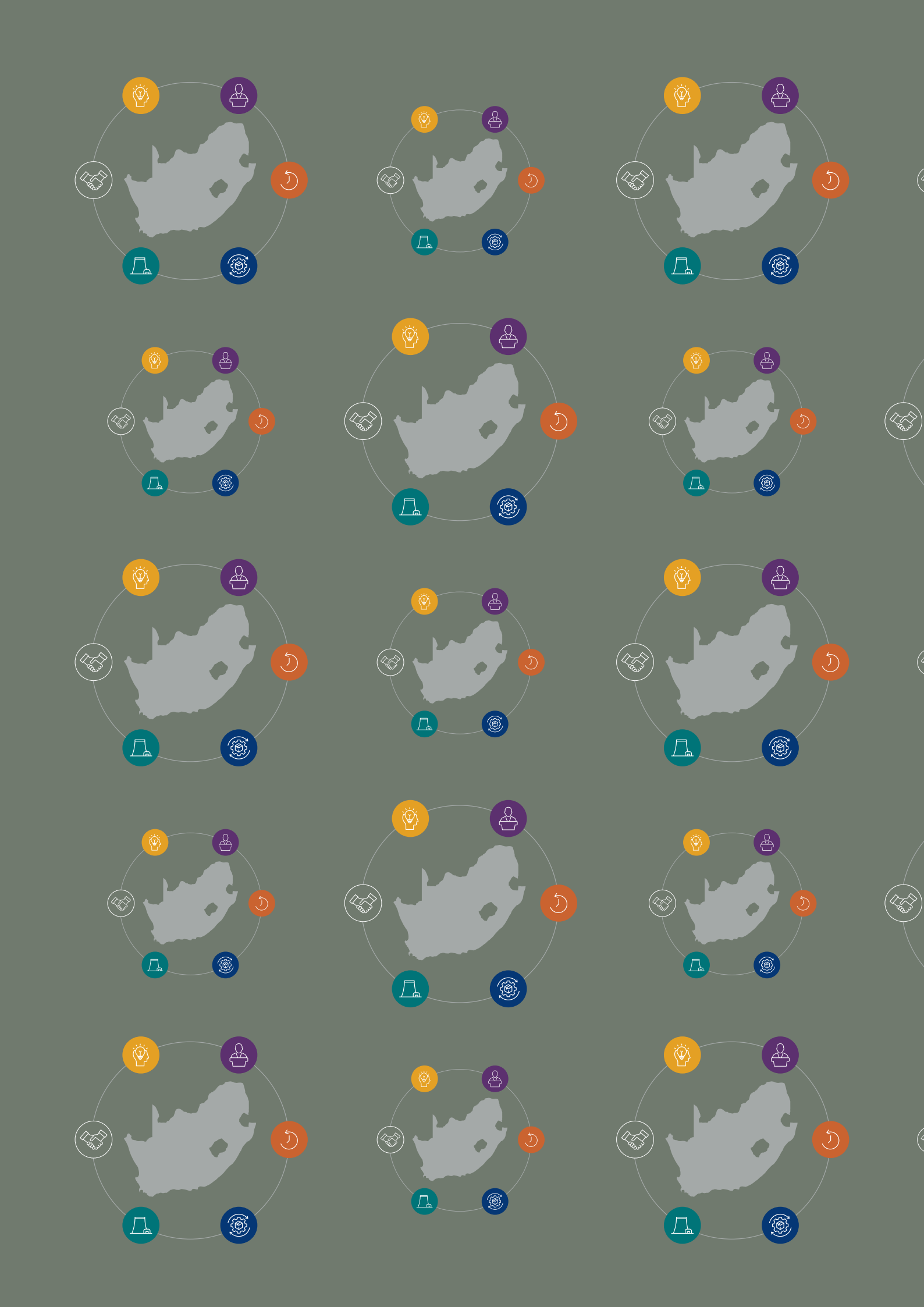

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Glossary

Term	Definition
Base load power	The minimum amount of electric power that needs to be supplied to the electrical grid at any given time. [1]
Base load power stations	These supply electricity 24 hours a day to ensure that base load power needs are met. They are designed to operate continuously at a steady load. South Africa's base load power is provided by the fleet of coal fired power stations and the Koeberg nuclear power station.[2]
Black site	A location that is never publicly acknowledged as existing.
Calorific value	The energy value of coal is the amount of potential energy that coal contains that can be converted into heat.
Energy Availability Factor (EAF)	The percentage of maximum energy generation capacity that a power plant is capable of supplying to the electrical grid, limited only by planned and unplanned outages.
Gross tonne	Gross tonnage is a nonlinear measure of overall internal volume. A unit of gross internal capacity, equal to 2.83 cubic metres.
Lignite	Also known as brown coal. It is low quality coal not ideally suited to power generation due its poor combustion properties.
Load reduction	Unlike loadshedding, which is a national measure to protect the grid, load reduction is a more targeted approach aimed at specific areas with high levels of non-technical losses, such as electricity theft or meter tampering. Load reduction involves cutting power to areas where there is significant overloading due to illegal connections or other non-compliant behaviours.[2]
Loadshedding	A controlled process that responds to unplanned outage events in order to protect the electricity grid from a total shutdown. An energy utility does so by reducing demand on the energy generation system by temporarily switching off the distribution of energy to certain geographical areas. In South Africa, loadshedding is implemented in "stages" depending on the shortfall between demand and supply[3]. As of April 2024, with the publication of the NRS 048-9 Code of Practice Edition 3, sixteen stages of loadshedding are defined. The new Code defines a stage of loadshedding by the percentage of demand that is "shed". The percentages range from 5% of demand at Stage 1 to 80% at Stage 16.[4]
Mothballed	A piece of equipment or building that is no longer in use but kept in good condition so that it can be used again.
Peak load	The additional power demand over and above normal base load. In SA, peak demand times are early morning and early evening.[5]
Peak load power stations	These provide power to supplement that generated by base load power stations to meet peak demand. In SA these are hydroelectric, hydro pumped storage and gas turbine stations.[6]
Rent Seeking	An economic concept that refers to an entity or individual that seeks to gain wealth without any reciprocal contribution of productivity, or value adding goods and/or services.
Sub-bituminous coal	Ranked between lignite and thermal coal, it can be used for power generation, but is less suited for this purpose than thermal coal.
Thermal coal	Also known as bituminous or steam coal, it is coal that is burned, primarily in boilers, to generate steam to produce electricity.

[1] https://energyeducation.ca/encyclopedia/Baseload_power
[2] https://gauteng.net/news/loadshedding-and-load-reduction-explained/
[3] https://loadshedding.eskom.co.za/LoadShedding/Description
[4] https://businesstech.co.za/news/energy/766453/south-africa-now-has-16-stages-of-load-shedding/
[5] www.eskom.co.za/wp-content/uploads/2024/07/GX-0003-Base-and-Peak-Load-Electricity-Rev-14.pdf
[6] Ibid

Executive Summary

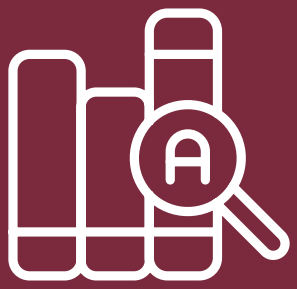
In 2023, Eskom, the South African national power utility, celebrated its 100th anniversary. Founded in 1923 to ensure power supply to support increasing industrialisation, particularly in the mining sector, its initial success has been tainted in more recent years by increasing dysfunction.

Many factors have contributed to Eskom's decline, but one of the most prominent is that the institution has been beset by corruption of all kinds and at all levels. Involving amounts as small as R5 000 to as large as billions of rands, corruption has contributed to intractable debt, operational breakdowns, decay of the physical plant and an inability to "keep the lights on". While the last four months without loadshedding have given us hope that the massive efforts being invested in the turnaround strategy are gaining traction, there is still a pressing need to address the cultural, systemic and governance failures that allow corruption to persist. It may not be happening on the grand scale of State Capture, but as this report reflects, it seems to have become normalised and endemic.

To enable a comprehensive understanding of the coal fired power production ecosystem in South Africa, this report considers South Africa's continued reliance on coal fired power generation, despite espoused commitment to a Just Energy Transition programme, and explains the end-to-end value chain of coal fired power production from extraction to actual power generation. It examines the types of corrupt and criminal activities that are still taking place at Eskom, providing examples of each. It explores factors that are contributing to Eskom's dysfunction and finally makes recommendations for measures to address some of the challenges.

"Fixing" Eskom is not simply about maintaining and repairing the physical plant (although this is obviously critical). Profound culture transformation is required, broken and easily subverted procurement processes must be re-engineered, governance failures must be addressed and those found guilty of any kind of involvement in corrupt activity must be promptly, visibly, and decisively dealt with.

Eskom can recover and regain its former glory – in 2001 it was named Global Power Company of the year – but only if a holistic and comprehensive approach is taken to preventing and addressing corruption, which is probably the biggest threat to its sustainable success.



Introduction and Background

Aptly referred to as "Black Gold," coal is an essential commodity in the South African economy. It is used in various industries, including as a fuel source to extract iron ore, in the production of cement, in agriculture, and in the production of electricity in coal-fired power (CFP) stations. The vested interests in coal exports and maintaining a dependence on coal for power generation in South Africa are deeply entrenched due to economic, political, and social factors. Despite the associated environmental and health costs, historical industrial policies, government subsidies, and influential corporations' investments still support coal dominance. In addition, the coal sector is a significant employer, with 40% of jobs in Mpumalanga attributed to coal mining and power production.

Eskom, the South African state-owned power utility, relies almost entirely on coal to produce electricity for the national grid. All but one of its baseload power stations are coal-fired. By 2023, Eskom reportedly produced "*more than 80% of the electricity generated in South Africa*"[7], with Eskom's CFP stations providing almost 74% of the total energy mix in the same year.

7 Eskom. 2024. Eskom Heritage. [Online]. Available at: https://www.eskom.co.za/heritage/

Most South Africans are aware that Eskom has been in a dysfunctional state over the past two decades. Financially, it has required constant bailouts from the state, having amassed a debt burden of R399 billion by March 2023[8]. Eskom cannot service this debt from its internally generated revenue, requiring state debt-relief intervention[9]. The 2024 budget review document reported that Eskom received R241.6 billion in fiscal support from 2008/9 to 2022/23[10], and National Treasury has agreed to provide Eskom with an additional R254 billion in debt relief in financial years 2023/4 and 2025/6. Eskom's drain on the fiscus is not only in respect of its debt. Frequent loadshedding is estimated to have cost the country's economy almost R225 billion between Q1 2020 and Q1 2023[11]. The SA Reserve Bank estimates that loadshedding reduced economic growth in 2023 by about 1.8%.[10]

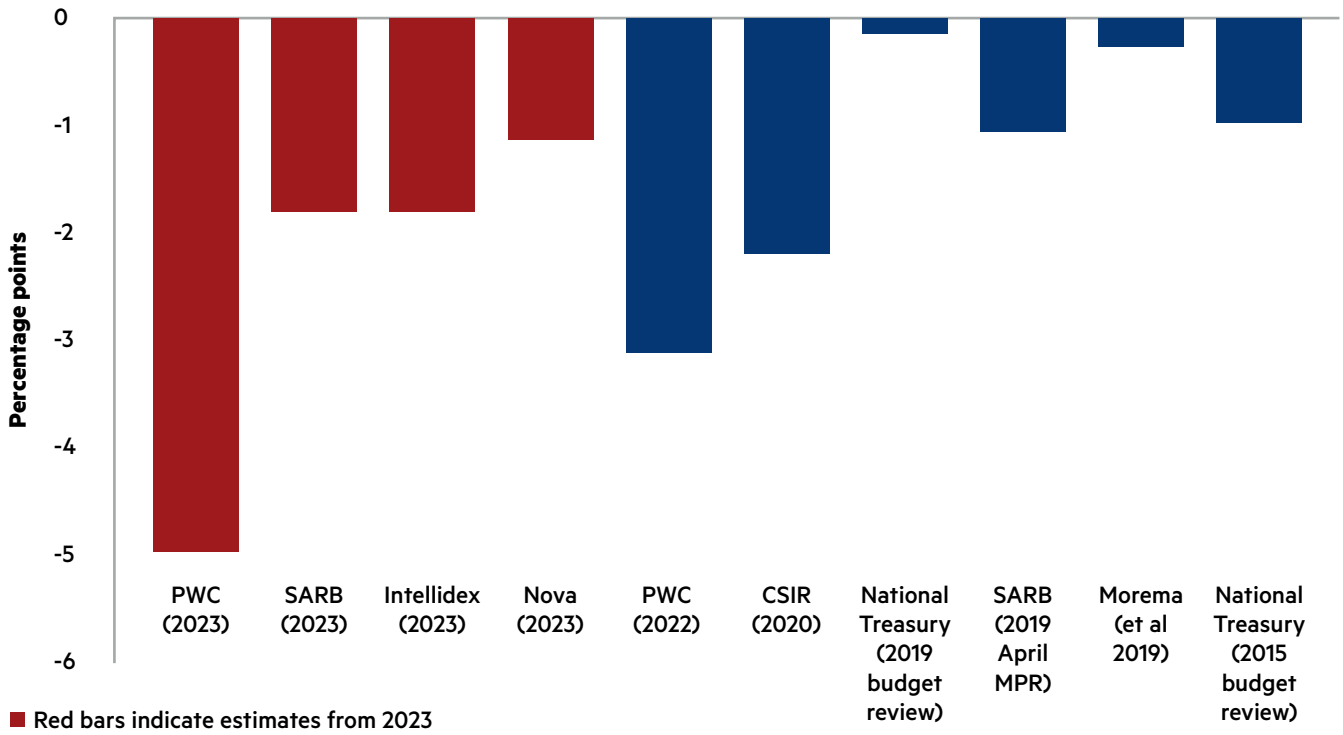


Figure 1: Impact of load shedding on South African GDP (Codera, 2023)

The debt and significant operational issues are largely due to the years of corruption, mismanagement, and governance failures in Eskom and its state customers. South African municipalities, for instance, collectively owed Eskom around R56 billion in March 2023[12]. In addition, the extent to which Eskom was affected by corruption during the grand project of State Capture is widely acknowledged.

The Medupi and Kusile power stations, whose construction was intended to prevent and address the power crisis, accumulated R300 billion in cost overruns between 2007 and 2019[13], stemming from grand corruption and collusive practices on the construction projects. The Judicial Commission of Enquiry into State Capture (the State Capture Commission), led by the current (at time of writing) Chief Justice Raymond Zondo from 2018 to 2022, investigated and documented the Medupi and Kusile related corruption, but also revealed far more widespread systemic corruption and collusion between state representatives, Eskom board members and executives, and rent-seekers. Two volumes of the Commission's report (Report Part IV Volumes 3 and 4) are dedicated to an analysis of the capture of Eskom[14].

While State Capture has played a significant role in Eskom's financial and operational dysfunction, it is not the only cause. Perhaps driven by a culture of apathy, a climate in which systemic corruption is almost seen as "acceptable" and breakdown of

[8] Eskom. 2023. Eskom releases its results for the 2022/23 Financial Year. [Online]. Available at: https://www.eskom.co.za/eskom-releases-its-results-for-the-2022-23-financial-year/#:~:text=Eskom's%20net%20debt%20was%20up,at%20the%20end%20March%202023.

[9] National Treasury. 2023. Eskom Debt Relief. [Online]. Available at: https://www.treasury.gov.za/documents/national%20budget/2023/review/Annexure%20W3.pdf

[10] National Treasury. 2024. Financial position of public-sector institutions. [Online]. Available at: https://www.treasury.gov.za/documents/National%20Budget/2024/review/Chapter%208.pdf

[11] Codera. 2023. Estimates of the cost of load shedding in SA. [Online]. Available at: https://codera.co.za/estimates-of-the-cost-of-load-shedding-in-sa/#:~:text=The%20most%20recent%20estimates%20we,2023Q1%20(subtracting%20a%20cumulative%2015%25

[12] Creamer, T. 2023. Municipalities owing Eskom R56.8bn apply to participate in debt write-off scheme. [Online]. Available at: https://www.engineeringnews.co.za/article/municipalities-owing-eskom-r568bn-apply-to-participate-in-debt-write-off-scheme-2023-11-01#:~:text=The%20National%20Treasury%20has%20confirmed,the%20debt%20write%2Doff%20programme.

[13] Smit, S. 2022. Energy crisis: Another R33-billion needed to complete Medupi and Kusile. [Online]. Available at: https://mg.co.za/news/2022-09-29-energy-crisis-another-r33-billion-needed-to-complete-medupi-and-kusile/#:~:text=Construction%20on%20the%20two%20power,cost%20R19%2Dbillion%20to%20complete.

[14] Zondo, R.M.M. 2022. State Capture Commission Report. Part IV Vol IV – Eskom. [Online] Available at: www.statecapture.org.za/site/files/announcements/682/OCR_version_-_State_Capture_Commission_Report_Part_IV_Vol_IV_-_Eskom.pdf

ethical behaviour, so-called "smaller" acts of corruption and criminality perpetrated by opportunistic individuals (inside and outside Eskom) and crime syndicates have been occurring with alarming frequency and appear to have continued unabated since the revelations of the State Capture Commission.

These acts include procurement fraud and corruption within Eskom and its power stations; theft of coal, fuel oil, copper, and power station equipment and plant components; sabotage of power stations and other infrastructure; and illegal coal mining activities. These all impact the operational capacity of Eskom as well as the coal industry and coal fired power generation value chain as a whole. The "Opera Assessment Report" (the VGBE report) commissioned by National Treasury[15] [16] and prepared by a consortium of experts led by VGBE, also reflected a concerning lack of basic operational "hygiene" and a range of managerial and governance failures and dysfunctions, which have further undermined Eskom's ability to generate the power that the country needs to support economic growth.

There is some optimism regarding Eskom's future. In October 2020, the Presidency launched Operation Vulindlela, "*a joint initiative of the Presidency and National Treasury to accelerate the implementation of structural reforms and support economic recovery*"[17]. Amongst other things, Operation Vulindlela aims to reform the electricity sector, including procurement of new energy supply and restructuring Eskom. Together with the progress on Operation Vulindlela, recent interventions through the Generation Operational Recovery Plan have seen improvements in Eskom's generation capacity in the second quarter of 2024 due to an improved maintenance schedule[18]. Since the end of March 2024 to date, there has been no loadshedding (well over 100 days). These improvements indicate that Eskom may be on the road to recovery. However, they must be viewed through a wider lens. President Ramaphosa has conceded that the power grid is still vulnerable and that further loadshedding cannot be ruled out[19]. Additional factors such as reduced demand and targeted load reduction also contribute to improved performance. Furthermore, improved generation capacity should not detract from the other corruption and mismanagement issues still facing Eskom. Further attention must be given to tackling these pervasive issues.

Given the evidence of how corruption and mismanagement led to the declining functional efficacy of the Eskom coal fleet and the significant economic impact of that decline, it is vital to understand the entire coal-fired power generation ecosystem, the vested interests in coal, and the factors that led to the decline of a once award-winning power utility. This report aims to enhance understanding of the different components of the ecosystem, highlighting the culture of corruption and apathy that has exacerbated the operational issues Eskom has experienced. The report is divided into six parts:

The vested political and economic interests in maintaining a dependence on coal;

The history of Eskom;

The coal supply chain, from the point of extraction to delivery of coal to the CFP station;

How coal-fired power is generated;

Factors compromising the efficacy of CFP generation include criminal acts such as sabotage and corruption (including procurement fraud), mismanagement, and poor governance.

Provisional recommendations to address the challenges identified.

Understanding the ecosystem and its networks and interdependencies enables the identification of points of vulnerability to corruption, other forms of criminality, and mismanagement. It also provides insights into areas of investigation that might require intervention from the government and law enforcement agencies. This knowledge informs other actions that could be taken to contribute to stabilising the national grid.

[15] NT. 2024. Report on Independent Assessment of Operations at Eskom's Coal Power plants. [Online]. Available at: https://www.treasury.gov.za/comm_media/press/2024/2024030101%20Media%20Statement%20-%20VGBE%20Report.pdf and

[16] VGBE. 2023. Independent Assessment of Eskom's operational situation. [Online]. Available at: https://www.treasury.gov.za/comm_media/press/2024/VGBE%20Eskom%20Report.pdf

[17] Republic of South Africa. 2024. Operation Vulindlela. [Online]. Available at: https://www.stateofthenation.gov.za/operation-vulindlela

[18] SA News. 2024. President: 100 days of no load shedding, no reason to relax. [Online]. Available at: https://www.sanews.gov.za/south-africa/president-100-days-no-load-shedding-no-reason-relax

[19] Ibid

PART ONE:

The vested interests in maintaining a dependence on coal for power generation

1.1 Introduction

The economic, political, and social interests in maintaining the dominance of coal mining and coal-generated power in South Africa are multifaceted. Understanding the coal industry's foothold in South Africa sheds light on why the entire ecosystem is an attractive target for corruption and coal syndicates. This will be expanded on later in the report.

Coal's key position in South Africa's political economy stems from various factors, including decades of industrial policy oriented towards mining and minerals beneficiation, strong government support through direct and indirect subsidies[20], and investments from both national and international sources[21]. A report released in November 2023 by Open Secrets outlines how control of South Africa's mineral resources during the Apartheid era was concentrated in the hands of a few powerful corporations forming the Minerals-Energy Complex (MEC). Multiple sectors are intertwined in this complex, including mining, minerals beneficiation[22], energy production, and manufacturing, making it a cornerstone of South Africa's political economy and concentrating wealth among a few influential stakeholders[23]. Although ownership of corporations has shifted over the last 30 years and new players have entered the mining sector, control remains with a few well-positioned and connected corporations and individuals (see also Part 1.3).

In the coal mining sector, this dependency on the MEC has fostered both carbon reliance and coal dependence, supported by influential stakeholders and a capital accumulation system benefiting a select few[24]. According to a 2014 report by the Department of Mineral Resources, at that time 80% of South Africa's saleable coal production was managed by five major mining companies: Anglo American Thermal Coal, Sasol Mining, Glencore Xstrata, Exxaro Resources, and BHP Billiton Energy Coal South Africa (BECSA)[25]. BECSA went through a demerger process in 2014, rebranding to South32's South Africa Energy Coal, which was acquired by Seriti Resources in 2021.

The top five in the industry are now Seriti Resources Holdings, Anglo American Thermal Coal and its rebranded Thungela Resources Ltd, Sasol Mining, Glencore Xstrata, and Exxaro Resources. These stakeholders continue to wield significant influence to preserve financial interests in the minerals and coal sector. This will be discussed in more detail in Part 1.3.

[20] Burton, J., Lott, T., and Rennkamp, B. 2018. Sustaining carbon lock-in: Fossil fuel subsidies in South Africa. In Jakob Skovgaard, & Harro van Asselt (Eds.), The politics of fossil fuel subsidies and their reform. Cambridge: Cambridge University Press. pp. 229–245. [Online]. Available at: . https://doi.org/10.1017/9781108241946.015.

[21] Hanto, J., Schroth, A., Krawielicki, L., Oei, P. and Burton, J. 2022. South Africa's energy transition – Unraveling its political economy. [Online[. Available at: https://www.sciencedirect.com/science/article/pii/S0973082622000928

[22] Beneficiation is the treatment of raw material (such as iron ore) to improve physical or chemical properties especially in preparation for smelting.

[23] Mathe, Z., Marchant, M., May, A. and Ntuli, L. 2023. Who has the power? South Africa's Energy Profiteers. An Open Secrets Investigation. [Online]. Available at: https://www.opensecrets.org.za/report-who-has-the-power/

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1.2 The promotion of coal interests in south africa

The South African government's ties to coal are evident through the reliance on coal by state-owned utilities such as Eskom and the previously state-owned Sasol. The promulgation of broad-based black economic empowerment (B-BBEE) legislation in 2003[26] and the adoption of the first Mining Charter in 2004[27] meant that coal mine ownership shifted partially into the hands of black South Africans, including mine employees, communities, and (most significantly) the politically connected elite. The government has maintained a regime-favourable environment by refusing to change legislation to give up Eskom's (and hence the government's) monopoly on power production[28].

