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G20 SOUTH AFRICA 2025

Eskom

Presidential Climate Commission – Briefing on Eskom's JET Programme

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