Coal mining contributes 2.3% to South Africa's gross domestic product (GDP) and significantly to the export market[29]. The national discussion on justifying the continued mining and use of coal centres on jobs. The coal sector and related industries reportedly employed 475 561 people in 2022, around 40% of the workforce in Mpumalanga and 2.7% of the national workforce[30]. With a 40% unemployment level in Mpumalanga, which is above the national rate, any move away from coal could be catastrophic for the socio-economic state of the region[31,32], and unionised Eskom and mineworkers have resisted job losses in the coal sector for many years[33, 34]. Coal mining is thus essential to socio-economic development, especially in highly concentrated coal mining areas, leading to strong opposition to a shift to renewable energy sources[35].

Despite the global drive towards renewable energy, various factions that profit from coal continue to endorse its maintenance and expansion. These include segments of the government promoting "clean coal" with carbon capture; coal-related trade unions with conflicting stances on coal's future, climate policy, job creation, and just transition concerns; and local coal mining entities and their stakeholders[36].

Investigations by civil society actors and judicial commissions such as the State Capture Commission have shown that, *"ties have been identified between the long-term ruling party, the African National Congress (ANC) political elites, coal miners, and users. This includes family and associate ties between companies belonging to, for example, former ministers of Energy and the President, investment holding companies with stakes in the coal sector, including ANC-aligned investment companies and the ANC's Chancellor House, and "state capture" by corrupt interests of ANC politicians"*[37].

The Tripartite Alliance of the South African Communist Party (SACP), the Congress of South African Trade Unions (COSATU), and the African National Congress (ANC) demonstrates the formalisation of these ties. Individuals associated with the mining and coal industries have occupied roles within one or multiple parties to the alliance. Union leaders supportive of coal interests have significantly influenced political structures[38]. These leadership configurations occasionally advocate for policies and regulations that favour coal. The socio-political connections of decision-makers, and their associated personal interests, have been cited as factors contributing to irregularities and mismanagement at Eskom, as well as the entrenchment and dominance of coal in Eskom's energy generation portfolio. These elites allegedly leverage preferential procurement and B-BBEE mechanisms, meant to enhance economic inclusion, to advance their vested interests in the coal sector. The manipulation and exploitation extend to procurement and tenders[39].

[26] Broad-Based Black Economic Empowerment Act 53 of 2003. [Online]. Available at: https://www.gov.za/documents/broad-based-black-economic-empowerment-act

[27] Minerals Council. 2024. Mining charter. [Online]. Available at: https://www.mineralscouncil.org.za/images/court-documents/part-3-annexures-29-36.pdf

[28] Ting, M. and Byrne, R. 2020. Eskom and the rise of renewables: Regime resistance, crisis and the strategy of incumbency in South Africa" electricity system. Energy Research & Social Science, 60. https://doi.org/10.1016/j.erss.2019.101333.

[29] Hanto, J. et al. 2022. South Africa's energy transition – Unraveling its political economy. [Online]. Available at: https://www.sciencedirect.com/science/article/pii/S0973082622000928

[30] StatsSA. 2023. Quarterly Labour Force Survey. [Online]. Available at: https://www.statssa.gov.za/publications/P0211/P02114thQuarter2022.pdf

[31] World Bank. (2019). The World Bank in South Africa. https://www.worldbank.org/en/ country/southafrica/overview

[32] Wright, Jarrad G., & Calitz, Joanne R. (2020). Setting up for the 2020s: Addressing South Africa's electricity crisis and getting ready for the next decade... and now Covid-19 Presented at the GreenCape and CSIR Webinar, August 12. https://www.researchgate. net/publication/343670969_Setting_up_for_the_2020s_Addressing_South_Africa's_electricity_crisis_and_getting_ready_for_the_next_decade_and_now_Covid-19

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[34] Petterson, P. 2021. South Africa: Strong Foundations for a Just Transition. [Online]. Available at: https://www.wri.org/update/south-africa-strong-foundations-just-transition

[35] Hanto, J. et al. 2022. South Africa's energy transition – Unraveling its political economy. [Online]. Available at: https://www.sciencedirect.com/science/article/pii/S0973082622000928

[36] Burton, J. Caetano, T., and McCall, B. 2018. Understanding the implications of a 2oC-compatible coal phase-out plan for South Africa. Energy Research Centre University of Cape Town. [Online]. Available at: https://www.iddri.org/en/publications-and-events/report/coaltransitions-south-africa.

[37] Hanto, J. et al. 2022. South Africa's energy transition – Unraveling its political economy. [Online]. Available at: https://www.sciencedirect.com/science/article/pii/S0973082622000928

[38] Ting, M.B. 2019. Socio-technical transitions in South Africa's electricity system. [Online]. Available at: https://www.researchgate.net/profile/Marie-Blanche-Durano-Ting/publication/ 342746560_Socio-technical_transitions_in_South_Africa%27s_electricity_system/ links/5f047f70a6fdcc4ca4530f08/Socio-technical-transitions-in-South-Africas-electricity-system.pdf

[39] Shava, E. 2016. Black economic empowerment in South Africa: Challenges and prospects. Journal of Economics and Behavioral Studies, 8(6(J)), 161–170. https://doi.org/ 10.22610/jebs.v8i6(J).1490

1.3 The "big five" in South African coal mining

In South Africa, coal mining and production (and hence supply to Eskom and export markets) are dominated by five corporations:

Seriti Resources Holdings	Exxaro Resources	Anglo American Thermal Coal and Thungela Resources	Sasol Mining	Glencore Xstrata

1.3.1 Background on the big five

1 Seriti Resources Holdings

Seriti Resources Holdings is the result of multiple mergers and demergers. Anglo American sold its Eskom-tied coal assets to Seriti in 2017. In 2019, Seriti announced its intention to acquire South32 (the rebranded BHP Billiton) and almost 92% of its SA Energy Coal shares[40]. The acquisition was finalised in 2021.

Seriti operates several coal mines, providing coal to many of Eskom's power stations. The New Vaal Mine is a surface mine yielding around 15.9 million tonnes per annum (Mtpa), contracted to provide coal to Lethabo Power Station until 2039. The New Denmark Colliery, one of the deepest coal mines in South Africa, provides 3 Mtpa to Tutuka power station. Kriel Mine in Mpumalanga, a surface and underground mine, produced an estimated 7.9 Mt in 2022 and is commissioned to provide coal for Kriel Power Station until 2035[41]. The New Largo Project (still under development) will provide coal for the Kusile Power Station, targeting production of 12 Mtpa for the next 50 years[42] [43].

As a result of the South32 acquisition, Seriti now also operates the Khutala, Klipspruit, Middelburg, and Wolvekrans Mines, supplying coal to Kendal and Duvha power stations and for export through the Richards Bay Coal Terminal (RBCT)[44]. The acquisition made Seriti Eskom's second-largest coal supplier, providing around 32% of its annual coal requirements[45]. This resulted in backlash from the South African Energy Forum and a call for the Competition Commission to reevaluate its approval of the deal, primarily as Seriti and Exxaro Resources together supply nearly 80% of Eskom's coal[46] [47].

2 Exxaro Resources

In November 2006, Kumba Resources Limited unbundled, and Kumba's coal and other assets merged with Eyesizwe Coal to create Exxaro Resources Limited. Exxaro operates the Grootgeluk mine in Limpopo, which produced 32 Mt in 2022. Its supply is predicted to last until 2041 and is crucial for the sustained operations of the Medupi and Matimba power stations[48]. Exxaro is the biggest coal miner in South Africa (by production)[49], and supplies about 48% of Eskom's coal needs.

[40] Mathe, Z., Marchant, M., May, A. and Ntuli, L. 2023. Who has the power? South Africa's Energy Profiteers. An Open Secrets Investigation. [Online]. Available at: https://www.opensecrets.org.za/report-who-has-the-power/

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[45] Ibid

[46] Hans, B. 2020. CR17 donor scores R1.5 bn Eskom contract. [Online]. Available at: https://www.iol.co.za/news/politics/cr17-donor-scores-r15bn-eskom-contract-f8121cc2-f867-4344-9d65-21f64a065f23

[47] Mathe, Z., Marchant, M., May, A. and Ntuli, L. 2023. Who has the power? South Africa's Energy Profiteers. An Open Secrets Investigation. [Online]. Available at: https://www.opensecrets.org.za/report-who-has-the-power/

[48] Exxaro. 2024. Grootgeluk. [Online]. Available at: https://investor.exxaro.com/integrated-reports2021/cmrr/grootegeluk.php

[49] Erasmus, D. 2023. Exxaro adjusts annual guidance but still sees drop in coal exports as Transnet woes persist https://www.businesslive.co.za/bd/companies/mining/2023-11-29-exxaro-adjusts-annual-guidance-but-still-sees-drop-in-coal-exports-as-transnet-woes-persist/

3 Anglo American Thermal Coal and Thungela Resources

Anglo American has a long history of influence in South Africa's mining sector. Ernest Oppenheimer formed Anglo American in 1917 and later became chairman of De Beers Consolidated Mines when Anglo American was its largest single shareholder[50].

Following a demerger of its thermal coal operations, part of which it sold to Seriti, Anglo American registered Thungela as a separate entity to handle the remaining coal operations in South Africa[51]. Thungela and Exxaro jointly operate Mafube Colliery in Mpumalanga, yielding 3.8 Mtpa, supplying Arnot Power Station and exporting coal[52] [53].

4 Sasol Mining

Sasol is an energy and chemical company with its headquarters in Johannesburg. Its processing plants convert coal to liquid fuels for transport and aviation, burner fuels for power stations, and even adhesives[54]. Sasol Mining operates six coal mines that supply approximately 40 Mtpa of thermal coal. Most of the coal is used by Sasol at its Secunda (Sasol Synfuels) and Sasolburg (Sasolburg Operations) complexes. Some coal is sold locally, and about 3.3 Mt are exported annually[55].

5 Glencore Xstrata

Xstrata was formed in 2006 through a partnership between African Rainbow Minerals Coal (a division of African Rainbow Minerals) and Xstrata Coal South Africa. In 2013, Xstrata merged with Glencore, a global mining giant.

1.3.2 Lobbying for continued dependence on coal

According to Influence Maps' analysis of lobbying imbalance[56], Anglo American has been a strong supporter of continued coal use as an energy source in South Africa. Its rebranded Thungela Resources has maintained this stance. Lobbyists of the Minerals Council of South Africa (previously known as the Chamber of Mines) have echoed similar sentiments on the purported efficiency and affordability of coal mining.

Both Seriti and Exxaro have also been vocal supporters of continued coal dominance in the energy sector, while Anglo American and South32, now Thungela and Seriti respectively, are reportedly members of "climate obstructive associations"[57]. Eskom and Sasol have contradicted their avowed support for renewable energy policies by advocating for lower penalties for emitters who exceed their carbon budgets and supporting measures to weaken Carbon Tax legislation[58].

[50] Anglo America. N.d. 100 years of Anglo American. [Online]. Available at: https://www.angloamerican.com/our-stories/leadership/100-years-of-anglo-american#:~:text=In%201917%2C%20entrepreneur%20Ernest%20Oppenheimer,became%20chairman%20of%20De%20Beers.

[51] Anglo American. 2021. Anglo American completes demerger of Thungela thermal coal business. [Online]. Available at: https://www.angloamerican.com/media/press-releases/2021/07-06-2021

[52] Africa Mining IQ. 2022. Coal Mining in South Africa. [Online] Available at: https://projectsiq.co.za/coal-mining-in-south-africa.htm

[53] Exxaro, 2024. Where we Operate. Retrieved March 2024, from Exxaro: https://www.exxaro.com/operations/where-we-operate/?location=mafube-50-ownership

[54] Sasol. 2024. Overview. [Online]. Available at: https://products.sasol.com/pic/products/home/index.html#:~:text=Sasol%20is%20a%20global%20supplier,Medical%2C%2Household%20and%20Consumer%20goods%2C

[55] Sasol. 2024. Overview. [Online]. Available at: https://www.sasol.com/about-sasol/strategic-business-units/energy-business/sasol-mining

[56] InfluenceMap. 2023. Industry lobbying imbalance putting South Africa's climate goals at risk. [Online]. Available at: https://influencemap.org/pressrelease/Industry-Lobbying-Imbalance-Putting-South-Africa-s-Climate-Goals-At-Risk-21162

[57] Ibid

[58] Ibid.

1.3.3 Political connections and controversy

According to Ventures Africa, in 2015[59], three of the big five companies in the coal mining industry had links to three of the five wealthiest South Africans whose wealth was generated largely through B-BBEE deals. Patrice Motsepe, Cyril Ramaphosa, and Sipho Nkosi accumulated significant wealth through interests in the mining industry. Nkosi and Motsepe are also closely connected to President Cyril Ramaphosa. Sipho Nkosi, who was Chief Executive of Exxaro from 2006 to 2016, was appointed to the Presidency in 2022 to lead an initiative to "cut red tape" and make doing business in South Africa easier[60]. Patrice Motsepe is Ramaphosa's brother-in-law.

Seriti ownership and contracts

Seriti is co-owned by *"five leading black shareholders"* [61] namely Masimong Group, Thebe Investments, Zungo Investments, Community Investment Holdings (23% each) and Coalzar (Pty) Ltd (8%)[62]. Thebe Investment Corporation is one of the investment arms of the ANC. In Part 5 of this report, the interests in coal power plants of another investment company of the ANC, Chancellor House, will be highlighted. In addition, Seriti's Chief Executive Officer, Mike Teke, donated R600 000 to the CR17 Campaign in 2017, supporting President Cyril Ramaphosa's election as ANC president in December 2017. This raised some questions about the extent of his political influence. However, Teke denied any undue influence, and the donation was relatively small in the grand scheme of political funding[63].

Open Secrets has reported that "*The Seriti purchase from South32 was also controversial for other reasons. Notably, as soon as it was confirmed that Seriti was going to purchase South32's assets, Eskom renegotiated with South32 to extend its contract to supply the power utility with coal at favourable terms. Further, the CEO of Seriti, Mike Teke, met with executives from South32 and Seriti, as well as officials from the DMRE, before the deal was announced, with one source in the DMRE saying that the meeting was "strange" and other bidders did not get the same access*" [64] [65] According to media reports, the primary concern that sources inside the Department of Mineral Resources and Energy (DMRE) and the mining industry had, was that it was improper for a meeting to take place before the Competition Commission had given its approval for the deal, and a week before South32 announcing that the deal was in the making[66].

Glencore Xstrata

Glencore has faced several bribery and corruption allegations in South America and Africa. In 2022, Glencore agreed to pay fines of around $1.5 billion to resolve bribery and market manipulation probes[67]. The company admitted to bribing foreign administrations and manipulating fuel oil prices[68].

Glencore also has a close relationship with Shanduka, a business founded by President Cyril Ramaphosa in 2001. In 2005, Glencore and Shanduka partnered on coal export projects, with Shanduka acting as Glencore's B-BBEE arm. In 2012, Glencore purchased a 49.99% stake in Shanduka through a subsidiary and later merged with Xstrata. President Ramaphosa gave up his directorship and shareholding in Shanduka in 2014 to become Deputy President of South Africa. However, he faced several allegations of continued enrichment from Shanduka's business operations.

African Rainbow Minerals (ARM) Coal also has a 20.2% economic interest in certain Glencore operations in South Africa, including Participative Coal Business (PCB)[69] and a 26% attributable beneficial interest in Goedgevonden (GGV)[70]. Patrice Motsepe is the executive chairman and founder of ARM.

Conclusion

A complex web of economic, political, and social interests sustains the dominance of coal mining and coal-generated power in South Africa. The "Big Five" coal producers, through their lobbying efforts, strategic partnerships, and financial contributions, have maintained their influence and ensured the continued reliance on coal as a primary energy source. The dominance of these corporations in the coal sector has also resulted in concentrated wealth and power, leading to allegations of corruption, state capture, and preferential treatment. The intricate relationships between coal producers, political elites, and government officials have created an environment where vested interests are protected.

[59] Jacks, M. 2015. South Africa's top five wealthiest blacks. [Online]. Available at: https://venturesafrica.com/south-africas-top-five-bee-wealthiest-individuals/

[60] McKay, D. 2022. Former coal boss Sipho Nkosi appointed by SA's Ramaphosa to cut government red tape. [Online]. Available at: https://www.miningmx.com/news/markets/48685-former-coal-boss-sipho-nkosi-appointed-by-sas-ramaphosa-to-cut-government-red-tape/

[61] https://seritiza.com/about/board-shareholders/

[62] Ibid

[63] Cohen, T. Seriti deal shows just how badly Australia's South32 wants to exit South Africa. [Online]. Available at: https://www.dailymaverick.co.za/opinionista/2021-04-18-seriti-deal-shows-just-how-badly-australias-south32-wants-to-exit-south-africa/

[64] Ibid

[65] Skiti, S. and Jika, T. 2019. Big deal over 'strange' coal mine meeting. [Online]. Available at: https://mg.co.za/article/2019-09-06-00-big-deal-over-strange-coal-mine-meeting/

[66] Ibid

[67] Bloomberg. 2023. Glencore ordered to pay R13 billion in bribery case. [Online]. Available at: https://www.news24.com/fin24/companies/glencore-ordered-to-pay-r13-billion-in-bribery-case-20230228

[68] US Department of Justice. 2022. Glencore Entered Guilty Pleas to Foreign Bribery and Market Manipulation Schemes. [Online] Available at: https://www.justice.gov/opa/pr/glencore-entered-guilty-pleas-foreign-bribery-and-market-manipulation-schemes

[69] Participative Coal Business (PCB) refers to the Impunzi and Tweefontein operations.

[70] ARMCoal. 2024. Where we operate. [Online]. Available at: https://arm.co.za/arm-coal/

PART TWO:
Eskom holding SOC Ltd

2.1 Introduction

The Electricity Supply Commission (ESCOM), renamed Eskom in 1987, was established under the Electricity Act of 1922 and commenced operations on 1 March 1923. The Electricity Act aimed to lay the groundwork for developing a robust electricity supply industry in South Africa to ensure "*a cheap and abundant supply of electricity*"[71]. ESCOM was founded in response to the increasing demand for reliable and affordable electricity to support railway lines, industry, and mining[72].

Following the adoption of the Electricity Amendment Act in 1985, the 1987 de Villiers Commission, which reviewed operational processes, and the promulgation of Eskom Act of 1987, ESCOM was officially renamed Eskom[73]. Eskom Enterprises was formed as a private company to handle international power contracts in Africa. In 1998, a further restructuring of the electricity sector led to the establishment of Eskom Holdings, which was responsible for managing the distribution of all power in South Africa[74].

Eskom Holdings SOC Ltd is a state-owned power utility fully owned by the South African government, responsible for generating, transmitting, and distributing electricity. Previously the Department of Public Enterprises was the South African government's shareholder proxy, but after the May 2024 election, President Cyril Ramaphosa created a Department of Energy and Electricity, which will act as the new government shareholder representative for Eskom.

Eskom is the seventh-largest electricity generator in the world[75], and is South Africa's primary electricity provider, generating about 80% of the country's electricity and around 30% of the electricity used across the rest of Africa[76].

2.2 Eskom's power plants

Eskom's power plant mix includes various power-generating technologies, such as nuclear, diesel, hydroelectric, pumped storage, and coal. The Eskom complex consists of base load stations and peaking stations designed to meet South Africa's energy demands continuously. Base load stations provide a stable flow of electricity to maintain the country's basic power supply, while peaking power stations are utilised during sudden increases in electricity demand that cannot be met by base load stations.

Eskom's base load fleet includes 14 active coal power stations and one nuclear power station, which constitute the majority of its power-generating capacity[77]. See Addendum 1 for a list of the base load CFP stations.

Additionally, the generation mix comprises 14 peaking power stations, including two conventional hydroelectric power stations, three hydro-pumped storage schemes, four non-dispatchable mini-hydro stations, and four quick-reaction gas turbine power stations, along with the Sere Wind Farm, Eskom's flagship renewable project[78]. The gas turbines are intended for emergency use only due to their high operating costs[79].

71 Eskom. 2024. The years of establishment – "Electrifying our beloved country". [Online]. Available at: https://www.eskom.co.za/heritage/history-in-decades/escom-1923-1932/
72 Van Niekerk, S. 2021. A brief history of Eskom. [Online]. Available at: https://aidc.org.za/a-brief-history-of-eskom-1923-2015/
73 Ibid
74 Ibid
75 Zondo, R.M.M. 2022. https://www.statecapture.org.za/site/files/announcements/682/OCR_version_-_State_Capture_Commission_Report_Part_IV_Vol_III_-_Eskom.pdf
76 Eskom. 2024. Integrated report. [Online]. Available at: www.eskom.co.za/heritage/wp-content/uploads/2024/03/2023_Annual_Report.pdf
77 Eskom. 2022. Generation plant mix. [Online]. Available at: https://www.eskom.co.za/wp-content/uploads/2022/03/GX-0001-Generation-Plant-Mix-Rev-25.docx.pdf
78 Eskom. 2022. Peaking power stations. [Online]. Available at: https://www.eskom.co.za/eskom-divisions/gx/peaking-power-stations/
79 Eskom. 2022. Ankerlig and Gourikwa gas turbine power stations. [Online]. Available at: https://www.eskom.co.za/wp-content/uploads/2022/04/GS-0003-Ankerlig-Gourikwa-Technical-Brochure-Rev-9.pdf

2.3 Eskom today

Eskom was recognised as the best power company in the world in 2001. Now it faces significant challenges, including systemic corruption, poor management, inadequate planning, and neglect. Once considered a national asset, Eskom is now viewed as a liability, grappling with financial and operational crises that necessitate continuous state bailouts to manage its overwhelming debt. Structural issues, such as cost overruns in coal plants and mismanagement, have rendered it incapable of meeting electricity demand[80]. By February 2024, the Energy Availability Factor for the entire fleet averaged 55%, or around 28 500 MW, leading to frequent load shedding. (This has improved to around 70% since then)[81].

Furthermore, media investigations and the State Capture Commission have revealed corruption, mismanagement, and the infiltration of organised crime syndicates within Eskom and its power stations, significantly hindering its ability to achieve financial and operational stability.

2.4 Failure to heed the warning signals

In 1998, a White Paper on the Energy Policy of the Republic of South Africa outlined several objectives and priorities to align the energy sector with sustainable development, including increasing access to affordable energy, improving energy governance, stimulating economic growth, managing energy-related environmental impacts, and securing supply through diversification[82]. The paper warned of a potential electricity supply crisis by 2007 if significant investment was not made to increase generation capacity to meet growing demand.

One proposed measure was diversifying energy sources away from coal power by investing in renewable energy, including wind, solar, biomass, and hydropower. The paper also discussed the unbundling of Eskom into three separate companies -transmission, distribution, and generation[83]- to promote competition and allow alternative energy providers to enter the market[84].

However, the government did not recognise the urgency of expanding the Eskom fleet. Former President Thabo Mbeki acknowledged that when Eskom urged the government to invest more in electricity generation, the response was, *"no, but all you will be doing is just to build excess capacity"*[85].

Sadly, the predictions proved to be accurate, and in 2007, Eskom was forced to implement loadshedding when demand exceeded supply[86]. Since then, Eskom has persistently failed to generate adequate power to meet demand, with loadshedding occurring on 335 days in 2023[87]. The shortfall in capacity, governance challenges, and systemic corruption have contributed to the state of disarray in which Eskom found itself in the first quarter of 2024. Parts 4 and 5 of this report provide further details, specifically regarding coal-fired power generation and the challenges confronting Eskom's fleet of coal-fired power stations.

[80] DPE. 2019. Roadmap for Eskom in a reformed electricity supply industry. South Africa: Department of Public Enterprises. [Online]. Available at: https://dpe.gov.za/roadmap-foreskom-in-a-reformed-electricity-supply-industry/.

[81] https://www.eskom.co.za/eskom-reaches-100-days-without-loadshedding-signalling-marked-improvement-in-generation-and-financial-performance/

[82] Earthlife. 2020. Sustainable energy briefing 8. [Online]. Available at: https://earthlife.org.za/wp-content/uploads/2020/06/se-8_white-paper-on-the-energy-policy-of-sa.pdf

[83] ITA. 2023. South Africa Energy Eskom Unbundling Update. [Online]. Available at: https://www.trade.gov/market-intelligence/south-africa-energy-eskom-unbundling-update#:~:text=As%20part%20of%20a%20comprehensive,independent%20subsidiary%20of%20Eskom%20Holdings.

[84] Van Niekerk, S. 2021. A brief history of Eskom. [Online]. Available at: https://aidc.org.za/a-brief-history-of-eskom-1923-2015/

[85] Vermeulen, J. 2015. Here is how government was warned in 1998 about SA's electricity crisis. [Online]. Available at: https://mybroadband.co.za/news/energy/122710-here-is-how-government-was-warned-in-1998-about-sas-electricity-crisis.html

[86] Ibid

[87] Adams, R. 2024. Eskom: Are brighter days ahead? [Online]. Available at: https://www.allangray.co.za/latest-insights/markets-and-economy/eskom-are-brighter-days-ahead/#:~:text=What%20does%202024%20have%20in,on%20335%20days%20in%202023.

PART THREE:
Understanding the South African coal supply value chain

3.1 Introduction

Part Three of this report outlines the coal supply value chain, detailing the intricate processes and multiple stakeholders involved in the extraction, transportation, and distribution of coal. This section aims to provide a comprehensive overview of the key components that drive this sector of the energy industry. By examining each stage from mining to delivery, the complexities and challenges inherent in managing a national coal supply network can be understood. This analysis is essential for grasping the dynamics of coal markets in South Africa and the broader implications of the country's reliance on coal. It also highlights vulnerabilities within the supply chain, which can expose it to corruption, sabotage, and the influence of criminal syndicates.

3.2 The coal supply value chain

The coal supply value chain involves multiple phases, from exploration and extraction to preparation, transportation, and delivery to end-user or to the RBCT for export[88]. The coal mining industry is significant in global energy production, playing a vital role in supplying coal for power generation and heating worldwide. It remains central to South Africa's energy mix for electricity generation[89]. However, as the energy landscape evolves, there is an increasing emphasis on cleaner and more sustainable alternatives to coal, leading to ongoing discussions about the future of coal and the interests that sustain it.

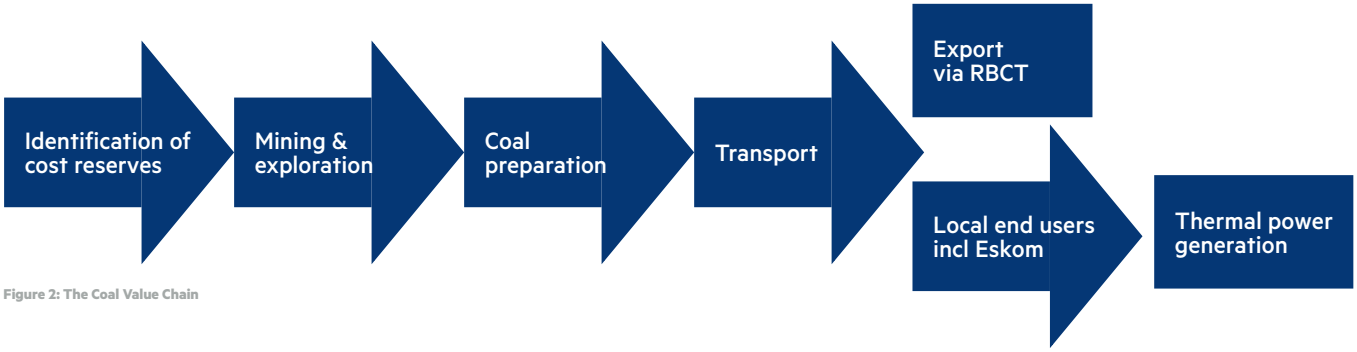

Figure 2: The Coal Value Chain

[88] Ratshomo, K., and Nembahe, R. 2018. South African Coal Sector. [Online]. Available at: https://www.energy.gov.za/files/media/explained/south-african-coal-sector-report.pdf

[89] Mathe, Z., Marchant, M., May, A. and Ntuli, L. 2023. Who has the power? South Africa's Energy Profiteers. An Open Secrets Investigation. [Online]. Available at: https://www.opensecrets.org.za/report-who-has-the-power/

3.3 Coal resources and reserves

There are more than 3 032 coal mines globally, with 127 in South Africa[90]. In South Africa, coal mines produce over 250 Mtpa, accounting for approximately 4.9% of the global coal reserve and making South Africa the seventh-largest coal producer in the world[91]. About 75% of coal mined in South Africa is used domestically, while approximately 90% of the coal consumed in Africa comes from South African coalfields[92].

There are 19 major coalfields in South Africa, primarily situated in Mpumalanga and Limpopo, with some extending into KwaZulu Natal and the Free State[93]. According to the 2018 Coal Sector Report issued by the Department of Energy (citing the Department of Mineral Resources), "*the majority of coal comes from the Witbank and Highveld coalfields, which account for about 75% of South Africa's production. However, these sources will be exhausted in the next century.*" Approximately 60% of the coal deposits in South Africa are located in the Emalahleni (formerly Witbank) coalfields, which are part of the ECCA Group deposit[94].

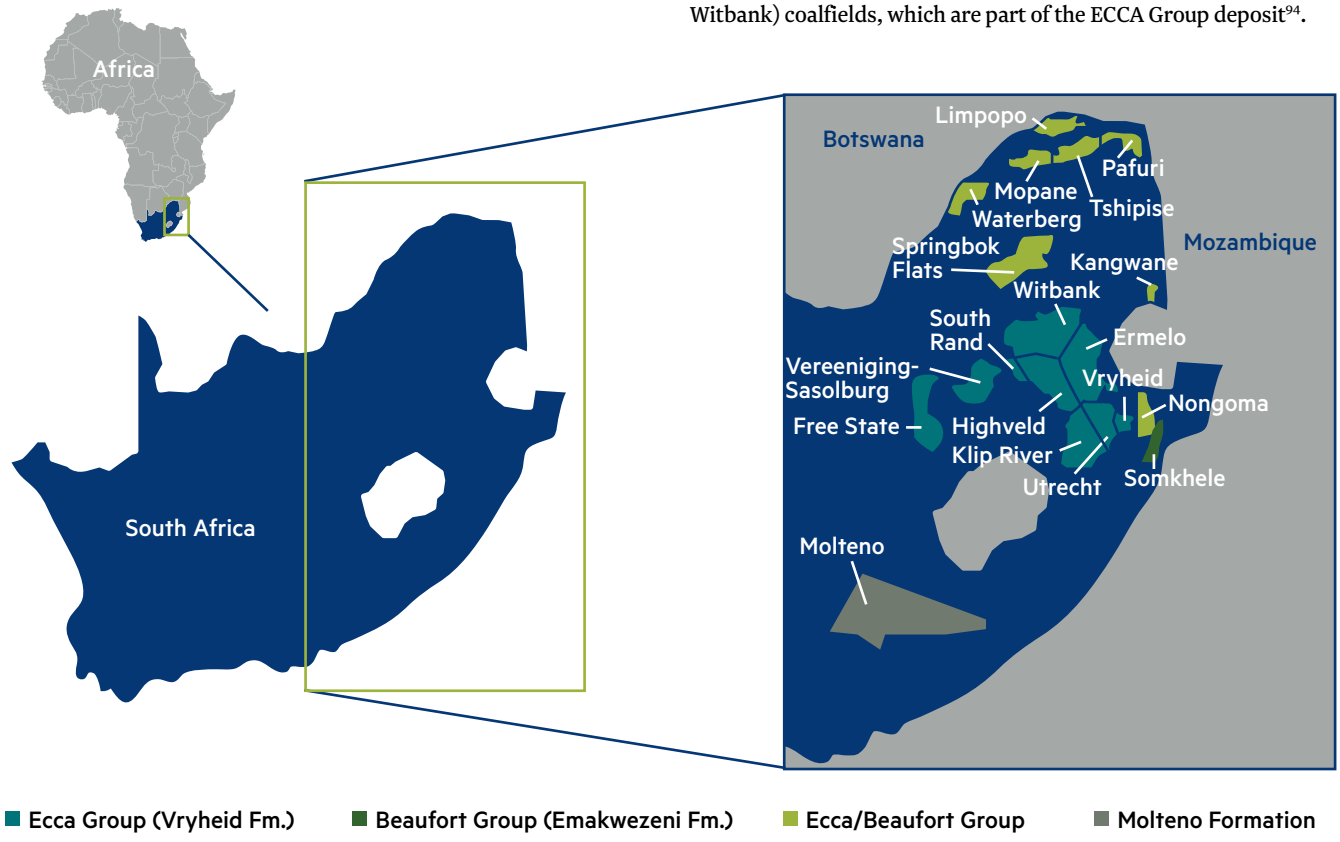

Figure 3: Coal reserves in South Africa [95]

These coal fields are shallow, with high-quality coal, but they are rapidly becoming depleted[96]. Consequently, coal mining companies must find more cost-effective methods to extract coal from deeper seams, where the coal is of lower quality. There is also an increased focus on exploring other reserves, such as the coal fields in Waterberg and other regions in Mpumalanga[97], which are expected to be the primary sources of coal for energy production in the future[98].

90 GlobalData. 2023. The five largest coal mines in operation in South Africa. [Online]. Available at: https://www.mining-technology.com/marketdata/five-largest-coal-mines-south-africa/

91 Mathe, Z., Marchant, M., May, A. and Ntuli, L. 2023. Who has the power? South Africa's Energy Profiteers. An Open Secrets Investigation. [Online]. Available at: https://www.opensecrets.org.za/report-who-has-the-power/

92 Africa Mining IQ. 2022. Coal Mining in South Africa. [Online] Available at: https://projectsiq.co.za/coal-mining-in-south-africa.htm

93 Ratshomo, K., and Nembahe, R. 2018. South African Coal Sector. [Online]. Available at: https://www.energy.gov.za/files/media/explained/south-african-coal-sector-report.pdf

94 Hancox, P.J. and Götz, A.E. 2014. South Africa's coalfields - a 2014 perspective. International Journal of Coal Geology. 2014: pp 170-254.

95 Sebola, M.J.T., Drennan, G.R. and Wagner, N.J. 2022 Petrographic and geochemical characteristics and beneficiated metallurgical coal from the No. 6 Seam, Tshipise sub-basin, 96 Soutpansberg coalfield, South Africa. Journal of the Southern African Institute of Mining and Metallurgy. Vol. 122, no.8, pp. 461-472.

96 Africa Mining IQ. 2022. Coal Mining in South Africa. [Online] Available at: https://projectsiq.co.za/coal-mining-in-south-africa.htm.

97 Minerals Council SA. 2022. South African Coal Mining Today. [Online]. Available at: https://www.miningforschools.co.za/lets-explore/coal/south-african-coal-mining-today

98 Ratshomo, K., and Nembahe, R. 2018. South African Coal Sector. [Online]. Available at: https://www.energy.gov.za/files/media/explained/south-african-coal-sector-report.pdf

3.4 Exploration and mining

Once coal reserves are identified, exploration is necessary to determine their type, quality, and extent. This typically involves conducting geological surveys and assessments to analyse factors such as geological formations, coal quality, and accessibility, which help evaluate the feasibility and economic viability of mining operations[99]. In South Africa, exploration is also essential to identify sites for power stations.

Mining operations will commence once a coal reserve has been fully explored and all factors indicate it is a viable deposit. South Africa employs various mining methods depending on geological conditions and the depth of the coal seams. Open-pit mining is commonly used for shallow deposits, involving the excavation of significant quantities of overlying soil and rock (called "overburden") to access the coal seam. Underground mining is utilised for deeper seams, requiring specialised equipment and techniques to ensure safe and efficient extraction.

In South Africa, mining is carried out by both large-scale companies and smaller, independent operators. These operations significantly contribute to the country's economy, but also present challenges related to environmental impact, land rehabilitation, and community relations.

3.4.1 Types of coal

Coal is categorised into three broad types: lignite, sub-bituminous, and bituminous, to identify the most suitable coal for power generation.

Lignite, or brown coal, is of lower quality and presents challenges for power generation due to its poor combustion properties, making long-distance transportation economically unfeasible. Therefore, if a CFP station is designed to burn lignite, it should be located near the supplying coal mine[100] to make the generation of power economically sensible.

Sub-bituminous coal provides stable combustion, making it suitable (but not ideal) for electricity generation or conversion to liquid fuel[101]. The highest-ranked coal is bituminous coal, which generates significant heat when burned, making it a popular choice for electricity production[102 103]. Most coal in the ECCA coal reserves of Mpumalanga is classified as bituminous, and most power plants in South Africa utilise bituminous coal[104]. There are three grades of bituminous coal, each with distinct characteristics and applications[105]. Higher-grade coal is typically exported, while lower-grade coal is used in Eskom's CFP stations that can accommodate it[106].

CFP stations are designed and constructed to burn specific grades of coal, typically determined by the type produced by the nearest coal mine. Sourcing different grades of coal from alternative locations or substituting lower-grade or contaminated coal can adversely affect the generation capacity of CFP stations, leading to significant operational issues and costs associated with load shedding[107].

3.5 Coal preperation

Raw coal often requires additional processing to remove impurities and enhance its quality. This can involve crushing, screening, washing, and blending to meet specific requirements for various applications[108].

[99] Pan African Resources. N.d. Innovating mining exploration: a sustainable approach in SA. [Online]. Available at: https://www.panafricanresources.com/mining-and-mineral-exploration/

[100] Grammelis, P; Margaritis, N; Karampinis, E. 2016. Raw coal often needs processing and preparation to remove impurities and improve its quality. This can involve crushing, screening, washing, and blending to meet specific requirements for different applications. Fuel Flexible Energy Generation. pp29-58

[101] Gianfrancesco, A. 2017. Materials for Ultra-Supercritical and Advanced Ultra-Supercritical Power Plants.

[102] Eskom. 2021. The formation of coal. [Online]. Available at: https://www.eskom.co.za/wp-content/uploads/2021/08/CO-0009-The-Formation-of-Coal-Rev-11.pdf

[103] Anglo American. n.d. Coal Sheet: Mining and Mineral Processing. [Online]. Available at: https://vula.uct.ac.za/access/content/group/9eafe770-4c41-4742-a414-0df36366abe6/Mining%20and%20Mineral%20Processing%20Resource%20Pack/Coal%20Learner%20Information%20sheets.pdf

[104] Eskom. 2021. The formation of coal/ [Online]. Available at: https://www.eskom.co.za/wp-content/uploads/2021/08/CO-0009-The-Formation-of-Coal-Rev-11.pdf

[105] Ratshomo, K., and Nembahe, R. 2018. South African Coal Sector. [Online]. Available at: https://www.energy.gov.za/files/media/explained/south-african-coal-sector-report.pdf

[106] Minerals Council SA. 2022. South African Coal Mining Today. [Online]. Available at: https://www.miningforschools.co.za/lets-explore/coal/south-african-coal-mining-today

[107] Minerals Council SA. 2022. South African Coal Mining Today. [Online]. Available at: https://www.miningforschools.co.za/lets-explore/coal/south-african-coal-mining-today

[108] Chakraborty, S. 2014. Treatise on Process Metallurgy: Industrial Processes. [Online]. Available at: https://www.sciencedirect.com/topics/materials-science/coal-preparation

3.6 Transport and distribution of coal

Coal is transported overland for local use or to ports for export. Three primary methods are used for transportation: conveyor belts, trucks, and rail. Conveyor belts and trucks are better suited for short distances, while rail is the preferred mode for moving large quantities of coal over longer distances. Rail transport is the preferred method of transporting export coal to the RBCT, from which it is shipped to international markets.

In 2017, Eskom purchased approximately 120 million tonnes of coal from mines at a total cost of R47 billion, with R7 billion (15% of the total purchase price) spent on transporting the coal to power stations. In 2015, Eskom reported that 60% of the coal it purchased was transported by conveyor belts, 30% by road, and 10% by rail[109]. More recent figures on the proportions of coal transported by each method are unavailable. However, an increase in breakdowns, maintenance issues, theft, and sabotage of conveyor belts and rail systems has led to reports of a rise in truck usage[110, 111]. This is indicated in the Eskom Integrated Reports, which outline the amount of coal transported by rail each year, as part of their road-to-rail initiative[112]. As noted in the table below, there was a drop in the volume of coal transported via rail between 2015 and 2023, from 13.6 Mt to 2.5 Mt. Reportedly, this resulted from breakdowns, infrastructure theft and sabotage of the rail network.

Integrated Report Year	Rail transport (Mt)	Coal Purchased (Mt)	% of purchased coal transported by rail
2014/15	12.59	121.67	10%
2015/16	13.6	118.7	11%
2016/17	13.2	120.25	11%
2017/18	11.6	115.25	10%
2018/19	8.2	118.25	7%
2019/20	7.5	119.25	6%
2020/21	3.6	109.96	3%
2021/22	2.5	108.7	2%
2022/23	2.5	98.42	3%

Table 1: Amount of coal in million tons transported by rail as a percentage of coal purchased per year, from 2015 to 2023

Trucks are used as an alternative means for transporting coal, particularly for power plants such as Majuba, which previously relied on the rail network to bring coal in from mines too far away to utilise conveyor belts.

Addendum 2 lists the coal mines from which Eskom sources coal, the CFP stations they supply, and the distances between the mines and the power stations. This information is important as it demonstrates that most CFP stations receive coal from multiple mines and that coal is transported over long distances. This complexity in procurement and logistics can make the system vulnerable to corruption and criminal activity.

[109] De Saxe, CC., van Eeden, J., Steenkamp, A. and Mokone, O. 2021. A Case for High-Capacity Coal Trucks to Reduce Costs and Emissions and Eskom. Virtual Southern African Transport Conference. [Online]. Available at: https://repository.up.ac.za/bitstream/handle/2263/82399/2D_04.pdf?sequence=1

[110] Erasmus, D. Trucking of coal reaches new high as industry calls for Transnet bailout. [Online]. Available at: https://www.businesslive.co.za/bd/national/2024-02-06-trucking-of-coal-reaches-new-high-as-industry-calls-for-transnet-bailout/

[111] Goko-Petzer, C. 2024. Truck traffic burdens South African ports as rail options falter. [Online]. Available at: https://www.bloomberg.com/news/newsletters/2024-02-07/truck-traffic-burdens-south-african-ports-as-transnet-rail-options-falter

[112] Eskom. N.d. Integrated Results. [Online]. Available at: https://www.eskom.co.za/investors/integrated-results/

3.6.1 Conveyor belts

Conveyor belts are commonly used to transport coal within and between coal mines, CFP stations, and other coal processing sites. At the mine, conveyor belts may transport coal from the mine mouth to processing equipment (for processes like crushing, washing, and screening), to storage sites, or to transport vehicles for delivery to coal yards or clients[113]. At the CFP station, conveyor systems are used to move coal from the station's stockpile to the mill, where it is crushed for use in the boiler, as well as to transport ash away from the plant.

Belt conveyors can transport coal over distances of a few kilometres, typically from a supplying mine located less than 10 km away from the power station. These conveyors are low-power systems that can transfer between 50 and 100 tonnes of coal per hour[114].

Ideally, a CFP station is built next to or very close to a coal mine, making conveyor belt transportation feasible. In such cases, a "tied colliery" contract is generally established. These long-term contracts are designed to ensure a secure coal supply to the power stations for their planned lifespan. However, in many instances, depleted reserves in nearby mines necessitate using alternative transport methods to bring in additional coal[115].

3.6.2 Road freight

Coal transport by truck using road networks has increased in South Africa due to the unreliability of aging rail infrastructure and management issues faced by Transnet Freight Rail (TFR). Menar, a private investment company with a diversified minerals portfolio, reports that transporting coal by truck costs four times more than using freight rail[116].

Additionally, road transport can damage roads not designed to handle such weight or volume of traffic, resulting in higher carbon emissions[117, 118]. To illustrate, it takes about 80 trucks (each carrying approximately 34 tonnes of coal) to transport the same amount of coal as one Transnet train[119]. However, high local and international demand for coal and rising global prices continue to sustain the use of trucks, despite the cost and detrimental effects.

Eskom transports coal to its CFP stations over a road network of about 3 200 km using an outsourced fleet of more than 2 000 trucks, that move around 124 000 tonnes of coal a year through a network of 30 to 40 haulage routes[120]. The average combined distance traveled by these coal trucks is approximately 600 000 km per day.

Trucks are frequently used as an alternative due to sabotage of rail and conveyor belt infrastructure, as well as the steady depletion of coal mines located near power stations, necessitating transportation from mines further away. According to energy expert Chris Yelland[121], Eskom has been reluctant to invest in proximal mines to upgrade equipment and extend their operational lives, forcing linked power stations to source coal from greater distances. This increased distance raises the potential for illicit activities, such as diverting trucks to "black sites" to substitute or steal coal.

[113] Wei, Q. 2023. What is the purpose of the Belt Conveyor for Coal in the mining industry. [Online]. Available at: https://www.linkedin.com/pulse/what-purpose-belt-conveyor-coal-mining-industry-qiqi-wei-xbl6c#:~:text=Coal%20belt%20conveyors%20play%20a,mining%20efficiency%20and%20production%20capacity.

[114] Swanton Welding Company. 2024. Types of Conveyors in a Thermal Power Plant. [Online]. Available at: https://swantonweld.com/types-of-conveyors-in-a-thermal-power-plant/

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[118] WEF. 2021. The European year of rail: Why rail can transport us to a greener future. Geneva: World Economic Forum. [Online]. Available from https://www.weforum.org/agenda/2021/12/rail-freight-transport-climate-change/

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[120] De Saxe, C.C. 2021. A case for high-capacity coal trucks to reduce costs and emissions at Eskom. [Online]. Available at: https://repository.up.ac.za/bitstream/handle/2263/82399/2D_04.pdf?sequence=1#:~:text=PBS%20truck%20combinations.-,Savings%20of%20R%20120%20million%20and%2035%20000%20tonnes%20of,cost%20and%20environmental%20impact%20challenges.

[121] Gous, N. 2018. Eskom resorts to moving coal by road as blackouts loom. [Online]. Available at: https://www.timeslive.co.za/news/south-africa/2018-11-19-eskom-resorts-to-moving-coal-by-road-as-blackouts-loom/

3.6.3 Rail transport (Transnet freight rail)

The South African freight rail network is managed by the state-owned enterprise Transnet, operating through TFR. TFR utilises a national rail network of 22 000 km for freight transportation, which includes 1 500 km of heavy haul lines dedicated to transporting coal and iron ore to ports for export. A 580 km line originates from Mpumalanga's 44 coal mines, descending from the Highveld through rural KwaZulu-Natal to Richards Bay. This line was constructed to transport large quantities of coal affordably for power generation and export. At Ermelo, two 100-wagon coal trains can be combined to form a single 200-wagon train, stretching over 2.5 km and capable of loading 20 800 tonnes[122]. However, breakdowns and inefficiencies in the rail network - attributed to theft, sabotage, vandalism, corruption-linked locomotive contracts identified during the State Capture Commission, and inadequate maintenance - have severely impeded the network's capacity for freight transport, including coal. As a result, mines and power stations often rely on trucks for coal transportation. In April 2022, Transnet declared force majeure on coal transportation contracts due to these rail network issues[123].

3.7 Global market and exports

While this report primarily focuses on coal and its use in power production in South Africa, a comprehensive understanding of the value of coal in the country requires consideration of the global coal trade and exports. The following section provides a high-level overview.

3.7.1 Global coal market and the demand for thermal coal

In 2023, global electricity generation from coal reached record levels, with more than 1 billion tonnes of thermal coal exported worldwide[124]. China was the largest importer of thermal coal, acquiring a record 325 Mt, followed by India, which imported 172 Mt[125]. According to Ember, approximately 82% of global coal-fired power generation occurred in Asia in 2023, reinforcing the continent's position as the leading coal-importing region globally. South Africa continues to be a major exporter of coal, particularly thermal coal. From 2017 to 2023, South Africa ranked 7th among coal-exporting nations, with an export volume of 51 Mt in 2023[126]. The country predominantly exports coal to Europe and Asia, with India being one of its largest markets[127].

[122] Gross Tonne referring to the volume of coal that the train can carry

[123] Reid, H. 2022. SA's Transnet declares force majeure on coal contracts, Thungela says. [Online]. Available at: https://www.moneyweb.co.za/mineweb/sas-transnet-declares-force-majeure-on-coal-contracts-thungela-says/

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[127] Mittal, A., Chakraborty, V. and Raj, P. 2024. Thermal Coal Series: South Africa's logistics hurdles turn boon for growing Indian Appetite. [Online]. Available at: https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/coal/020924-thermal-coal-series-south-africas-logistics-hurdles-turn-boon-for-growing-indian-appetite#:~:text=Thermal%20coal%20exports%20by%20South,S%26P%20Global%20Commodities%20at%20Sea.

3.7.2 South Africa's coal export industry

Although most coal extracted in South Africa is used for local power generation, a significant portion is designated for export, primarily through the RBCT, which was established in 1976. The terminal's initial capacity was 12 Mtpa, which steadily increased, reaching a peak capacity of 76 Mtpa in 2008. By 2010, RBCT had developed into a sophisticated 24-hour operation with a design capacity of 91 Mtpa. It was the largest single coal export terminal globally, consistently exporting over 69 Mt of coal annually. The terminal is well-connected to the coal mines in the Mpumalanga coalfields through the TFR network[128, 129, 130].

However, RBCT has faced significant challenges in meeting export volume requirements over the past five years, primarily due to issues with the TFR network. Only 51 Mt of coal were exported in 2023, a substantial decline from the record export volume of 75.6 Mt in 2017 [131, 132, 133]. This represents significant underperformance compared to the terminal's 91 Mt design capacity, resulting in serious economic implications for South Africa and the coal mining industry.

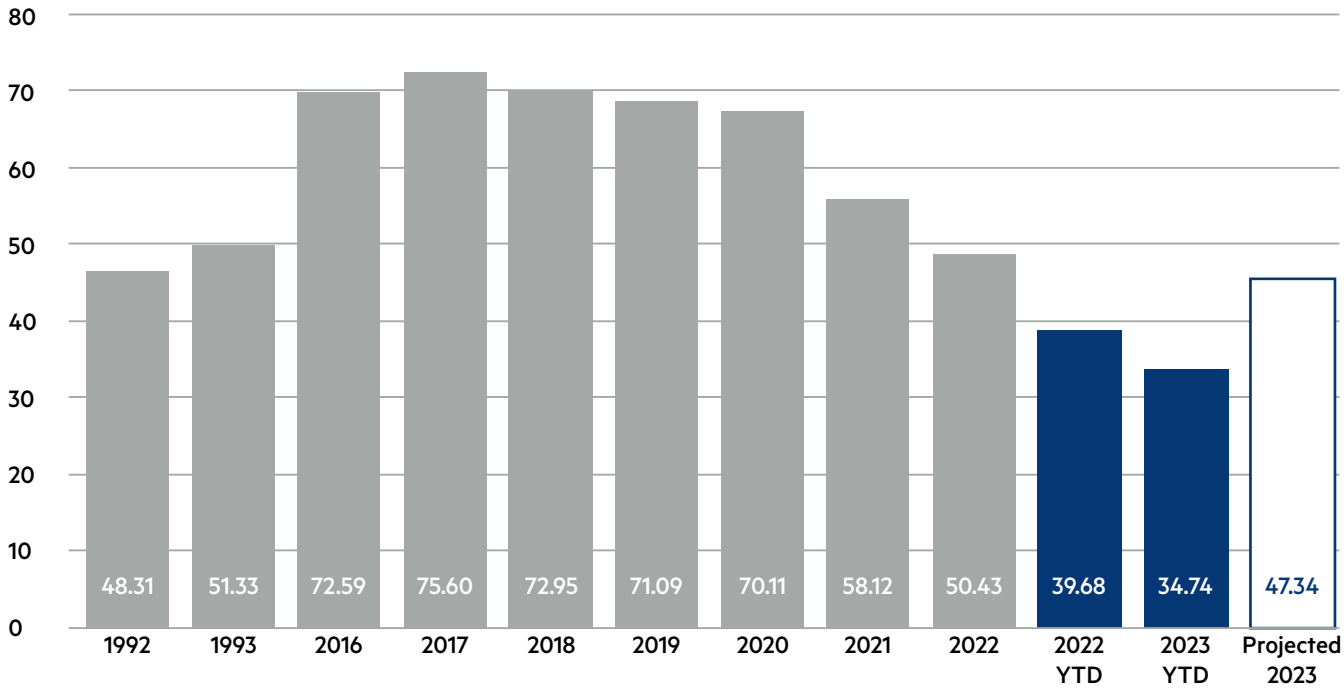

Figure 4: Amount of coal moved by rail to RBCT up to September 2023 [134]

This decline is attributed to a combination of factors, including industrial action and ongoing challenges with rail infrastructure. The latter include the theft of copper cables and rail tracks, a shortage of freight trains, and train accidents, which have collectively hindered the ability to meet the demand for coal in Europe and Asia. The economic impact has been exacerbated by the Russian invasion of Ukraine, leading to losses in foreign revenue for South Africa. Additionally, some of these challenges have affected the have affected Eskom's coal powered fleet's ability to operate at full capacity.

[128] Ratshomo, K. and Nembahe, R. 2018. South African Coal Sector Report. [Online]. Available at: https://www.energy.gov.za/files/media/explained/south-african-coal-sector-report.pdf
[129] Minerals Council SA. 2022. South African Coal Mining Today. [Online]. Available at: https://www.miningforschools.co.za/lets-explore/coal/south-african-coal-mining-today
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[131] Ibid
[132] Mantshantsha, S. 2024. Richards Bay's coal exports dwindle to early 1990s levels as rail woes mount. [Online]. Available at: https://www.news24.com/fin24/companies/richard-bays-coal-exports-dwindle-to-early-1990s-levels-as-rail-woes-mount-20240126
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[134] RBCT 2023 rbct.co.za

PART FOUR:
Generation of power by Eskom's coal fired power stations

4.1 Introduction

The reliance on coal as the foundation of power generation in South Africa dates back to the discovery of diamonds in Kimberley and gold in the Witwatersrand in the late 19th century. Following World War I, industrialisation in the Transvaal led to initiatives to construct coal-fired power stations, particularly near the major coalfields around Emalahleni (formerly Witbank) and Delmas. This marked the beginning of what has now been more than a century of dependence on coal as the primary energy source in South Africa.

The South African government has indicated plans to gradually retire most CFP stations over the next 10 to 20 years, with only three out of the 15 planned to remain operational beyond 2044[135]. This decision to decommission most CFP stations is influenced by both the expiration of their intended lifespan and environmental concerns. The intention is to develop renewable energy sources through the Just Energy Transition plan while supporting vulnerable communities, local jobs, and economies. However, delays in renewable energy development, along with the declining Energy Availability Factor (EAF) experienced by Eskom over the past eight years, have put significant pressure on the national grid and the aging coal fleet.

The EAF is a crucial metric for assessing the operational effectiveness and reliability of power plants. There has been a consistent decline in the average EAF across Eskom's entire coal fleet since 2017[136]. As a result of this underperformance, Eskom is extending the operation of CFP stations beyond their intended lifespans, with the Eskom Board recently approving a three-year delay in the decommissioning of three power stations[137]. Many CFP stations have already surpassed their original decommission dates and can only continue operating for a limited time, with significant environmental impacts.

Furthermore, as a signatory to the Paris Climate Agreement, South Africa is committed to reducing greenhouse gas (GHG) emissions by transitioning to renewable energy sources, especially given that the energy generation sector accounts for up to 80% of the country's GHG emissions[138]. However, meeting the emissions' reduction target for 2030 appears increasingly unlikely[139].

4.2 Generation of power from coal

Understanding the power generation process is essential to grasping the challenges facing the Eskom coal fleet, including general maintenance issues identified in the audit by VGBE[140], and targeted acts of sabotage and vandalism. A maintenance issue that leads to a breakdown or an act of sabotage affecting even one small component in the power plant can result in the shutdown of an entire unit, reducing the available base load power for the grid. A CFP station operates by converting the energy stored in coal into electricity through a series of processes, which can be simplified as follows[141]:

[135] Ibid

[136] Pierce, W. and Le Roux, M. 2023. Statistics of utility-scale power generation in South Africa. [Online]. Available at: https://www.csir.co.za/sites/default/files/Documents/Statistics%20of%20power%20in%20SA%202022-CSIR-%5BFINAL%5D.pdf

[137] Omarjee, L. 2024. Eskom board approves delay in decommissioning three power stations till 2030. [Online]. Available at: https://www.news24.com/fin24/climate_future/energy/eskom-board-approves-delay-in-decommissioning-three-power-stations-till-2030-20240521

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[139] Mukherjee, P. 2023. Exclusive: South Africa to miss 2030 emissions goal as it keeps coal plants burning. [Online]. Available at: https://www.reuters.com/sustainability/south-africa-miss-2030-emissions-goal-it-keeps-coal-plants-burning-2023-11-09/

[140] VGBE. 2023. Independent Assessment of Eskom's Operational Situation. Pretoria: VGBE. [Online]. Available at: https://www.treasury.gov.za/comm_media/press/2024/VGBE%20Eskom%20Report.pdf

[141] Ratshomo, K., and Nembahe, R. 2018. South African Coal Sector. [Online]. Available at: https://www.energy.gov.za/files/media/explained/south-african-coal-sector-report.pdf

1

Upon arrival at the power station, coal is stored in large stockpiles or silos. It is then transported to the mills, where it undergoes an initial pulverisation process, transforming it into a fine black powder to increase surface area and facilitate efficient combustion.

2

This powdered coal is directed into a furnace within the boiler, where the fine coal particles are ignited, leading to combustion. This process produces heat, which converts water (circulating through a closed system) into steam.

3

The high-pressure steam produced in the boiler rotates the blades of turbines, which drive a copper wire coil (known as the rotor) encased within a magnet (the stator).

4

The rotor and stator together form the generator, responsible for generating electric current.

5

This electric current is then fed into the grid and transmitted across the country via the power lines of the transmission network.

After passing through the turbine, the steam is condensed back into water in a condenser using cooling water from a nearby source, such as a river or cooling tower. The condensed water is then returned to the boiler to repeat the cycle. The ash produced as a by-product of coal combustion settles at the base of the boiler and must be extracted and transported to an ash dam. Simultaneously, gaseous emissions, known as flue gas, are discharged through a chimney or flue[142].

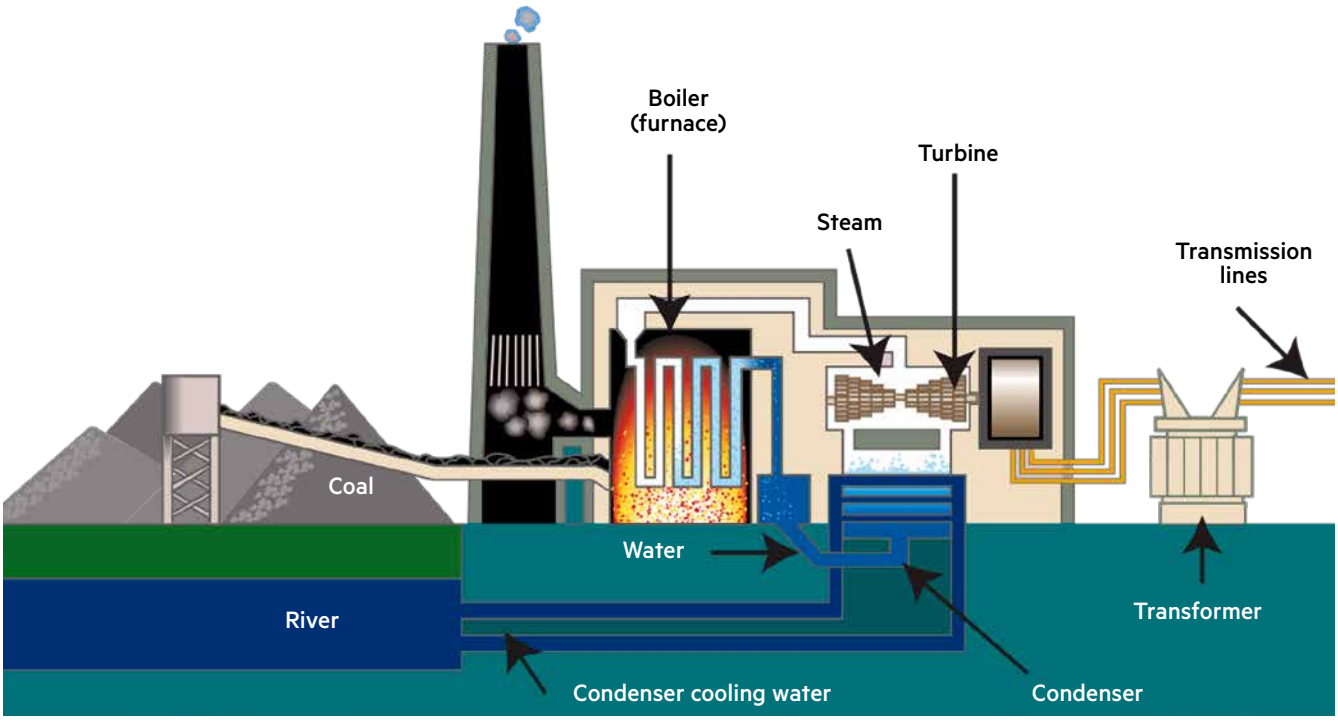


Figure 5: Generation of power from coal[143]

[142] Ibid
[143] https://energyeducation.ca/encyclopedia/Coal_fired_power_plant

4.3 Coal-fired power stations

The establishment of a CFP station is influenced by several factors, including the ease of accessibility to a reliable coal supply, the availability of water sources, the environmental impact of the power station in the area, and the transmission network necessary to ensure that generated power reaches different parts of the country.

CFP stations should be built as close as possible to the coal mine that will supply them during their initial decades of operation. This proximity allows for design considerations to take the type and quality of coal from the associated mine into account and significantly reduces transport costs, as coal can be transported via a conveyor belt system. However, as CFP stations in South Africa have been pushed beyond their initial lifespans, they have had to source coal from alternative mines due to the depletion of nearby coal mines or the prohibitive costs of further extraction. As a result, the coal supplied may differ in type and quality from what the power station was originally designed to use. This often necessitates additional testing and processing to convert the coal to the required specifications for efficient combustion.

Using non-homogeneous, unprocessed coal can lead to higher wear and damage to the mills of the power station. Additionally, when coal quality falls below the design specifications, it results in increased coal consumption, which raises generation costs and carbon emissions. Furthermore, transporting coal over greater distances, whether by rail or road, contributes to escalating costs.

4.4 The performance of the Eskom coal fleet

There are 15 Eskom coal-fired power stations (one of which, Komati, has been decommissioned) and one nuclear power station that provide base load power. Two of the CFP stations – Camden and Grootvlei - are return-to-service stations, meaning they were mothballed and later brought back into operation. Komati, which was mothballed between 1987 and 1990, was brought back into service in 2008, and then decommissioned again in 2022.

As noted in the introduction, the performance of Eskom's power generation fleet has been steadily declining for at least the past eight years. This decline was anticipated by the 1998 White Paper from the Department of Energy. The challenges in providing electricity to the country became evident in 2007, when the first rolling blackouts, referred to as "loadshedding," began. These planned outages were implemented to prevent a total collapse of the national power grid.

As of February 2024, the EAF for the entire fleet averaged 55%, equating to approximately 28 500 MW (but this has increased more recently – see below), which has led to the frequent implementation of load-shedding.

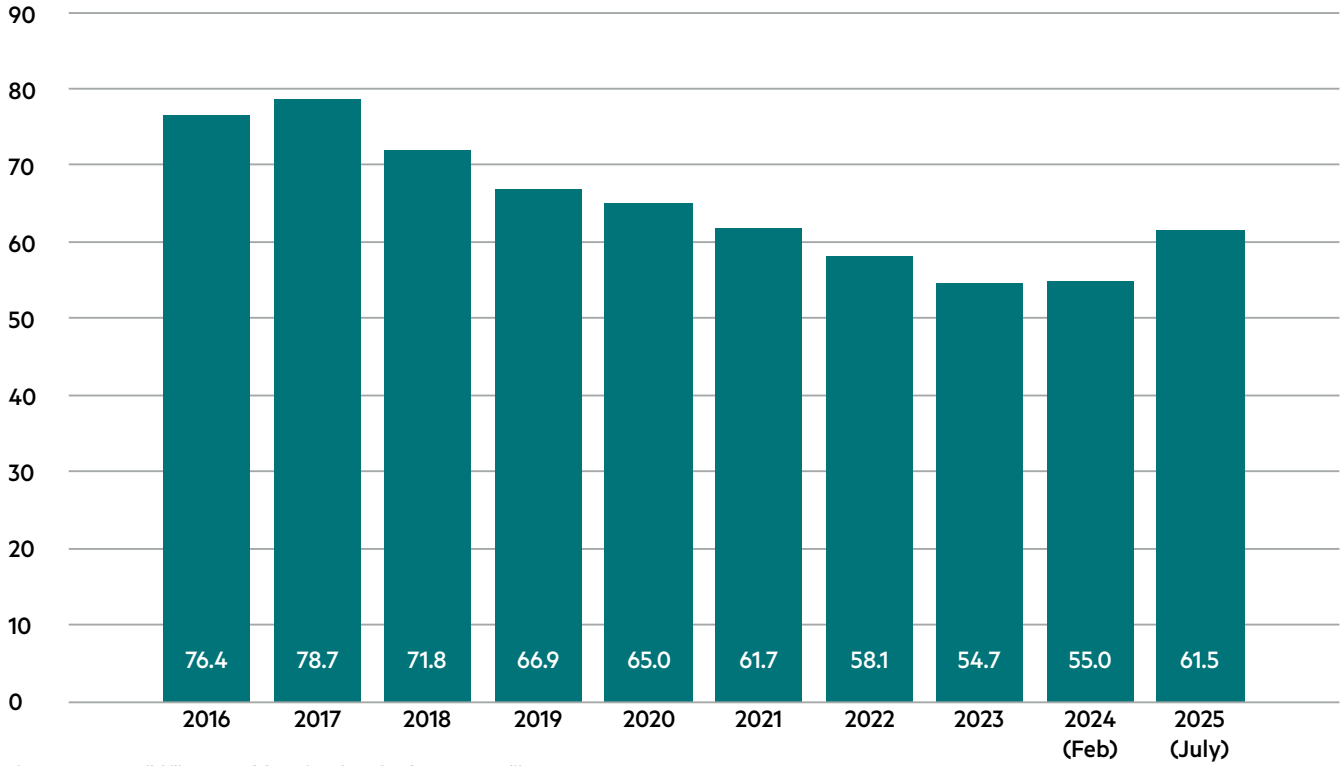


Figure 6: Energy Availability Factor of the entire Eskom Fleet from 2016-2023[144]

The low EAF of the Eskom fleet reflects operational issues and downtime that impact power generation capacity, resulting in nearly continuous rolling blackouts over the past few years as Eskom strives to maintain grid stability. Particularly concerning is the deteriorating performance of many CFP stations, with several operating at an average EAF below 50% in 2023, while international benchmarks are around 78%[145].

It is important to note that Eskom has made improvements in the reliability and stability of its CFP stations in the second quarter of 2024, primarily due to the efforts of new leadership implementing the Generation Operation Recovery plan and conducting essential maintenance at coal power plants over the past 18 months. This has led to sustained improvements in generation performance and a significant improvement in EAF[146, 147, 148, 149].

The Eskom Chairperson, Mteto Nyati, believes that the performance improvements in the power stations are due to positive leadership changes in the power stations, a good maintenance plan and good execution of the recovery plan. The maintenance plan also included the involvement of original equipment manufacturers, who better understood the operational and maintenance requirements of the coal power stations[150]. These changes have, at the very least, improved the operational capacity of the Eskom coal fleet.

Another factor contributing to decreased loadshedding is a reduction in demand on Eskom[151, 152]. According to Eskom's research, rooftop solar installations have significantly increased since 2022, generating approximately 5 500 MW of power from private rooftop solar systems not connected to the Eskom grid[153]. This is the equivalent of five stages of loadshedding (as previously defined). Additionally, while Eskom has not implemented loadshedding, there have been more instances of "load reduction" in specific areas, particularly urban municipalities[154]. Municipal grids are under strain from growing populations and illegal connections, which overload local transformers. As a result, municipalities are switching off power on a rotational basis in certain areas to protect their transformers and substations and reduce demand on the grid. Eskom is also conducting load reduction in areas like Soweto, where direct power supply exceeds the infrastructure's capacity[155].

According to South African Reserve Bank former Deputy Governor Kuben Naidoo, the current recession in the mining sector is another factor contributing to reduced demand for electricity. Lower production levels have been reported in mining operations, due to decreased demand for commodities and increased mining costs. If the mining sector returns to full capacity, the Eskom grid may face renewed strain[156].

How much has been shed?

The number of gigawatt hours (GWh) shed annually increased dramatically in 2019, rising from 192 in 2018 to nearly 1 400 in 2019. In 2022, just over 11 500 GWh were shed, while in 2023, a record-breaking 19 793 GWh were shed between January and September, raising serious concerns about the stability of the grid[157].

145 VGBE. 2023. Independent Assessment of Eskom's Operational Situation. Pretoria: VGBE. [Online]. Available at: https://www.treasury.gov.za/comm_media/press/2024/VGBE%20Eskom%20Report.pdf.

146 Eskom. 2024. Loadshedding remains suspended due to sustained improvement in generation performance. [Online]. Available at: https://www.eskom.co.za/loadshedding-remains-suspended-due-to-sustained-improvement-in-generation-performance/

147 Mybroadband. 2024. The man behind Eskom's miraculous turnaround. [Online]. Available at: https://mybroadband.co.za/news/energy/539131-the-man-behind-eskoms-miraculous-turnaround.html

148 Daily Investor. 2024. The four men who stopped load-shedding in South Africa. [Online]. Available at: https://dailyinvestor.com/energy/55254/the-four-men-who-stopped-load-shedding-in-south-africa/

149 Eskom. 2024. Continued loadshedding suspension marked by 100 days of constant power supply – Winter Outlook remains in force. [Online]. Available at: https://www.eskom.co.za/continued-loadshedding-suspension-marked-by-100-days-of-constant-power-supply-winter-outlook-remains-in-force/

150 Ibid

151 Moneyweb. 2024. Thank private solar for no daytime loadshedding, not Eskom. [Online]. Available at: https://www.moneyweb.co.za/news/south-africa/thank-private-solar- for-no-daytime-load-shedding-not-eskom/

152 Thorne, S. 2024. South Africa is saving itself from Eskom. [Online]. Available at: https://businesstech.co.za/news/energy/772481/south-africa-is-saving-itself-from-eskom/

153 Labuschagne, H. 2024. Eskom's rooftop solar numbers and peak demand decline explained. [Online]. Available at: https://mybroadband.co.za/news/energy/535617-eskoms-rooftop-solar-numbers-and-peak-demand-decline-explained.html

154 Grootes, S. As loadshedding goes local, the power gap between rich and poor widens. [Online]. Available at: https://www.dailymaverick.co.za/article/2024-07-08-as-load-shedding-goes-local-the-power-gap-between-rich-and-poor-widens/

155 Ibid

156 Thorne, S. 2024. South Africa is saving itself from Eskom. [Online]. Available at: https://businesstech.co.za/news/energy/772481/south-africa-is-saving-itself-from-eskom/

157 Pierce, W. and le Roux, M. 2023. Statistics of utility-scale power generation in South Africa. [Online]. Available at: https://www.csir.co.za/sites/default/files/Documents/Statistics%20of%20power%20in%20SA%202022-CSIR-%5BFINAL%5D.pdf

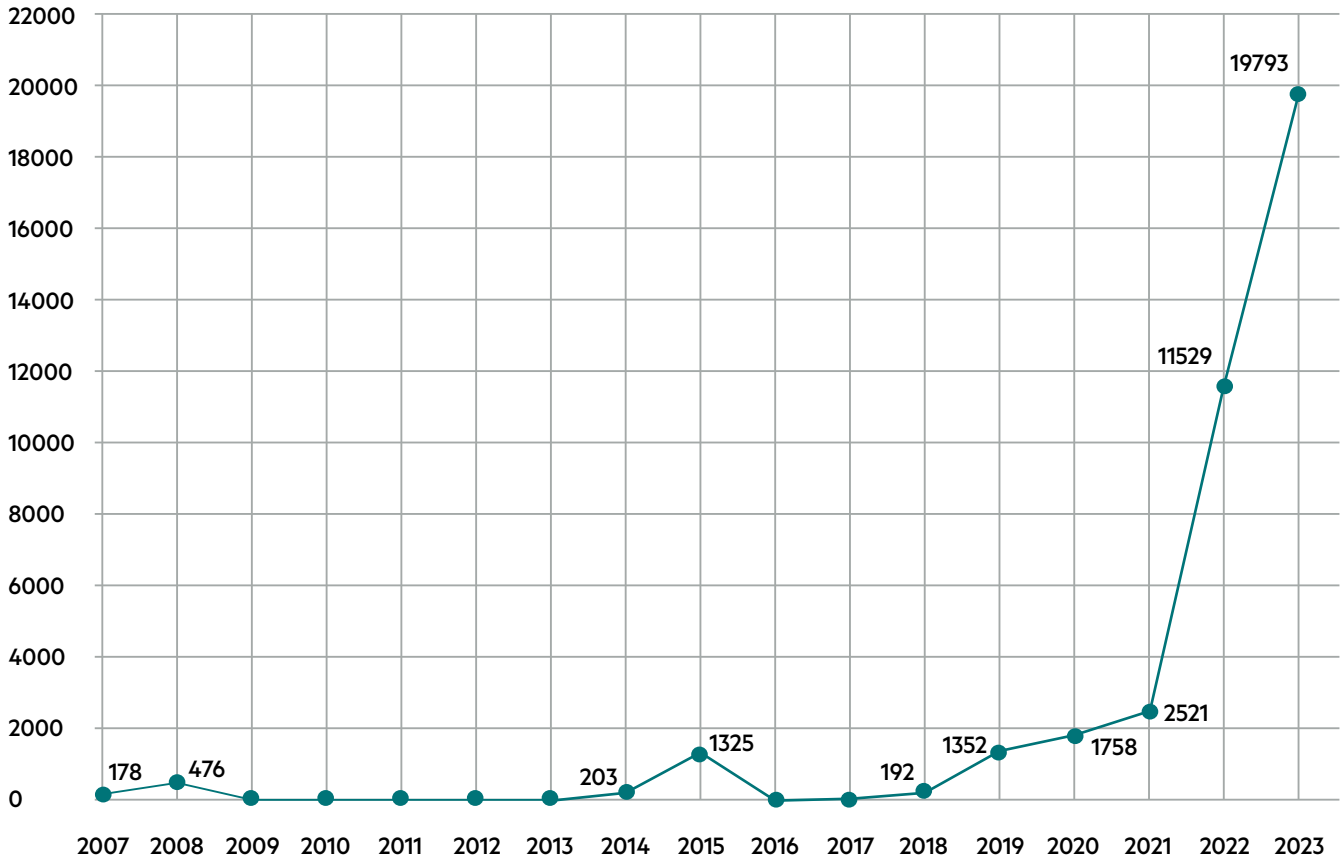


Figure 7: Amount of GW shed through load shedding from 2007 to 2023[158]

Available power production from coal has declined year on year since 2011, despite efforts to increase overall installed capacity through the construction of Medupi and Kusile[159]. This decline has been primarily attributed to inadequate capacity and maintenance challenges across Eskom's power stations over the past two decades. However, questions remain regarding the underlying factors contributing to the unreliability of Eskom's ability to generate and distribute sufficient energy. Despite recent improvements in power generation, the vulnerabilities identified in this report should still be addressed, and the root causes of Eskom's decline warrant further investigation and discussion.

[158] Pierce, W., & Le Roux, M. (2023). Statistics of utility-scale power generation in South Africa. Available online at https://www.csir.co.za/sites/default/files/Documents/ Statistics%20of%20power%20in%20SA%202022CSIR-%5BFINAL%5D.pdf

[159] Ibid

PART FIVE:

Corruption, criminality and culture – why Eskom has been failing

5.1 Introduction

South Africa is currently facing an energy availability crisis. As indicated in Part Four, this crisis is partly due to Eskom's ageing infrastructure, which has been poorly maintained and mismanaged, resulting in a significant decline in the performance of Eskom's CFP stations over recent years, despite the addition of new power stations to the fleet. This section examines other factors contributing to this decline.

5.2 Poor operational 'hygiene'

The VGBE Report[160] outlined the management and maintenance issues facing the Eskom Coal Fleet, which were contributing to the low EAF. Issues identified include complex and dysfunctional management and governance structures, as well as operations and maintenance programmes that need to be improved and conducted according to industry standards. The lack of basic housekeeping, with poor standards of cleanliness at many of the CFP stations, was notable.

The VGBE assessment, noted that the overall condition and health of power stations could have been better, with many instances of crucial maintenance unnecessarily delayed despite adequate budget allocations. Lack of maintenance had caused, amongst other things, steam and water leaks, broken insulation of boilers, damage to mills due to poor coal quality that is not tested before use, and high ash content. Lack of coal quality testing poses risks to the power generation process, and as substandard coal may be delivered due to coal theft and substitution operations (See Part 5.7.2), testing is particularly important.

One explanation given for the deteriorating condition of the CFP stations is the organisational ethos, which seemed to prioritise pushing EAF above all else, neglecting the overall health of the power stations. Instead of concentrating on what is necessary for the stations' sustainable efficacy and efficiency, efforts have primarily centred around quick fixes to maintain operational continuity, rather than addressing technical issues and crucial planned maintenance[161]. According to VGBE, the singular focus on achieving a high EAF translates into a maintenance strategy characterised by reactionary measures rather than comprehensive refurbishments. This approach, akin to applying a band-aid to a gaping wound, fails to address the underlying issues that will continue to compromise performance of power stations if not remediated.

[160] VGBE. 2023. Independent Assessment of Eskom's Operational Situation. Pretoria: VGBE. [Online]. Available at: https://www.treasury.gov.za/comm_media/press/2024/VGBE%20Eskom%20Report.pdf

[161] Creamer, T. 2024. Assessment of Eskom coal fleet warns 'fixation on the EAF is a dead end'. [Online]. Available at: https://www.engineeringnews.co.za/article/assessment-of-eskom-coal-fleet-warns-fixation-on-the-eaf-is-a-dead-end-2024-03-01

5.3 Eskom fleet under attack

According to a report by BusinessTech in 2023[162], *"Eskom is under siege by criminals, from low-level opportunistic and petty thieves to complex and highly organised syndicates. The list of criminal activities it has had to suffer is storied and long, with coal theft, diesel theft, contract exploitation, high-level corruption and even threats of violence adding to the stresses."*

The criminal activity and sabotage targeting the Eskom coal fleet are pervasive issues that affect South Africa's energy stability, ultimately undermining the political economy in the energy sector. Deliberate sabotage and criminal acts targeting Eskom power operations are not isolated or rare. According to Burkhardt, during the last quarter of 2022, *"more than 760 criminal incidents targeted Eskom operations over 90 days ending in December. At every step of its supply chain, the utility, which is responsible for producing 90% of South Africa's energy, has had to defend itself against armed robbery, fuel theft, sabotage and corruption — all of which are increasing the risk of a complete power outage that could devastate a country teetering on the brink of recession"*[163].

In an affidavit submitted in 2023 as part of court action against Eskom[164], former CEO Andre de Ruyter stated *"In recent years, Eskom has experienced unprecedented levels of sabotage, criminality and unlawful industrial action, which has significantly impaired its operations."* He further states: *"Eskom is spending approximately R3.2 billion per annum on private security due to the sustained sabotage and criminality it and its personnel have experienced. In a number of cases, it is clear that damage to Eskom property and operations has been deliberate. This is not always the case, but the sheer number of inexplicable incidents of damage to Eskom's property, coupled with the substantial number in which intention is clear, overwhelmingly confirms that Eskom has experienced a sustained campaign of sabotage"*[165]

In a briefing to the Standing Committee on Public Accounts (SCOPA) in May 2023[166], the Minister of Public Enterprises indicated that corruption and maladministration are not new and have run rampant in Eskom for many years. The meeting notes noted that *"There were many actors, both outside of Eskom and within Eskom, who had collaborated to undermine procurement and other processes in Eskom. All of that was done to ensure that they could get more work and make more money."* Large- (as perpetrated during state capture) and small-scale corruption, questionable and irregular procurement decisions, poor management and governance failures within Eskom over the past two decades, have all contributed to how compromised Eskom is[167].

In the 2023 Eskom Integrated Report, acting CEO Calib Cassim indicated the importance of rooting out the *"ongoing scourge of fraud, crime and corruption"*, and admitted that Eskom had not made much progress in addressing fraud and corruption within Eskom[168].

The persistent criminality and sabotage targeting Eskom represent a formidable barrier to South Africa's energy stability and economic resilience. Action is essential to mitigate these threats, safeguard critical infrastructure, and restore confidence in Eskom's ability to provide power to South Africa. Understanding all the factors actively and passively enabling criminality will go towards finding measures to minimise and mitigate the sabotage, corruption and syndicate activity.

5.4 Procurement fraud and corruption

Procurement fraud has been uncovered across different Eskom departments and in individual power stations. Extensive investigations by law enforcement, investigative journalists, and various organisations, including Eskom itself, have revealed fraudulent activity related to procurement at nearly every operational level. This is in addition to the grand project of organised pervasive fraud, corruption and patronage that was revealed during the State Capture Commission[169]. This ranges from "petty procurement fraud" committed by opportunistic individuals in respect of overpaying for items like toilet paper, to the manipulation of extremely high value procurement orders for goods and services by what have been termed the "coal mafias" (See Part 5.7.3).

In 2016, the Organisation for Economic Cooperation and Development (OECD) released a report[170] on how vulnerable

[162] BusinessTech. 2023. Sabotage at Eskom is rampant: Report. [Online]. Available at: https://businesstech.co.za/news/energy/660361/sabotage-at-eskom-is-rampant-report/

[163] Burkhardt, P. 2023. Rampant Corruption at Energy Provider Drags Down South Africa. [Online]. Available at: https://www.biznews.com/sarenewal/2023/05/09/power-grid-sabotage

[164] United Democratic Movement and Others v Eskom Holdings SOC Ltd and Others [2023] ZAGPPHC 280; 005779/2023 (5 May 2023). Affidavit available at: https://www.politicsweb.co.za/documents/why-eskom-is-failing--andre-de-ruyter#:~:text=Eskom's%20various%20power%20stations%20have,reasons%20that%20remain%20under%20investigation.

[165] De Ruyter, A. 2023. Why Eskom is failing - Andre de Ruyter. [Online]. Available at: https://www.politicsweb.co.za/documents/why-eskom-is-failing--andre-de-ruyter#:~:text=Eskom's%20various%20power%20stations%20have,reasons%20that%20remain%20under%20investigation.

[167] PMG. 2023. Eskom corruption and related matters: engagement with Minister of Public Enterprises (with Deputy Minister present). [Online]. Available at: https://pmg.org.za/committee-meeting/36960/

[168] Kessides, I. 2020. The decline and fall of Eskom: A South African Tragedy. [Online]. Available at: https://www.thegwpf.org/content/uploads/2020/06/Decline-Fall-Eskom.pdf
Eskom. 2023. Integrated Report. [Online]. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Eskom_integrated_report_2023.pdf

public procurement is to acts of corruption, mainly due to the sheer volume and value of transactions, but also due to the complexity of the processes that, coupled with weak internal governance, allow for the manipulation of contracts and bids when the interests of officials within the public sector entity align too closely with private business interests[171]. When Moody's Investors Service and Standard & Poor reduced Eskom to non-investment grade in 2014 and 2015, the key reason for the downgrade was the failure of governance at the utility[172].

At the core of Eskom's issues with corruption are the company's procurement processes[173]. Procurement fraud can occur in several ways, including (but not limited to) collusive tendering, bid rigging, bribes, kickbacks and facilitation fees, split purchases or false, inflated or duplicate invoices. It typically hinges on the involvement or collusion of an "insider" within the procuring entity who can influence or manage procurement and payment processes. This collaboration may be voluntary, often in exchange for incentives, or coerced through threats and intimidation. These fraudulent practices undermine transparency and fairness in procurement processes, posing significant risks to organisational integrity and financial accountability[174]. The loss of funds due to the extensive procurement fraud and corruption at Eskom may go some way to explaining why they have not had the funds to carry out proper maintenance, despite VGBE stating that Eskom's allocated maintenance budgets are above international norms.

The pervasiveness of procurement fraud and corruption is illustrated in the examples below:

5.4.1 Fake purchases, inflated or duplicate invoices

Inflated prices

In 2021, several internal investigations into overpayment for basic items were conducted, including more than R3 million in overpayment for knee-guards[175]. This included instances where R80 000 was charged for a pair of knee-guards that can be purchased for between R100 and R300 at any hardware store. In one case, the supplier was a relative of a former employee of Eskom, who had received a payment of R1.1 million for knee guards that were never actually delivered[176].

Other examples of inflated invoices include R940 000 for an oil storage container that retails for about R80 000; R200 000 for a mop worth around R100; and R600 000 to repair 12 grass trimmers which could have been purchased new for around R114 000[177].

Paying for the same goods twice

In 2017, Arnot issued an order to purchase valves manufactured by Billfinger Intervalves. The order was fulfilled by DLC56 Projects (Pty) Ltd, who purchased and delivered the valves to Arnot[178]. Arnot issued another request for valves in 2020, which was fulfilled by Grant Connection. The valves delivered in 2017 and in 2020 were stolen from Arnot sometime during 2020. Towards the end of 2020, Tutuka Power Station issued an order for a similar type of valve to Dibuseng Business Enterprise (Pty) Ltd. Dibuseng delivered the valves, for which they received payment of just over R1 million. However, upon closer inspection, it was discovered that the valves delivered by Dibuseng were not the ones ordered. A forensic investigation found that the valves delivered were the same valves stolen from Arnot earlier that year[179, 180]. Dibuseng had obtained the original documents issued by DLC56 Projects and Grant Connection and changed the documents to show their name. Dibuseng's sole director and his accomplice were arrested by the the Hawks in connection with the theft and fraud. They were to appear in the Specialised Commercial Crimes court on 20 February 2024[181], but there have been no public updates to date on the progress of this case.

169 Klaaren, J. et. al. 2021. Public Procurement and Corruption in South Africa. [Online]. Available at: https://osf.io/download/6381e7dbc86e28047088f6a9/

170 OECD. 2016. Preventing corruption in public procurement. [Online]. Available at: https://www.oecd.org/gov/ethics/Corruption-Public-Procurement-Brochure.pdf

171 Ibid

172 Ibid

173 Kessides, I. 2020. The decline and fall of Eskom: A South African Tragedy. [Online]. Available at: https://www.thegwpf.org/content/uploads/2020/06/Decline-Fall-Eskom.pdf

174 Makhadi, P. 2022. Types of procurement fraud in South Africa. [Online]. Available at: https://stoneturn.com/insight/types-of-procurement-fraud-in-south-africa/

175 Karrim, A., Cowan, K. and Masondo, S. 2021. The Eskom Files: R80 000 for a pair of knee guards? Angry de Ruyter closes money taps as he moves on dodgy suppliers. [Online]. Available at: https://www.news24.com/news24/investigations/eskomfiles/the-eskom-files-r80-000-pair-of-knee-guards-angry-de-ruyter-closes-money-taps-as-he-moves-on-dodgy-suppliers-20210826

176 Ibid

177 Daily Investor. 2023. Eskom's R200,000 mop and R80,000 knee guards. [Online]. Available at: https://mybroadband.co.za/news/investing/486611-eskoms-wasteful-expenses-r860000-overpaid-on-oil-container-and-the-r200000-mop.html#:~:text=Eskom%20paid%20R200%2C000%20for,been%20bought%20for%20R80%2C000.

178 Maromo, J. 2023. R1 million valves were sold to Eskom's Arnot power station, stolen and resold to Tutuka power station. [Online]. Available at: https://www.iol.co.za/news/crime-and-courts/r1-million-valves-were-sold-to-eskoms-arnot-power-station-stolen-and-resold-to-tutuka-power-station-9b3a0483-58d2-4a79-8683-b708283bd691

179 SAPS. 2023. Trio arrested for fraud and theft of over R1million from Eskom. [Online]. Available at: https://www.saps.gov.za/newsroom/msspeechdetail.php?nid=50107

180 Maromo, J. 2023. R1 million valves were sold to Eskom's Arnot power station, stolen and resold to Tutuka power station. [Online]. Available at: https://www.iol.co.za/news/crime-and-courts/r1-million-valves-were-sold-to-eskoms-arnot-power-station-stolen-and-resold-to-tutuka-power-station-9b3a0483-58d2-4a79-8683-b708283bd691

181 Ibid

5.4.2 Tender irregularities and contract rigging

Tender irregularities can take a number of forms. An Eskom employee that is involved in the procurement process may design contracts and tenders with specifications that favour particular providers; a member of the evaluating committee may exert undue influence on other members to ensure that a tender is awarded to a particular provider; contractors may collude with each other to inflate prices.

5.4.3 Bribes and kickbacks

Kickbacks for subverting procurement processes

In July 2023, an Eskom project coordinator at Kriel was arrested after a yearlong investigation into tender irregularities for installation of coal yard lighting. After allowing four service providers to submit tenders after the closing date (already a process transgression), the project coordinator asked the evaluation committee to allow a particular supplier to submit a revised and inflated bid, with the agreement that the difference between the original price and the inflated price would be split amongst the buyer and the evaluators of the bid if the tender was awarded to this supplier. The evaluation committee agreed to this. The supplier then submitted a bid that was double the original amount and was appointed. Subsequently payments of R25 000 each were made to those complicit in the fraud[182].

In 2023, a Duvha employee was arrested for fraud. Between 2016 and 2019, the employee awarded contracts to Phoenix (Pty) Ltd, Itereleng Masheleng (Pty) Ltd, and Hustle Hard (Pty) Ltd without following proper supply chain management processes, resulting in a R4.9 million loss for Eskom. Phoenix and Itereleng Masheleng belonged to the employee's boyfriend, who was in prison when the contracts were awarded[183].

Money for nothing

In March 2023, a senior buyer for Matla was arrested for fraud, corruption and money laundering in relation to an incident when she had been a senior buyer at Arnot. She and two others were charged with defrauding Eskom of R14.7 million. The employee had awarded a tender for the supply of bowl pumps to a particular provider, who was paid R14.7 million upfront without the goods having been delivered. Eskom had to obtain the bowl pumps from another company and suffered financial losses as a consequence[184].

In 2023, a former Kriel Power Station finance manager was convicted of fraud and theft charges, for making two payments between May 2011 and February 2012 to two companies, Mandlenkosi Logistics and Lusthala Supply and Transport, without them providing any services to Eskom[185]. Mandlenkosi Logistics belonged to the finance manager, and Lusthala Supply and Transport belonged to his mother. The payments resulted in a loss of just over R513 000 for Eskom.

Bribery

In October 2023, an Eskom Rotek Industries sub-contractor was arrested after attempting to solicit bribes from a truck driver. He was caught on camera by the trucking company's fleet vehicle tracking system. The truck driver was leading a queue of three trucks delivering coal to Camden, and the Eskom representative claimed that the coal in the trucks was substandard and that he would not allow them to offload the coal unless they paid him R6 000 (R2 000 for each truck)[186].

[182] Luvhengo, P. 2023. Luvhengo, P. 2023. Eskom project co-ordinator linked to alleged tender corruption at Kriel power station arrested. [Online]. Available at: https://www.timeslive.co.za/news/south-africa/2023-07-28-eskom-project-co-ordinator-linked-to-alleged-tender-corruption-at-kriel-power-station-arrested /

[183] Cruywagen, V. 2023. Hawks tighten screws on buyers allegedly fleecing Eskom power stations. [Online]. Available at: https://www.dailymaverick.co.za/article/2023-04-03-hawks-tighten-screws-on-buyers-allegedly-fleecing-eskom-power-stations/

[184] Cruywagen, V. 2023. Senior Eskom employee among three arrested for R14m fraud at ailing power utility. [Online]. Available at: https://www.dailymaverick.co.za/article/2023-03-22-senior-eskom-employee-among-three-arrested-for-r14m-fraud-at-ailing-power-utility/

[185] Cruywagen, V. 2023. Eskom convictions: Former finance clerk gets 10 years, former Kriel finance manager gets 8 and more. [Online]. Available at: https://www.dailymaverick.co.za/article/2023-05-03-eskom-convictions-former-finance-clerk-gets-10-years-former-kriel-finance-manager-gets-8-and-more/

[186] Eskom. 2023. Eskom Rotek Industries (ERI) sub-contractor employee arrested for soliciting a bribe. [Online]. Available at: https://www.eskom.co.za/eskom-rotek-industries-eri-sub-contractor-employee-arrested-for-soliciting-a-bribe/

5.5 Sabotage to Eskom infrastructure

Eskom has been experiencing increasingly frequent incidents of sabotage, particularly in its base load power stations, over the last five years. Some of these acts may be perpetrated simply out of spite for being passed over for perks or promotions or to serve political ends by potentially destabilising a particular constituency. However, the majority are believed to be coordinated criminal activity. Criminal elements and "rent-seekers", forming crime syndicates that include current and former Eskom employees, as well as outside agents, have engaged in purposeful sabotage or deliberately caused malfunctions to create a need for providers (run by the syndicates) to be brought in to effect repairs and provide other services, and obviously to earn revenue. Often an Eskom insider works with the provider to ensure that they receive the emergency contract. This has become known as the "break it and make it" phenomenon, which is not unique to Eskom.

Acts of sabotage include drain plugs being removed from motor housings, cables being cut, and foreign objects being thrown into boilers causing the power-generating units to break down. The economic impact of this is far-reaching, from greater maintenance budgets required to make the repairs, to increased load-shedding which damages the economy, and significant increases in the cost of power generation, which ultimately trickle down to the consumer[187].

Actual examples of sabotage include:

In December 2019, the incline conveyer belt at Majuba caught fire. The fire suppression system did not activate, as two water control valves had been shut off, without authorisation. The damage to the conveyer belt made it unusable, forcing Majuba to truck in its coal at an approximate cost of R276 000 a day[188]. The damage to the conveyer belt meant that coal could not be delivered by rail until it had been repaired[189].

In November 2021, a worker at Matimba, in a suspected act of sabotage, dropped an extension cord onto a transformer. This caused three units at Matimba to go offline[190].

In November 2021, eight galvanised steel pylon supports were cut at Lethabo, causing small pylons carrying power lines that feed the mine's conveyor belt to collapse. Andre de Ruyter, CEO at the time, issued a statement saying that "The stays that were cut are galvanised steel rods, 24mm in diameter, so these are very sturdy rods…The perpetrators of this cut all eight stays. There is no sign of corrosion, no sign of metal fatigue, there was no shearing of the stays." In addition, the pylons collapsed in such a way as to damage the second line, which provided redundancy power to the conveyor system[191]. These actions caused almost a total loss of generation capacity.

In May 2022, Matla was one of the targets in a series of acts of sabotage at Eskom power stations. In one incident, a cable at Unit One of Matla was cut, but fortunately the unit did not trip as the backup cable remained intact[192].

[187] BusinessTech. 2023. Top executive linked to acts of sabotage at Eskom: report. [Online]. Available at: https://businesstech.co.za/news/energy/693723/top-executive-linked-to-acts-of-sabotage-at-eskom-report/

[188] Ilidge, M. 2023. Hawks acknowledge De Ruyter's allegations against senior politicians — launch investigation. [Online]. Available at: https://mybroadband.co.za/news/energy/507690-hawks-confirm-de-ruyters-allegations-against-senior-politicians-launches-investigation.html

[189] Neethling, B. 2023. Andre de Ruyter exposes Eskom sabotage in court papers. [Online]. Available at: https://mybroadband.co.za/news/investing/487033-andre-de-ruyter-exposes-eskom-sabotage-in-court-papers.html

[190] Ibid

[191] Cowan, K. 2021. Eskom finds evidence of sabotage at Lethabo Power Station – pylon supports were cut. [Online]. Available at: https://www.news24.com/news24/investigations/eskomfiles/breaking-eskom-finds-evidence-of-sabotage-at-lethabo-power-station-pylon-supports-were-cut-20211119

[192] Cowan, K. 2022. 'No attempt to disguise' latest incident of sabotage at Eskom power station as another cable is cut. [Online]. Available at: https://www.news24.com/news24/investigations/no-attempt-to-disguise-latest-incident-of-sabotage-at-eskom-power-station-as-another-cable-is-cut-20220522

In May 2022, the warming valve cable of Tutuka Unit 5 was cut with a grinder, preventing the unit from warming up when it was returned to service. The perpetrator knew how to circumvent the plant surveillance cameras and security, and their actions went undetected until Unit 5 was switched on. It is believed to have been someone inside the power plant, as the person had to know that cutting that specific cable, amongst a group of cables, would prevent the unit starting up[193].

An internal forensic investigation conducted by Bizz Tracers in 2021, found that employees inside Tutuka were working with external contractors to plan and execute acts of sabotage in order to generate more work for the contractors. The report found that Eskom employees were vandalising the power station, as well as removing cameras, distribution boards and control timers that managed electrical equipment. The employees then colluded with the external contractors and suppliers to appoint them to fix the damaged and vandalised components and assisted in inflating prices under the guise of it being an "emergency repair"[194]. The Tutuka case serves as an example of how service providers may establish relationships with Eskom employees adept at exploiting the system[195].

In November 2022, a large incline conveyor belt at Lethabo was partially cut, creating a weak point that would have caused the conveyor belt to fail had it not been spotted and repaired before it broke completely[196].

In November 2022, a contractor admitted to intentionally removing the oil drain plug from a bearing. Oil then drained from the bearing, damaging it and preventing the mills from turning properly, ultimately tripping Unit 4 of the Camden power station. The contractor admitted that he had done it to ensure that his employer would be awarded an additional maintenance and repair contract at Camden[197].

5.6 Theft

The 2023 Eskom Integrated Report highlights the growing impact of theft and vandalism on electricity transmission and distribution. Addressing these incidents diverts resources from regular repairs and maintenance, to measures to counter criminal activity. This ongoing theft, along with other criminal actions, has resulted in reduced service levels for customers and increased energy losses[198]. The stolen resources include coal, fuel oil, diesel, copper cables, and even power station parts and components. Some examples are provided below:

[193] Gibson, E. 2022. 'Sabotage is real in Eskom' - someone with inside knowledge cut vital cable at Tutuka power station. [Online]. Available at: https://www.news24.com/news24/xarchive/theonestory/featured/sabotage-is-real-in-eskom-someone-with-inside-knowledge-cut-vital-cable-at-tutuka-power-station-20220519-2

[194] Skiti, S. and Jika, T. 2021. Inside Eskom sabotage: Delayed report reveals how insiders helped the power station criminals. [Online]. Available at: https://timeslive.co.za/sunday-times-daily/news/2021-12-16-inside-eskom-sabotage-delayed-report-reveals-how-insiders-helped-the-power-station-criminals/

[195] Koko, K. and Smit,S. 2022. Sabotage and corruption at Eskom's worst power plant goes unpunished. [Online]. Available at: https://mg.co.za/news/2022-05-28-sabotage-and-corruption-at-eskoms-worst-power-plant-goes-unpunished/

[196] Cowan, K. 2022. Eskom's two weeks of sabotage: Rocks delivered instead of coal, a cut conveyor belt and an arrest. [Online]. Available at: https://www.news24.com/news24/investigations/eskoms-two-weeks-of-sabotage-rocks-delivered-instead-of-coal-a-cut-conveyor-belt-and-an-arrest-20221126

[197] Neethling, B. 2023. Andre de Ruyter exposes Eskom sabotage in court papers. [Online]. Available at: https://mybroadband.co.za/news/investing/487033-andre-de-ruyter-exposes-eskom-sabotage-in-court-papers.html

5.6.1 Theft of fuel oil and diesel

Fuel oil is needed to keep the boilers of a CFP station running. Eskom has described the theft of fuel oil as a highly organised criminal activity. Incidents of fuel oil theft include collusion between truck drivers transporting the fuel oil and weighbridge operators to redirect the fuel to illicit sites, or theft of the fuel by power station workers and contractors at the power station itself. *"Eskom continues to lose billions of rand due to the misappropriation and adulteration of these critical commodities, which directly affects production"*[199].

Reported examples include:

Kriel Power Station

An amaBhungane exposé[200] revealed how Kriel power station was the site of a sophisticated crime syndicate operation, which, through collusion between Eskom employees, police and trucking companies, exploited a process design flaw in the weighbridge system at Kriel and syphoned off millions of rands worth of fuel over years.

Trucks carrying fuel oil would arrive at the Kriel station weighbridge, where they would present a shipment slip and the truck would be weighed (to confirm that the truck was carrying the amount of fuel oil reflected in the slip). They were then allowed to enter the Kriel yard to discharge fuel oil into the tanks. However, the truck driver would offload only enough fuel to satisfy a quality control inspection, following which the operator (also part of the scheme) would give the driver a falsified slip indicating full completion of the offloading process. The truck would then exit the yard, but before reaching the weighbridge, would detour to an illicit offloading site nearby. There a crooked buyer, equipped with another truck, coupling pipes, and a generator, would syphon off the remaining fuel.

Any onboard cameras, trackers, or surveillance equipment would be deactivated by the complicit driver, and the complicit trucking company representative meant to be monitoring this equipment, would ignore any signal loss from these devices. Once all the fuel had been illegally offloaded, the truck would return to the weighbridge, have its emptiness verified, and be granted clearance to depart.

The sophistication and complexity of this operation, involving Eskom employees, trucking company employees and crooked buyers, is indicative of organised crime involvement. This was not a random, once-off, opportunistic event.

Matla Power Station

In July 2023, a Senior Shift Supervisor from Matla and a heavy fuel oil (HFO) tank driver were arrested for theft of HFO[201]. The two individuals worked together. The driver would offload the HFO (intended for Matla) at an illegal site, before arriving empty at Matla. The Shift Supervisor then registered fraudulent weighbridge slips indicating that the HFO had been offloaded and proceeded to sign off fraudulent delivery notes. It is believed that this theft and fraud cost Eskom around R1 million[202].

Matimba Power Station

In 2023, two men were arrested for stealing diesel from the Matimba plant equipment, including driving grader machines out of the plant to syphon the diesel out[203].

189 Eskom. 2023. Integrated Report. [Online]. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Eskom_integrated_report_2023.pdf

199 Eskom. 2023. Eskom Matla Power Station's Senior Shift Supervisor and contracted Heavy Fuel Oil (HFO) Tanker Driver arrested for fraud and theft of HFO. [Online]. Available at: https://www.eskom.co.za/eskom-matla-power-stations-senior-shift-supervisor-and-contracted-heavy-fuel-oil-hfo-tanker-driver-arrested-for-fraud-and-theft-of-hfo/

200 Timse, T. 2022. Fuel thieves siphon off millions from Eskom power station. [Online]. Available at: https://amabhungane.org/220516-fuel-thieves-siphon-off-millions-from-eskom-power-station/

201 Ibid

202 Patel, F. 2023. Eskom employee and truck driver nabbed for stealing electricity generating fuel. [Online]. Available at: https://www.citizen.co.za/news/south-africa/crime/eskom-employee-truck-driver-nabbed-stealing-electricity-generating-fuel/

203 Maromo J. , 2023. Caught in the act: Two men arrested while stealing diesel from Eskom's Matimba power station. [Online]. Available at: https://www.iol.co.za/news/crime-and-courts/caught-in-the-act-two-men-arrested-while-stealing-diesel-from-eskoms-matimba-power-station-08a86e7c-634e-4300-acd1-87cf711ce5cf

5.6.2 Theft of copper cables

Theft of copper cables at multiple points in the electricity generation process is also creating problems for Eskom. From Zama Zamas (see Part 5.7.1) stealing underground copper cables that supply power to coal mines, to theft of copper cables within the power stations themselves, hampering the generation of power, to theft of copper cables in the transmission and distribution network which causes power failures and results in significant replacement costs for Eskom and municipalities, copper theft severely compromises the electricity generation and transmission process in South Africa. The value chain and market for stolen copper in South Africa are controlled by organised crime groups, consisting of theft syndicates and scrap metal dealers working together to sell the copper back into the market or export it[204] .

In May 2022, Public Enterprises Minister Pravin Gordhan reported that there had been an incident of cable theft at Hendrina, which contributed towards load shedding. Gordhan indicated that a cable required to start a unit that was undergoing repairs, was cut, and the flexible copper bars that are required to synchronise the unit were stolen. He believed the perpetrators to be working within the system[205].

5.6.3 Theft and vandalism of rail

Around 2 000 tonnes of coal an hour, equating to about 1 200 truckloads are delivered to Majuba daily. The most sensible way to transport the coal would be by rail. In 2010, construction began on a 68km railway from Ermelo to Majuba. The work was partially funded through a $270 m loan from the World Bank[207, 207, 208]. The railway line was initially expected to be operational by 2016, and would have almost halved the number of daily truck deliveries required, but it was delayed by vandalism and theft. It was very close to completion in 2021, but due to continued instances of theft and vandalism of various components of the network, was still largely out of commission by February 2024. In fact, Eskom reported eight separate instances of railway infrastructure theft on the Majuba line in 2022[209].

In April 2024, it was reported that 26km of the rail was operational, from Palmfort to Majuba, and the rest of the line from Ermelo should be operational by December 2024[210]. Eskom continues to repay the World Bank loan, for a rail system that is incomplete[211].

5.7 Illegal activity related to coal

5.7.1 Illegal coal mining

While illegal coal mining activity does not necessarily directly target Eskom, illegal coal mining operations contribute towards an ever-growing problem of coal smuggling and the entry of illegal inferior coal into the market. This illegally mined coal finds its way into coal yards as a result of coal smuggling, diversion, theft and criminal syndicates. This illegal coal is also often of sub-standard quality, which when supplied to Eskom CFP stations, contributes towards declining performance, break downs, long term damage and increased unplanned maintenance costs[212]. Poor quality coal is also not economically feasible to transport, as the cost of transporting it far outweighs its thermal production value (See Part 3.4.1 for information about types of coal).

Zama Zamas (an isiZulu term loosely translated as “take a chance”) is the term used for people who illegally mine gold and other mineral resources like coal, iron ore and manganese from abandoned mine shafts or improperly closed mines. They are often part of larger syndicates which are trading in illicitly obtained commodities. In the many coal fields of South Africa, where coal is abundant at shallow depths, illegal

[204] Irish-Qhobosheane, J. 2023. South Africa's Illicit Copper Economy. Global Initiative Against Transnational Organised Crime. [Online]. Available at: https://globalinitiative.net/analysis/south-africa-illicit-copper-economy/

[205] SA News. 2022. Cable theft at Hendrina linked to loadshedding. [Online]. Available at: https://www.sanews.gov.za/south-africa/cable-theft-hendrina-linked-load-shedding

[206] Burkhardt, P. 2023. Thieves threaten World Bank-funded coal rail project for Majuba Power Station. [Online]. Available at: https://www.news24.com/fin24/economy/thieves-threaten-world-bank-funded-coal-rail-project-for-majuba-power-station-20230628

[207] World Bank. 2004. South Africa - Eskom Power Investment Support Project : environmental assessment : Long-term coal supply to Eskom's Majuba power station. [Online]. Available at: https://documents1.worldbank.org/curated/en/856331468302465616/pdf/E22790VOL1010BOX0342035B.pdf

[208] World Bank. 2010. Procurement Plan: Majuba Rail Link. [Online]. Available at: https://documents1.worldbank.org/curated/en/911431468307181993/pdf/601470PROP0P1110for0Majuba0Rail0v0D.pdf

[209] Burkhardt, P. 2023. Thieves threaten World Bank-funded coal rail project for Majuba Power Station. [Online]. Available at: https://www.news24.com/fin24/economy/thieves-threaten-world-bank-funded-coal-rail-project-for-majuba-power-station-20230628

[210] Hancke, H. 2024. New rail line to move power station to steady supply. [Online]. Available at: https://www.timeslive.co.za/sunday-times/news/2024-04-14-new-rail-line-to-move-power-station-to-steady-supply/

[211] Ibid

[212] The Presidency. 2023. The fight against coal syndicates is gaining ground. [Online]. Available at: https://www.gov.za/blog/fight-against-coal-syndicates-gaining-ground

mining is a profitable, although dangerous, business. According to the Council for Foreign Relations[213], "*An estimated six thousand Zama Zamas are in the ground at any one time. Often, they pay low-level mine employees to gain access to a company's disused mines*". In 2019, ENACT Africa (a joint initiative of the Institute for Security Studies, Interpol and the Global Initiative against Transnational Organized Crime) released a policy brief stating that illegal artisanal mining (Zama Zamas) in South Africa accounted for over R14 billion of lost production annually, and that current law enforcement and policy responses were inadequate to address the issues of illegal mining[214].

Illegal coal mines operate on the outskirts of Emalahleni in Mpulamalanga, with Zama Zamas mining coal around the clock. During an investigation in 2023, BBC journalists observed more than a dozen trucks load up coal over the course of an hour, in plain sight of everyone in the community. A local community organisation, Vukani Environmental Movement (VEM), has taken the South African government to court multiple times in an attempt to close down these activities, which are endangering the local community due to the violence between the rival gangs of illegal miners, as well as the excessive pollution. However, at the time of this report, there had been no visible intervention from government or law enforcement[215].

Law enforcement agencies have been slow to tackle illegal mining. However, following a public outcry in 2023 after the rape of eight women in Krugersdorp by a group of Zama-Zamas, shooting incidents between warring groups of illegal miners on the West Rand and a gas explosion in Boksburg, authorities were forced to act. In November 2023, President Ramaphosa announced the deployment of 3 300 soldiers to support police in dealing with illegal mining operations[216].

Following the infiltration of a Carletonville syndicate involved in illegal mining in 2023, the National Prosecuting Authority was able to prosecute the alleged kingpin of this particular syndicate[217]. The Asset Forfeiture Unit (AFU) obtained a preservation order for seized property and luxury cars believed to be proceeds of crime. The investigation revealed the involvement of law enforcement and prosecutors, with allegations that a prosecutor had been given a car by the syndicate.

It is not only Zama Zamas that are operating illegally. Full-scale illegal coal mining operations have also been taking place. In November 2023, the AFU and Mpumalanga police obtained a court order to seize R1.5 billion worth of assets on a farm conducting an illegal mining operation, with an estimated 270 000 tonnes of coal extracted. This unlicensed operation, run by GNJ Mining, lasted from November 2021 to September 2023. The AFU and police also shut down 63 unregulated coal yards operating without authorisation from the DMRE[218].

5.7.2 Theft of coal

Highly organised criminal networks steal coal from transportation routes and power plants, leading to significant losses for Eskom. Sometimes, this is just wholesale theft. Sometimes, the stolen coal is replaced with lower-quality (hence cheaper) coal and/or mixed with rubble and refuse to make up for the weight of the stolen coal. The stolen, high-quality coal is sold within South Africa or exported[219].

As explained previously, swapping out high-grade coal with lignite and rocks, compromises power production and damages mills and power plant infrastructure. In a 2023 article in Mining Weekly, President Ramaphosa is quoted as saying "*When I visited the Tutuka power station in Mpumalanga last year, the plant's management explained to me the significant damage caused to its operations by this inferior coal. The coal is often mixed with other stones and other materials. They explained that the conveyor belts at the power stations repeatedly break down because the stones damage the belts, with the result that spare parts have to be bought at substantial cost. The entry of poor-grade coal into the production processes further affects power station boilers, causing corrosion and other long-term damage. This is contributing to the declining performance of Eskom's coal-fired power stations and increased maintenance costs.*" [220]

There are several methods used to steal coal, occurring at different points in the supply chain, a few of which are discussed below:

[213] Campbell, J. 2016. Illegal mining and the role of "Zama Zamas" in South Africa. [Online]. Available at: https://cfr.org/blog/illegal-mining-and-role-zama-zamas-south-africa#:~:text=A%20majority%20of%20them%20are,to%20a%20company's%20disused%20mines.

[214] Martin, A. 2019. Uncovered: The dark world of Zama Zamas. [Online]. Available at: https://www.parliament.gov.za/storage/app/media/Pages/2022/7-August/8-08-2022/Ministerial_Briefing_Illegal_Mining/Policy%20Brief_Uncovered_The%20dark%20world%20of%20the%20Zama%20Zamas.pdf

[215] Harding, A. 2023. South Africa load-shedding: The roots of Eskom's power problem. [Online]. Available at: https://www.bbc.com/news/world-africa-65671718

[216] De Lange, R. 2023. A losing battle against Zama Zamas. [Online]. Available at: https://www.news24.com/citypress/news/a-losing-battle-against-zama-zamas-20231111

[217] Sowetan. 2024. How police cracked the back of illegal mining syndicate. [Online]. Available at: https://www.sowetanlive.co.za/news/south-africa/2024-02-15-how-police-cracked-the-back-of-illegal-mining-syndicate/

[218] Cruywagen, V. 2023. R1.5-billion multi-pronged asset seizure order sees authorities tighten illegal coal mining noose. [Online]. Available at: https://www.dailymaverick.co.za/article/2023-11-21-r1-5-billion-multi-pronged-asset-seizure-order-sees-authorities-tighten-illegal-coal-mining-noose/

[219] Eskom. 2022. Another coal truck driver arrested at Camden Power Station for tampering with coal. [Online]. Available at: https://www.eskom.co.za/another-coal-truck-driver-arrested-at-camden-power-station-for-tempering-with-coal/#:~:text=Eskom%20continues%20to%20lose%20billions,recipients%20of%20the%20stolen%20coal.

[220] Nkomfe, L. 2023. Ramaphosa says battle against coal syndicates gaining traction. [Online]. Available at: https://www.miningweekly.com/article/ramaphosa-says-battle-against-coal-syndicates-gaining-ground-2023-10-24

Example 1: The Coal "Bait and Switch"

Coal theft is carried out through the manipulation of the coal delivery process, starting at the coal mine. According to van Diemen[221], Coal Mine A will receive an order for coal of a specific grade and quality from an Eskom power station. Stockpiles of coal destined for that power station from the contracted mine are pre-tested and certified by both parties. Once the delivery truck is loaded, it is inspected to ensure the correct coal has been loaded and the truck is then meant to be covered with a tarpaulin and sealed with a tamper-proof seal before it leaves the mine. The seals must remain intact until the truck reaches the Eskom power station where they are inspected for tampering before the coal is off-loaded.

However, mine and trucking company employees collude to arrange that the truck is not sealed at the mine. Instead the tarpaulin and seal are given to the truck driver. The networks arrange for the diversion of coal trucks to one of several illicit coal yards and dump sites, known as "black sites", where some of the high-quality coal is removed, and the remainder is mixed with sub-standard coal and rocks. The tarpaulin and seal are then put in place and the sub-standard mix is delivered to the power station. The truck passes the security check because the seal is intact. The stolen high-quality coal is then sold and transported to another location[222]. The entire operation is believed to be coordinated by crime syndicates. Investigations by SARS indicate that some of this high-quality coal is exported through Transnet-operated ports[223].

One example of this type of theft occurred in November 2022. A truck driver was arrested after it was discovered that the coal he was transporting was sub-grade coal. The truck driver admitted to leaving the Umsimbithi Wonderfontein Coal Mine[224] with the correct specification of coal for the Camden plant, but he was allowed to leave the mine without tarpaulins and the prescribed seals being applied. He said that he was given the tarpaulins and seals at the mine exit, and instructed by an employee of the mine to stop at an illegal coal yard. He duly stopped at a coal yard in Middelburg and switched the higher-grade coal for sub-grade coal to be delivered to Camden. The tarpaulin and seals were then put in place at the illegal coal yard and the driver proceeded to Camden[225]. It was therefore not possible, on the face of it, to detect that the coal delivery had been tampered with in any way. The investigation into this incident was led by Bidvest Protea Coin, and the in the course of the investigation one of the investigators was offered a R50 000 bribe for the release of the arrested driver[226].

In the same month, a supervisor and truck driver from subcontracted Ukusebenza Transport company were arrested after it was discovered that the coal they were trying to deliver to Matla was sub-grade coal. They had dropped off Matla's order of higher quality coal (picked up at the Arthur Taylor Colliery) at Rondebult coal yard, a known illegal coal yard in Middelburg, and then loaded sub-grade coal to be delivered to Matla[227].

In September 2023, acting on a tip-off, the Hawks arrested a coal truck driver and two Eskom weighbridge clerks in Middelburg for fraud and theft of coal destined for the Majuba power station. On 25 August 2023, the truck driver had loaded 34 900kg of coal worth R27 000 at the New Clydesdale Colliery to transport to Majuba. However he never went to Majuba and instead offloaded the coal at an illegal coal yard. When he was questioned by police, he claimed that he had delivered the coal to Majuba and produced a weighbridge ticket, purportedly issued at Majuba, confirming delivery. Investigation revealed that he had never entered Majuba Power Station on the day in question, and had been given a fraudulent weighbridge ticket that had been created by Eskom weighbridge clerks[228]. In its media statement, Eskom implied that this incident was part of a much wider network of criminal activity[229].

[221] Van Diemen. E. 2023. Filthy seam of sabotage – how thieving cartels are plunging South Africa into darkness. [Online]. Available at: https://www.dailymaverick.co.za/article/2023-03-04-eskom-sabotage-cartels-power-cuts/

[222] Van Diemen. E. 2023. Filthy seam of sabotage – how thieving cartels are plunging South Africa into darkness. [Online]. Available at: https://www.dailymaverick.co.za/article/2023-03-04-eskom-sabotage-cartels-power-cuts/

[223] Nyathi, M. 2023. Eskom welcomes coal theft syndicate crackdown. [Online]. Available at: https://mg.co.za/the-green-guardian/2023-10-13-eskom-welcomes-coal-theft-syndicate-crackdown/

[224] Umsimbithi is joint owned by Phembani Group and Glencore, while Umsimbithi Mining is joint owned by Glencore, Phembani, and Lithemba Investments vehicle, Lithemba Wonderfontein Coal.

[225] Eskom. 2022. Another coal truck driver arrested at Camden Power Station for tampering with coal. [Online]. Available at: https://www.eskom.co.za/another-coal-truck-driver-arrested-at-camden-power-station-for-tempering-with-coal/

[226] Illidge, M. 2022. Eskom nails truck driver for swapping delivery with sub-grade coal. [Online]. Available at: https://mybroadband.co.za/news/energy/470483-eskom-nails-truck-driver-for-swapping-delivery-with-sub-grade-coal.html

[227] Eskom. 2022. A coal truck driver and his supervisor arrested for coal theft at Matla Power Station. [Online]. Available at: https://www.eskom.co.za/a-coal-truck-driver-and-his-supervisor-arrested-for-coal-theft-at-matla-power-station/

[228] News24. 2023. Eskom: Truck driver, 2 clerks arrested as nearly 35 tonnes of coal dumped at illegal yard. [Online]. Available at: https://www.news24.com/fin24/economy/eskom-truck-driver-2-clerks-arrested-as-nearly-35-tonnes-of-coal-dumped-at-illegal-yard-20230922#:~:text=The%20driver%20told%20the%20investigation,ticket%20was%20fraudulent%2C%20Eskom%20said.

[229] Eskom. 2023. A coal truck driver and two (2) weighbridge clerks arrested for fraud and theft of coal. [Online]. Available at: https://www.eskom.co.za/a-coal-truck-driver-and-two-2-weighbridge-clerks-arrested-for-fraud-and-theft-of-coal/

Example 2: The Weighbridge Diet

Another method of coal theft involves collusion between the weighbridge operators and the truck drivers. The purchased coal arrives at the CFP station on the truck and is weighed in at the weighbridge and signed off. However, the truck is then allowed to leave without offloading the coal, after receiving a fraudulent clearance certificate confirming offloading of the coal. Incidents of this have been reported for both coal and fuel oil.

In September 2023, nine people from the Kusile CFP station, eight of whom were weighbridge operators, were arrested for coal theft and fraud. Investigations revealed that fully loaded coal trucks bound for Kusile would be driven past the power station, without stopping and offloading the coal. The weighbridge operators, employed by Eskom Rotek Industries[230], would issue false documentation confirming that the coal had been dropped off, and Kusile was invoiced for coal that was never delivered[231].

In its statement about the arrests, Eskom said: "The theft of coal is a highly organised criminal activity, and the syndicates involved are being enriched through the proceeds derived from the illicit trade of the stolen products"[232].

Example 3: Vanishing Coal

The theft of coal can also occur without any swapping of coal but rather a "straight forward" theft. In a recent Carte Blanche expose and sting operation[233], it was found that coal suppliers appointed by Eskom had developed a strategy of hiring coal trucks from transport companies, picking up the quality coal from the mine, and then driving the coal to an illicit site where it was offloaded. Thereafter they would return the trucks to the transport company and essentially disappear. The criminals involved with this method would alter any GPS tracking data submitted to Eskom and the trucking company. No coal would ever be delivered to the Eskom power station, and the trucking companies are now facing liability for the cost of the missing coal.

In November 2022, two truck drivers working for a company contracted to Eskom attempted to steal coal from the Kendal CFP station[234]. The trucks belonged to an ash transporting company that had been contracted to Eskom but were used to try take coal (rather than ash) out of the plant.

5.7.3 The "coal mafias"

Throughout this section, reference has been made to organised crime, crime syndicates and the Coal Mafias. There is little doubt that many of the acts of corruption, sabotage and criminality are not isolated, random incidents but are being orchestrated by syndicates. Coal syndicates overseeing illicit operations, which include storing stolen coal or mixing premium coal with inferior grades for power stations, often collude with security personnel, plant workers, and even coerce engineers and managers into falsifying procurement orders. They also resell stolen parts back to the power stations[235].

Recently, the South African Revenue Service (SARS) led a search and seizure operation targeting coal smuggling syndicates. These syndicates collaborated with Eskom employees to commit procurement fraud and aid in the smuggling of high-quality coal. SARS estimates the loss of state revenue from these activities to be around R500 million[236]. In September 2023, the Special Investigating Unit (SIU) confirmed that they had launched investigations into 31 contracts across eight CFP stations, off the back of allegations coming from the Fivas intelligence reports commissioned by former Eskom CEO, Andre de Ruyter, and funded by business groups in 2022. The investigations include incidents of sabotage, procurement fraud and corruption, stock manipulation and fraudulent invoicing, as well as coal mafias and coal theft. According to the SIU, a total of "31 contracts across

[230] Eskom Rotek Industries is a wholly owned subsidiary of Eskom Enterprises, which in turn forms part of Eskom Holdings. It was established to provide construction, maintenance and transportation services in support of Eskom operations.

[231] Creamer Media. 2023. Nine people arrested at Kusile power station for theft of coal, fraud. [Online]. Available at: https://www.engineeringnews.co.za/article/nine-people-arrested-at-the-kusile-power-station-for-theft-of-coal-fraud-2023-09-08

[232] Van der Merwe, M. 2023. Nine arrested at Kusile for alleged coal theft, fraud – Eskom. [Online]. Available at: https://www.news24.com/fin24/economy/nine-arrested-at-kusile-for-alleged-coal-theft-fraud-eskom-20230908

[233] Carte Blanche. 2024. Coal: Trojan horses. [Online]. Available at: https://www.youtube.com/watch?v=PNykNiFAiLE

[234] Koka, M. 2022. Two truck drivers bust at Eskom with stolen coal. [Online]. Available at: https://www.sowetanlive.co.za/news/south-africa/2022-11-11-two-truck-drivers-bust-at-eskom-with-stolen-coal/

[235] Bloomberg. 2023. Rampant corruption at Eskom drags down South Africa. [Online]. Available at: https://www.engineeringnews.co.za/article/rampant-corruption-at-eskom-drags-down-south-africa-2023-05-08

[236] Areff, A. 2023. Former Eskom employees targeted in SARS coal syndicate raids. [Online]. Available at: https://www.news24.com/fin24/economy/former-eskom-employees-targeted-in-sars-coal-syndicate-raids-20231012/

[237] Illidge, M. 2023. Hawks acknowledge De Ruyter's allegations against senior politicians — launch investigation. [Online]. Available at: https://mybroadband.co.za/news/energy/507690-hawks-confirm-de-ruyters-allegations-against-senior-politicians-launches-investigation.html

[238] This will be referenced a few times in this document – in each instance we are referring to de Ruyter's book and statements to SCOPA.

[239] Ferreira, E. 2023. De Ruyter: R1 billion a month being stolen from Eskom is 'conservative estimate'. [Online]. Available at: https://mg.co.za/news/2023-04-26-de-ruyter-r1-billion-a-month-being-stolen-from-eskom-is-conservative-estimate/

eight power stations that were awarded to seven companies, some of which have links to one another with common actors" are being investigated. The value of the contracts under investigation amounts to R106 million[237].

Andre de Ruyter alleged in his book "Truth to Power: My Three Years Inside Eskom" and in statements to Parliament's Standing Committee on Public Accounts (SCOPA) that there are at least four cartels operating in the Eskom coal-powered fleet, and that they are often behind the acts of sabotage and theft around the power statios[238]. He believes that the "MeshKings" cartel, with its own corporate entities, operating out of Witbank, has identified Duvha as its main area of control, and is behind the sabotage and corruption at Duvha; the "Chief" cartel, operating out of Newcastle, has chosen Majuba as its target; the "Presidential" cartel, plus a number of companies that the cartel has interests in, operates out of Mpumalanga, specifically in Matla power station; and the "Legendaries" cartel based in Standerton is targeting Tutuka[239].

5.8 Understanding the factors contributing to corruption and criminality in Eskom

The decline of Eskom is tragic. There is obviously no single explanation for what has happened to Eskom. A "perfect storm" of connected and mutually reinforcing factors, events and circumstances have resulted in the dysfunction, decay and degradation of what was once a relatively well-functioning SOE. Addressing these would go some way to turning the Eskom "Titanic" around. In an attempt to understand what has happened at Eskom in the past two decades, this report highlights some of the factors that appear to have contributed to the deterioration of this once global leader in power generation efficiency and reliability.

5.8.1 The culture of apathy

Faced with a history of mismanagement, corruption, misuse of resources and a massive debt burden, the culture in Eskom is often described as "apathetic"[240]. The VGBE report[241] reflects on this culture of apathy, in which employees seem to have little pride in the work that they do, to the extent that even the most basic standards of cleanliness are not being maintained. The VGBE team also described Eskom staff as indifferent, frustrated, unmotivated and tending to shift the blame[242].

Eskom has acknowledged organisational culture challenges, implementing a culture transformation programme in 2021 and 2022, in an attempt to promote an ethical culture and improving productivity within the organisation[243, 244]. In quarter 1 of 2024, the Eskom board also began implementing performance incentives in the hope of addressing the dysfunctional culture of Eskom[245].

5.8.2 Corruption has become normalised

In an organisation where the most senior of executives and board members appear to have escaped accountability for grand scale looting and corruption (even though they have had to relinquish their positions), it is perhaps not surprising that many employees seem to see no reason why they, too, should not benefit from corruption. The plethora of examples provided in this report reflect a pervasive disregard for ethical conduct.

[240] Igamba, J. 2023. How Eskom and the government can put an end to loadshedding in south Africa. [Online]. Available at: https://www.greenpeace.org/africa/en/blogs/53187/how-the-government-eskom-can-put-an-end-to-load-shedding/

[241] VGBE. 2023. Independent Assessment of Eskom's Operational Situation. Pretoria: VGBE. [Online]. Available at: https://www.treasury.gov.za/comm_media/press/2024/VGBE%20Eskom%20Report.pdf

[242] Jacobs, S. 2024. Huge changes planned for Eskom staff. [Online]. Available at: https://mybroadband.co.za/news/investing/530553-huge-changes-planned-for-eskom-staff.html

[243] Eskom. 2021. Creating an energy awareness program: behavioural change at work. [Online]. Available at: https://www.eskom.co.za/eas/wp-content/uploads/2021/05/energy-awareness-programme-.pdf

[244] Eskom. 2022. Integrated report. [Online]. Available at: https://www.eskom.co.za/wp-content/uploads/2022/12/2022_integrated_report.pdf

[245] Jacobs, S. 2024. Huge changes planned for Eskom staff. [Online]. Available at: https://mybroadband.co.za/news/investing/530553-huge-changes-planned-for-eskom-staff.html

5.8.3 Lack of transparency in Eskom

Despite numerous reports of bad governance, mismanagement and corruption, Eskom has demonstrated a lack of transparency in dealing with issues affecting the financial and operational challenges it is facing.

In July 2022, AfriForum, a civil society organisation, submitted a Promotion of Access to Information Act (PAIA) request to Eskom to disclose information on active contracts that Eskom has with various service providers, including coal suppliers and transport companies[246]. Whilst Eskom responded to the application, it redacted and withheld key information, resulting in an appeal by AfriForum, and subsequent legal action. A court order was issued, instructing Eskom to hand over the details of the active contracts requested. Eskom again refused access, citing potential harm to commercial interests and confidentiality clauses. However, the court ruled against Eskom, emphasising that because Eskom is a public institution, transparency and accountability are essential, especially regarding significant expenditures and contracts involving public resources[247]. In March 2024, the courts ordered Eskom to comply with the PAIA request in full, and hand over all information by 5 April 2024. Eskom has, to date, not complied[248, 249].

Given the reported cases of sabotage, theft and procurement fraud, these (and other) active contracts would provide insight into where possible irregularities may lie, and which companies are responsible. Eskom's unwillingness to be transparent raises questions about their own ability and willingness to address procurement irregularities and theft in the coal value chain, or their knowledge of continued involvement by Eskom stakeholders in these events.

5.8.4 Slow response of law enforcement

Despite the exposure of the rampant corruption and irregularities at Eskom, through the State Capture investigations, parliamentary proceedings and media exposés, there appears to be a lack of appetite, capacity and/or competence to investigate and prosecute corruption and wrongdoing, and hold perpetrators to account. In the Eskom 2023 Integrated Report CEO Calib Cassim states: "We remain disappointed with the slow progress by law enforcement agencies in dealing with matters involving fraud and corruption, although we have seen some notable successes recently."

During a SCOPA meeting in May 2023, the committee noted that the "collapse of Eskom at the hands of the syndicates was a major contributing factor to loadshedding." They further questioned the effectiveness of the operational interventions from the police, because if they were working, then there should have been a reduction in breakdowns and loadshedding. They further commented that the President's deployment of the army at Eskom power stations in December 2022 was confirmation that law enforcement had failed in its efforts to curb the criminality at Eskom and its power stations[250].

The Fivas reports commissioned in 2021 included a list of some of the criminal cases involving corruption, fraud and theft that Eskom had opened with the South African Police Service, with case numbers (See Addendum 3). In addition, there were reportedly several high-value cases that were not prosecuted or further investigated.

The report was initially met with a severe backlash, with media and government officials both dismissing it as full of wild and unsubstantiated allegations. However, in September 2023, law enforcement agencies, including the Hawks and SIU, launched investigations into the allegations contained in the report after finding correlations between the information in the report, and what was being uncovered in other ongoing investigations[251]. The SIU has also made progress in recovering funds from organisations such as SAP (the multinational software company implicated in state capture), who in March 2024 were required to pay R500 million to the SIU for illegal Eskom contracts[252].

[246] Afriforum. 2023. AfriForum takes legal action against Eskom over contract information. [Online]. Available at: https://afriforum.co.za/en/afriforum-sues-eskom-over-contract-information/

[247] Afriforum NPC v Eskom Holdings SOC Ltd and Another (2023/002513) [2024] ZAGPPHC 270 (22 March 2024)

[248] Afriforum. 2024. Diesel and coal contracts: Court orders Eskom to disclose withheld information. [Online]. Available at: https://afriforum.co.za/en/diesel-and-coal-contracts-court-orders-eskom-to-disclose-withheld-information/

[249] Michaelsons. 2024. Afriforum vs Eskom. [Online]. Available at: https://www.michalsons.com/blog/afriforum-v-eskom/73301

[250] PMG. 2023. Eskom corruption and related matters: engagement with Hawks, SAPS & SIU (Ministry present). [Online]. Available at: https://pmg.org.za/committee-meeting/36854/

[251] BusinessTech. De Ruyter's intelligence reports exposing corruption at Eskom – Hawks taking action. [Online]. Available at: https://businesstech.co.za/news/energy/717932/de-ruyters-intelligence-reports-exposing-corruption-at-eskom-hawks-taking-action/

[252] SA News. 2024. SAP ordered to pay SIU half a billion Rand over invalid Eskom contracts. [Online] Available at: https://www.sanews.gov.za/south-africa/sap-ordered-pay-siu-half-billion-rand-over-invalid-eskom-contracts.

5.8.5 Procurement processes

The report of the State Capture Commission noted that the public procurement system was the main site for corruption and redirection of state resources, citing a lack of adequate legislation, oversight and abuse of the system as major factor[253]. As a state-owned entity, Eskom must follow public procurement processes and, as outlined above, struggles with corruption in and abuse of the system. Even prior to the State Capture Commission, the 2015 Denton report on Eskom had highlighted concerns about lack of oversight of procurement processes and how alarming it was how little scrutiny was given to the excessive expenditure on coal and negotiated coal contracts, among others[254]. Coal procurement in particular, was heavily influenced by political interests, as seen in the deals made between Eskom and the Gupta-owned Optimum Coal Mine. Based on our review, several procurement process issues at the heart of Eskom's problems seem to have continued and are briefly discussed below.

5.8.5.1 Centralisation vs. Decentralisation

There is a debate on the need to decentralise the procurement system within Eskom and make governance structures less complex[255]. Currently, governance and procurement processes are centralised at Megawatt Park's procurement division.

A centralised procurement process, when implemented appropriately is supposed to allow for greater control over large capital expenditures and development of purchasing expertise[256]. However, it is argued that the centralised procurement system at Eskom has created a number of vulnerabilities. In their assessment of the coal fleet, VGBE noted that the current procurement process "*proved to be a bottleneck in supporting the plants with timely provision of spare parts and qualified services by third parties*"[257]. Centralisation of procurement processes also allows unethical or "captured" senior executives to use their position of authority to benefit specific companies such as Trillian Asset Management[258], and hollow out oversight functions by placing corrupt or inept individuals in such positions[259]. A compromised centralised procurement department also results in corruption and maladministration of lower value items.

Decentralised procurement processes have the advantage of speed and responsiveness by decision makers who have a greater understanding of the operational requirements of the various business sectors in Eskom[260]. However, decentralisation may result in less oversight and greater opportunities for fraud and corruption at operational levels.

Whether procurement processes are ultimately centralised or decentralised, Eskom will need to ensure that measures are put in place to ensure that any stakeholders in the procurement process act with integrity and are held to account for any corrupt practices.

5.8.5.2 Abuse of emergency regulations

Continuing sabotage of CFP stations, as well as coal theft, places tremendous strain on the national grid, which may result in load shedding. Due to the urgency of stabilising the grid as quickly as possible, emergency procurement procedures often kick in, circumventing some of the standard procurement procedures and their oversight mechanisms. This leaves Eskom vulnerable to external contractors and entities that use the emergency situation as a means to increase prices or collude with Eskom employees in the procurement department. Consideration should be given to how the need for a rapid response can be balanced with proper oversight.

[253] PARI. 2023. Implementing the Zondo Commission recommendations: taking stock of progress and charting the way forward. [Online]. Available at: https://pari.org.za/wp-content/uploads/2023/10/20231019_ZondoRecommendationsProgress_v0.4.pdf

[254] Dentons. 2015. https://s3-eu-west-1.amazonaws.com/s3.sourceafrica.net/documents/117819/Eskom-Dentons-report.pdf

[255] VGBE. 2023. Independent Assessment of Eskom's Operational Situation. Pretoria: VGBE. [Online]. Available at: https://www.treasury.gov.za/comm_media/press/2024/VGBE%20Eskom%20Report.pdf

[256] Mathobela, T.P. 2009. Analysis and recommendations for the technology system used for procurement and inventory management at Eskom. [Online]. Available at: https://repository.up.ac.za/bitstream/handle/2263/12788/Mathobela_Analysis%282009%29.pdf?sequence=1&isAllowed=y

[257] VGBE. 2023. Independent Assessment of Eskom's Operational Situation. Pretoria: VGBE. [Online]. Available at: https://www.treasury.gov.za/comm_media/press/2024/VGBE%20Eskom%20Report.pdf

[258] Zondo, R.M.M. 2022. Report: Part VI Vol 4. Summary of Recommendations. [Online]. Available at: https://www.statecapture.org.za/site/files/announcements/672/OCR_version_-_State_Capture_Commission_Report_Part_VI_Vol_IV_-_Recommendations.pdf

[259] Eberhard, A. and Godinho, C. 2017. Eskom Reference Book. [Online]. Available at: https://www.gsb.uct.ac.za/files/GSB-MIR-Eskom-enquiry-booklet-v3.pdf

[260] Mathobela, T.P. 2009. Analysis and recommendations for the technology system used for procurement and inventory management at Eskom. [Online]. Available at: https://repository.up.ac.za/bitstream/handle/2263/12788/Mathobela_Analysis%282009%29.pdf?sequence=1&isAllowed=y

5.8.5.3 Abuse of preferential procurement policies

The purpose of the B-BBEE Act (No 53 of 2003) is (amongst other things) to *"promote the achievement of the constitutional right to equality, increase broad-based and effective participation of black people in the economy and promote a higher growth rate, increased employment and more equitable income distribution*"[261] (B-BBEE Act 53 of 2003). In support of the aims of the B-BBEE Act, the Preferential Procurement Policy Framework Act (PPPFA) was implemented to regulate organs of state, and to enhance the participation of historically disadvantaged individuals and small, medium and micro enterprises (SMMEs) in the public-sector procurement system[262].

In practice, these preferential procurement policies, while well-intentioned, have resulted in substantial benefit to a small group of rent-seekers or tenderpreneurs[263] who acquire tenders and contracts through politically motivated influence[264] or collusion, by abusing the preferential procurement strategies or policies of organs of state.

Eskom has fallen prey to this abuse of preferential procurement policies and strategies multiple times over the past two decades, with a few examples below:

Political influence in major infrastructure projects

In response to the growing electricity crisis and need to increase the grid capacity, Eskom commissioned the development of two large power stations, Medupi and Kusile, in 2007 and 2008 respectively. The construction of these power stations has been mired in major corruption scandals, resulting in delays and cost overruns of billions of rands.

One of the controversial issues around the construction of these power stations was the involvement of Chancellor House, an investment company linked to the ANC[265]. Hitachi, a Japanese technology company, partnered with Chancellor House to tender for contracts in the Medupi and Kusile power station construction. Chancellor House was a 25% shareholder of Hitachi Power Africa (HPA), coming in as the B-BBEE partner. HPA, a local subsidiary of Hitachi Europe was formed in 2005 in response to the call from Eskom for the construction of the new of coal-fired power stations.

In March 2006, an invitation for tenders was issued for boiler works for the new Medupi Power Station. When Alstom Steinmuller consortium, the first choice for receiving the tender, was eliminated due to technical and commercial issues, HPA was awarded the tender. This was despite concerns raised regarding their shareholder, Chancellor House, and its links to ANC officials. The concerns were that, with this deal, the ANC would be both "player and referee" in the situation. It is alleged that Chancellor House, and by default the ANC, stood to make $1 million from this deal[266, 267]. At the time of the deal, party funding was not regulated, so the conflict of interest was not addressed and the tender was awarded to HPA[268].

Despite initially denying that they were aware of the ANC's involvement with Chancellor House[269], in 2015, Hitachi, Ltd. was charged with violating the Foreign Corrupt Practices Act (FCPA) and fined $19 Million by the US Securities Exchange Commission (SEC) for "inaccurately recording improper payments to South Africa's ruling political party in connection with contracts to build two multi-billion-dollar power plants." The SEC investigation also revealed that Hitachi believed they were buying political influence by partnering with Chancellor House, a "politically preferred" company. A 2005 Hitachi document had handwritten notes in the margin, stating that Chancellor House was a "recommendation by Escom [sic]" as well as "ANC treasury"[270].

[261] SAFLII. Broad-Based Black Economic Empowerment Act 2003. [Online]. Available at: https://www.saflii.org/za/legis/consol_act/bbeea2003311/

[262] Adriaans Attorneys. Regulations To The Preferential Procurement Policy Framework Act 5 Of 2000 ("PPPFA"). [Online]. Available at: https://adriaansattorneys.com/regulations-to-the-preferential-procurement-policy-framework-act-5-of-2000-pppfa/

[263] Tenderpreneur is a South African word defined in the Oxford Dictionary as "a person who uses their political connections to secure government contracts for personal advantage"

[264] Mbeki, M. 2016. A manifesto for social change: How to survive South Africa. Johannesburg: Picador Africa

[265] Reddy, T. 2020. Dodgy Energy Deals. [Online]. Available at: https://earthlife.org.za/wp-content/uploads/2020/06/Dodgy-Energy-Deals_ELA-Report_130509_web.pdf

[266] Hunter, Q. 2015. Hitachi and Chancellor House: How the events unfolded. [Online]. Available at: https://mg.co.za/article/2015-09-29-hitachi-and-chancellor-house-how-the-events-unfolded'

[270] De Wet, P. and Mataboge, M. 2015. Chancellor House: R266m for nine years of lies by ANC partner. [Online]. Available at: https://mg.co.za/article/2015-09-29-chancellor-house-r266-million-for-9-years-of-lies-by-anc-partner/

5.8.5.3 Requirement for B-BBEE partners

The State Capture Commission revealed how Trillian Asset Management, a Gupta-linked company, initially acted as an economic empowerment partner for McKinsey and Company in a consulting contract in 2016. The contract was for a turnaround project to improve the EAF and generating capacity of some of Eskom's coal power stations and renegotiate some coal contracts. Trillian was to be brought in as McKinsey's B-BBEE supplier development partner (SDP), receiving 30% of the contract value of around R1.6 billion[271]. Even with McKinsey terminating the agreement with Trillian as their partner, Eskom senior executives irregularly still contracted Trillian as the SDP and paid them around R600 million for unnecessary work[272]. This is just one case of a company taking advantage of preferential procurement policies whilst colluding with senior management within Eskom to enrich themselves.

5.8.5.5 The use of brokers

In order to meet the perceived requirements of the PPPFA, part of Eskom's procurement policy is that purchases are made through value-adding suppliers or brokers. In 2012, the Eskom Board approved a strategy to support transformation in the coal supply value chain, by procuring more coal from suppliers that were 51% or more black owned[273]. This opened the opportunity for value-adding suppliers or agents who were 51% or more black owned to act as intermediaries between Eskom and coal mines or suppliers who do not meet the B-BBEE requirements. According to Eskom's strategy, these agents may not be "nil-value agents", in other words, they must add some value or make some contribution to the deal in order to be considered. Eskom has stated that they "*only procure(s) coal from mining companies (mining right holders) and suppliers who beneficiate/process coal, who are known as value-adding suppliers […] value-adding suppliers do not possess mining rights, but have off-take agreements to procure coal for beneficiation […]. Eskom does not procure coal from traders/intermediaries who on-sell the coal without adding value*" [274]. In practice, however, the agents often are "nil-value agents" and get paid for doing nothing.

This strategy that Eskom put in place has left them vulnerable to exploitation by brokers abusing a well-intentioned policy of economic empowerment to enrich themselves. Coupled with the lack of accountability for those inside Eskom who are involved in the exploitation, these agents and tenderpreneurs cost Eskom billions of rands each year[275]. One example was the increase of Eskom's five-year fuel oil budget from R14 billion to R18 billion. Of the R18 billion, R9 billion went to one company, who simply acted as a conduit between Eskom and the supplier. When the question was raised as to why Eskom did not buy fuel oil directly from Total Energies, Engen or Sasol refineries, there was severe resistance from two Board members. Following an investigation, it was found that a senior procurement official had an interest in the company acting as the middleman, and had actively rigged the bidding process in order for the company to receive the contract. Although the procurement official was suspended, they were allowed to retire without any formal charges[276].

It appears that neither the PPPFA nor the Constitution impose the preferential procurement requirements that Eskom insists are necessary[277]. It was a Board decision, not a legislative obligation. If these requirements are still being imposed in procurement processes, they should be urgently revised.

[271] Comrie, S. and van Wyk, P. 2017. The McKinsey dossier part 3 – Eskom tells McKinsey and Trillian to #PayBackTheMoney. [Online]. Available at: https://mg.co.za/article/2017-10-05-eskom-tells-mckinsey-and-trillian-to-paybackthemoney-heres-wh/

[272] Nicolson, G. 2021. Eskom paid McKinsey, Trillian R1.6bn for 'completely unnecessary' work, commission told. [Online]. Available at: https://www.dailymaverick.co.za/article/2021-01-14-eskom-paid-mckinsey-trillian-r1-6bn-for-completely-unnecessary-work-commission-told/

[273] PMG. 2017. Question NW1270 to the Minister of Public Enterprises. [Online]. Available at: https://pmg.org.za/committee-question/6148/

[274] Eskom. 2024. Coal Procurement Process. [Online]. Available at: https://www.eskom.co.za/eskom-divisions/gx/coal-procurement-process/

[275] De Ruyter, A. 2023. Truth to Power: My Three Years Inside Eskom.

[276] Daily Investor. 2023. Eskom milked by middlemen. [Online]. Available at: https://dailyinvestor.com/energy/25565/eskom-milked-by-middlemen/

[277] Malan, M. 2023. How Ramakgopa can roll back three stages of load-shedding. [Online]. Available at: https://sakeliga.co.za/en/how-ramokgopa-can-roll-back-three-stages-of-load-shedding/

PART SIX:
Findings and recommendations

Over the second quarter of 2024, Eskom has demonstrated notable improvements in the reliability and stability of its CFP stations. However, fundamental challenges persist, particularly in the areas of procurement and organisational culture, and these must be urgently addressed to secure Eskom's long-term success and sustained supply of affordable electricity.

Beyond the lessons for Eskom as an organisation highlighted above, there are also distinct learnings regarding how crime and corruption come about and how it is sustained across society. It is essential to realise that Eskom's problems cannot be fixed by only focusing internally on the company and its stakeholders. Eskom is, in many ways, the product of society and its flawed institutions, and its return to organisational integrity requires systemic thinking. The problems experienced by Eskom form part of a "bigger picture" of corruption, which requires more attention from the government, researchers, civil society, and businesses.

In Part 6.1 of this report, we will focus on more specific recommendations aimed at Eskom. In Part 6.2 we will consider broader systemic and societal issues, but these will be addressed in greater detail in future reports.

6.1 Eskom specific

Rationalisation of coal procurement: To the extent possible, coal for a power station should come from as few mines as possible, and require transport over the shortest distance/s possible.

Minimising political interference: As an SOE, Eskom is subject to the authority of the state. However, it is essential to ensure that procurement decisions are grounded in merit and transparency rather than influenced by political agendas.

Enhancing transparency and integrity: Eskom must commit to implementing procurement practices that prioritise transparency and integrity. This includes developing clear protocols for procurement activities and ensuring open access to information related to contracts and suppliers.

Regular reporting on corruption and fraud: Eskom should establish mechanisms for providing regular internal and external reports detailing incidents of corruption and fraud within the organisation. This transparency will help build trust and accountability among stakeholders. In addition, if the consequences suffered by the employees involved are also reported, this would go some way to undoing the normalisation of and acceptance of corruption as a way of doing things.

Consequences for involvement in corruption and fraud: Criminal cases should be opened against anyone found, in an internal disciplinary process, to have been guilty of fraud or corruption.

Lifestyle audits for employees involved in procurement processes: Random audits should be conducted to assess whether employees involved in procurement processes are living beyond their (apparent) means.

Declaration of outside business interests: If not already in place, all employees should be routinely required to declare outside business interests (OBI) on an annual basis, and whenever they acquire a new OBI. Additionally, pre-appointment checks should include a CIPC search to ascertain whether an employee has outside business interests that could constitute a conflict of interest. OBI's should be approved (or not) by a senior manager.

Safeguarding whistleblowers: Implementing robust measures to protect whistle-blowers is vital for encouraging reporting of misconduct without fear of retaliation. Necessary changes to legislation should be made, but Eskom itself should pay particular attention to creating a safe and conducive environment for

whistleblowing, and to putting measures in place to protect whistleblowers from retaliation and victimisation, if necessary

Engaging with local communities: Often, local community members are aware of illegal activities at power stations. These communities thus have an important role to play in exposing such activities. Linking to the need to safeguard whistleblowers, safe channels for community members need to be established to safely share what they know. Outreach programmes to engage with communities to invite them to become involved and find out how best that can be facilitated, should be implemented. Civil society organisations can take the lead in implementing such initiatives.

Network analysis: There is a need to analyse the networks of individuals and organisations driving corruption at Eskom now and compare these networks to those identified by the State Capture Commission. This network analysis should be used to determine if the systemic corruption in Eskom is driven by the same actors of the past or if the previously identified corrupt networks have fractured and new actors are now involved.

6.2 Systemic and societal

Strengthening regulatory frameworks: It is crucial to empower law enforcement agencies to hold individuals accountable for corrupt practices effectively. This will require capability build in these agencies. This includes enhancing regulatory oversight, ensuring timely and thorough investigations, and facilitating the prosecution of those engaged in fraudulent activities.

Cross-sectoral crime-fighting capacities: It seems urgent that South African investigators in all sectors and industries collaborate to design an integrated crime-fighting system. Not only should auditors and investigators in the private sector be encouraged to share their skills, expertise and findings with public sector crime-fighting agencies and prosecutors, but the sharing of trends and data is long-overdue. The Business for South Africa Public-Private Partnership with Government is a welcome initiative in this regard, but may not go far enough.

Real, tangible action to implement the National Anti-Corruption Strategy: South Africa has a sound National Anti-Corruption Strategy (NACS), but there has been no recent indication or reporting of progress in respect of implementing it. The National Anti-Corruption Advisory Council was meant to deliver a progress report to the President in February 2024, but to date there has been no (public) evidence or reporting of action and progress. If the Government wishes to create a national culture of zero-tolerance for corruption it has to be more overt about demonstrating and reporting action. Civil society should be more vocal about calling Government to account in this regard.

Real, tangible action to implement the recommendations of the State Capture Commission: The comments above about the NACS apply equally to the State Capture Commission's recommendations. The last progress report on the implementation of the recommendations was issued in November 2023. It should be relatively easy to develop a reporting dashboard which could be issued once a quarter.

Organisational culture: All organisations, both public and private sector, should be monitoring organisational culture, but acting on red flags and risks as they emerge and proactively safeguarding against these are even more critical. Values-driven decision-making with a focus on transparency and accountability is the only way to implement decentralised decision-making. Organisational integrity requires sustained effort, over and beyond the short-termism resulting from elections, quarterly results or delivery deadlines. Integrated risk assessments to identify both policy gaps and pernicious informal behaviours and attitudes must be implemented by all South African organisations. Necessary preventative and responsive organisational actions include:

Incentivising good behaviour.	**Disincentivising bad behaviour.**	**Managing the risk by way of systemic measures.**	**Consistent enforcement.**	**Encouraging and protecting whistleblowing.**

Creating a national culture of zero-tolerance for corruption and crime: To institutionalise zero-tolerance for crime and corruption as a South African value, a much broader cultural shift is necessary, which calls for cross-sectoral cooperation around value-systems. Some (initial) examples of suggested action steps could include:

The values-driven education already provided at schools should be further strengthened, with a focus on zero tolerance and speaking out against unethical behaviour, enabling a whistle-blowing culture across society in future.

Universities and other tertiary institutions should mine case material, such as is provided in reports such as these, for integration across the curriculum. Different professional associations, such as law and accounting, should jointly discuss how to integrate the study of such cases, and proactive measures to curb such behaviours, in their continuing professional development (CPD).

Institutionally, pledges of organisations to support the fight against corruption must be backed up by them joining some of the coordinated cross-sectoral action plans in the fight against corruption. The Government of National Unity should ideally coordinate and support such action-plans.

On a societal front, a better understanding of the interface between ethics/ governance, societal flourishing, and sustainability must be fostered, and institutional and administrative support for ESG performance must be implemented.

In conclusion, the complexity of criminality in society requires us to take a systemic view of how the multiple contributing factors interlink. Committing to this fight requires more than looking backwards at what went wrong. The lessons from the past become the necessary insights to plan for the future. This report is a first step in that direction, but deciding how some of these ideas (and others) should be realised in practice will be the next chapter in this journey.

Addendum 1

Eskom's Coal-fired Power Stations

Name	Location	No of units	Installed capacity	Capacity 2023	EAF 2023
Arnot	Near Middelburg, Mpumalanga	6	2 100MW	2 200MW	42,5%
Camden	Near Ermelo, Mpumalanga	8	1 600MW	1 600 MW	57,5%
Duvha	Witbank, Mpumalanga	6	3 600MW	3 000MW	40,3%
Grootvlei	Near Balfour, Mpumalanga	6	1 200 MW	600MW	50,5%
Hendrina	Near Middelburg, Mpumalanga	10	2 000MW	1 200MW	23,2%
Kendal	Near Witbank, Mpumalanga	6	4 116MW	4 116MW	53,2%
Komati	Near Middelburg, Mpumalanga	9	1 000 MW	Decommissioned in 2022	
Kriel	Btwn Kriel & Ogies, Mpumalanga	6	3 000MW	2 790MW	49,4%
Kusile	Near Witbank, Mpumalanga	6	4 800MW	1 600MW	36,6%
Lethabo	Viljoensdrif, Free State	6	3 708MW	3 708MW	60,4%
Majuba	Btwn Volksrust and Amersfoort, Mpumalanga	6	4 108MW	4 108MW	63,0%
Matimba	Lephalale, Limpopo	6	3 990MW	3 990MW	75,8%
Matla	Kriel, Mpumalanga	6	3 600MW	3 600MW	53,3%
Medupi	Near Lephalale, Limpopo	6	4 800MW	4 200MW	70,5%
Tutuka	Near Standerton, Mpumalanga	6	3 654MW	Not clear -when VGBE visited in 2023, only 2 units were operational	25,8%

Addendum 1: Eskom's Coal-fired Power Stations[278]

[278] Eskom. 2024. Coal-fired Power Stations. [Online]. Available at: https://www.eskom.co.za/eskom-divisions/gx/coal-fired-power-stations/

Addendum 2

Coal mines, the CFP stations they supply, and distance between them

Supplying mine	CFP														
	Arnot	Camden	Duvha	Grootvlei	Hendrina	Kendal	Komati	Kriel	Kusile	Lethabo	Majuba	Matimba	Matla	Medupi	Tutuka
2Seam Tnc		114km													82km
Arnot Coal Mine	7km														
Arnot South	64km														
Arthur Taylor Open Cast Mine	107km	134km	36km	133km	63km			25km					36km		
Brakfontein Colliery/Tegeta	146km										174km				
Chilwavhusiku Colliery						62km			45km						171km
Doornrug Coal Mine					83km								81km		140km
Dorstfontein Coal Mines				86 km			245km	207km							
Elandsfontein Colliery		158km	29km						35km		171km		62km		122km
Elandspruit Mine					54km						177km				128km
Glencore Impunzi	94km	122km				45km	35km	30km					40km		
Glencore Tweefontein Coal		141km									159km		48km		
Goedgevonden Mine		133km		120km							151km		38km		
Graspan Colliery											173km				
Greenside Colliery													58km		
Grootgeluk Mine												6km		Next to (conveyor belt used)	
Halfgewonnen Colliery		92km	56km								119km		71km		70km
Ikoti Coal											113km				
Intibane Colliery									22km						
Iyanga Mining - Klipfontein Mine			58km								184km				135km
Kangala Wolvenfontein						52km		66km	50km				59km		

Supplying mine	Arnot	Camden	Duvha	Grootvlei	Hendrina	Kendal	Komati	Kriel	Kusile	Lethabo	Majuba	Matimba	Matla	Medupi	Tutuka
Kleinkopje Colliery					50km			36km					47km		107km
Koornfontein Mine / Blinkpan							42km								
Kuyasa Ikhwezi Colliery											142km				
Leeuwfontein Colliery			154km										174km		250km
Londani Mine - IPP	30km														
Manungu Colliery					140km	49km		64km	52km		186km				112km
Matla Coal Mine													Next to (conveyor belt used)		
Mbali Coal					75km			22km					33km		
Middelburg Mining Services / Wolvekrans / Ifalethu			35km		49km	77km									
Moabsvelden Coal Mine									52km						
Motshaotshele Colliery		65km			45km										102km
Mzimkhulu Colliery	107km		49km	107km	98km			44km	15km						
New Clydesdale Colliery (NCC)	92km	116km			40km			29km			133km		34km		84km
Nndanganeni Mine	30km														
North Block Complex (NBC) Coal Mine/ NBC Glisa Mine	47km	131km					103km	148km			192km		146km		164km
Overlooked Colliery		99km											68km		
Palesa Coal Mine				164km		86km		116km	70km						
Rietvlei Mining Company			55km			99km							106km		
Seriti Khutala Colliery			64km			13km							36km		
Seriti Kriel Colliery								2km							
Seriti New Denmark															10km
Seriti New Largo									9km						
Seriti New Vaal Colliery										12km					
Stuart Coal Delmas											189km		48km		

Supplying mine	Arnot	Camden	Duvha	Grootvlei	Hendrina	Kendal	Komati	Kriel	Kusile	Lethabo	Majuba	Matimba	Matla	Medupi	Tutuka
Silver Lakes Colliery		31km													
Ubuntu Colliery	149km								53km						
Van Dyk's Drift Coal Processing Plant				149km	39km	63km	24km								95km
Vanggatfontein Colliery							86km		49km				37km		103km
Vlakfontein Coal Mine								43km	14km						
Vlakvarkfontein Coal Mine / Ntshovelo Colliery					111km	11km					173km				
Vunene Coal Mine / Usutu								114km							99km
Welgelegen Iyanga Colliery			74km	96km	122km						187km		47km		
Welgemeend Coal Mine/ Mavungwani Colliery/ Opgoedenhoop	212km				203km		175km	137km			227km		134km		
Weltevreden Project	112km	148km	54km		103km						166km				116km
Wildfontein Colliery	41km														
Wonderfontein Coal Mine / Umsimbithi Colliery	16km	111km			44km		84km								
Zonnebloem Coal Mine / Vulna Colliery					50km										

Addendum 2: Coal mines, the CFP stations they supply, and distance between them[279].

[279] Eskom. 2021. C4 EEC Site Information. Tender Bulletin.

Addendum 3

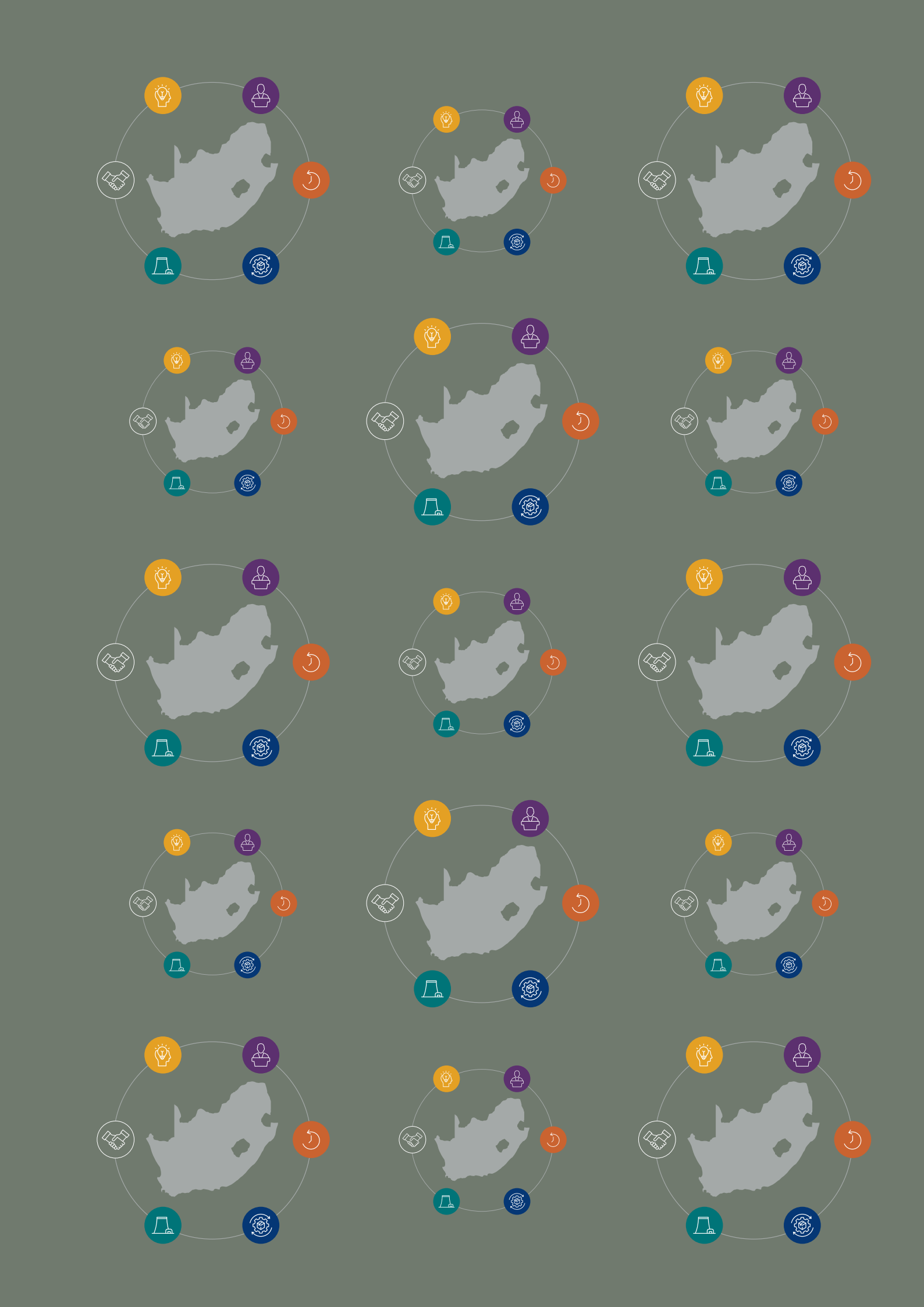
List of criminal cases opened by Eskom, according to the Fivas reports.

Date Accessed	Criminal Case No	Forensic Case Number	Amount Involved (ZAR)	Police Station where case was opened	Criminal Case Outcome (as at June 2022)
21-May-24	215/06/2015	13/10/2014	271 585.92	Bloemfontein	Investigation completed
21-May-24	1485/08/2015	25/10/2014	6 914 600.00	Bloemfontein	Investigation completed
21-May-24	330/03/2015	16/11/2014	307 874.80	Hendrina	Case was withdrawn by court on 9/12/2020. Reasons for withdrawal to be confirmed with the investigating officer.
21-May-24	24/08/2015	07/12/2014	To be confirmed	Hendrina	Suspect was found guilty
21-May-24	23/05/2017	27/02/2015	990 944.00	Kriel	Withdrawn
21-May-24	37/10/2016	15/05/2015	1 713 674.95	Kriel	Investigation completed
21-May-24	170/11/2017	12/07/2015	990 944.00	Cleveland	Investigation completed
21-May-24	385/10/2015	24/07/2015	5 000.00	Boksburg North	Investigation completed
21-May-24	64/02/2020	15/03/2016	112 833.96	Sandton	Investigation completed
21-May-24	666/02/2020	15/03/2016	To be confirmed	Pietermaritzburg	Investigation completed
21-May-24	294/02/2017	30/09/2016	190 890.00	Stellenbosch	Investigation completed
21-May-24	147/06/2017	13/02/2017	No amount involved; submission of a fraudulent document.	Sandton	Investigation completed
21-May-24	44/04/2017	03/03/2017	93 014.34	Beacon Bay	Investigation completed
21-May-24	59/07/2017	19/04/2017	3 251.00	Lephalale	Investigation completed
21-May-24	266/11/2019	23/05/2017	39 478 485.07	Sandton	The DPP issued a nolle prosequi certificate – decline to prosecute – the reason for declining to prosecute being insufficient evidence to link the suspect(s) to any criminal conduct.
21-May-24	233/11/2019	20/12/2017	46 800.00	Sandton	Investigation completed
21-May-24	797/01/2019	05/01/2018	355 114 000.00	Witbank	The Prosecuting Authority declined to prosecute the matter, in that there was no possibility of a successful prosecution.
21-May-24	394/08/2020	19/01/2018	730 449.28	Sandton	Investigation completed
21-May-24	183/01/2018	2018/03/25	4 272.40	Volksrust	The former employees were convicted of fraud and sentenced to two years' imprisonment, which was wholly suspended for five years.
21-May-24	138/04/2018	23/04/2018	Submission of fraudulent compliance certificates, no amount involved	Newcastle	SAPS case closed. Referral in terms of section 34 of PRECCA -Reference Number 2022/08/284
21-May-24	1216/4/2015	2018-12276	54 000 000.00	Sandton	The docket has been filed with a warrant of arrest. This means that it is closed and will be brought forward to determine whether the suspect has been arrested for another matter, and if so, CAS 1216/04/2015 will be reopened.
21-May-24	152/11/2019	2018-12276	140 000.00	Cleveland	The case was closed
21-May-24	50/11/2019	2018-12451	2 216 713.00	Hendrina	Investigation completed
21-May-24	452/05/2018	2018-12622	To be determined	Sandton	Investigation completed
21-May-24	2022/09/292	2019-13093	To be determined	To Be confirmed	Investigation completed

Date Accessed	Criminal Case No	Forensic Case Number	Amount Involved (ZAR)	Police Station where case was opened	Criminal Case Outcome (as at June 2022)
21-May-24	94/5/2019	2019-12764	Not determined	Mount Frere	The case was closed at the SAPS in 2019. The case was closed due to lack of evidence.
21-May-24	298/02/2021	2019-12970	8 917 202.00	Sandton	Investigation completed
21-May-24	150/02/2020	2020-13143	51 152 582.97	Lephalale	Investigation completed
21-May-24	142/03/2022	2020-13212	To be determined	Sandton	Investigation completed
21-May-24	625/05/2021	2020-13226	750 000.00	Sandton	Investigation completed
21-May-24	23/06/2020	2020-13227	192 344.40	Ogies	Investigation completed
21-May-24	37/11/2021	2022-13852	To be determined	Hendrina	Investigation completed
21-May-24	102/11/2019	40/10/2017	95 000 000.00	Sandton	Investigation completed
21-May-24	92/4/2018	69/07/2017	300 390.00	Lephalale	Provisionally withdrawn from the court roll.
21-May-24	24/08/2015	2014/07/12	To be confirmed	Hendrina	Suspect was found guilty
21-May-24	991/03/2017	08/05/2015	3 252 344.76	Kriel	Investigation completed
21-May-24	170/11/2017	2015/12/07	990 944.00	Cleveland	Investigation completed
21-May-24	106/11/2019	10/04/2016	15 000 000.00	Sandton	Investigation completed
21-May-24	16/03/2022 660/03/2022	2016/04/11	To be determined	Sandton	Investigation completed
21-May-24	797/01/2019	2018/05/01	355 114 000.00	Witbank	The Prosecuting Authority declined to prosecute the matter, in that there was no prospect of a successful prosecution. Forensic has reviewed the evidence and agreed.
21-May-24	413/07/2020	2018-12398	45 294 922.14	Sandton	Investigation completed
21-May-24	152/11/2019	2018-12568	140 000.00	Cleveland	The case was closed. The whistle-blower could not be traced.
21-May-24	464/11/2018	2019-12568	31 000 000.00	Sandton	This matter was finalised in the Palm Ridge Commercial Crimes Court. Mr Moraka (former Eskom employee) and Mr Tshabalala (Eskom service provider) were found guilty on 53 counts of fraud and theft and sentenced to 20 years in prison. Eskom stands to recover of R4 million from the proceeds of the property preserved by the AFU. The process to recoup this money is ongoing.
21-May-24	520/11/2019	2019-12821	4 119 830.00	Witbank	Investigation completed
21-May-24	266/11/2019	2020-11669	To be confirmed		Investigation completed
21-May-24	44108	2020-13146	To be confirmed	Middelburg Commercial Crime Unit	Investigation completed
21-May-24	55/02/2021	2020-13215	To be determined	Midrand	Investigation completed
21-May-24	274/03/2022	2020-13283	930 000.00	DPCI	Investigation completed
21-May-24	107/08/2022	2020-13289	16 247 628.07	Bellville	Investigation completed
21-May-24	88/05/2012	2023-14158	513 630.00	Kriel	Investigation concluded
21-May-24	138/04/2018	33/10/2017	4 394 672.00	Dannhauser	Investigation completed

Addendum 3: List of criminal cases opened by Eskom, according to the Fivas reports[280]

[280] Case list accompanied the Fivas Reports.



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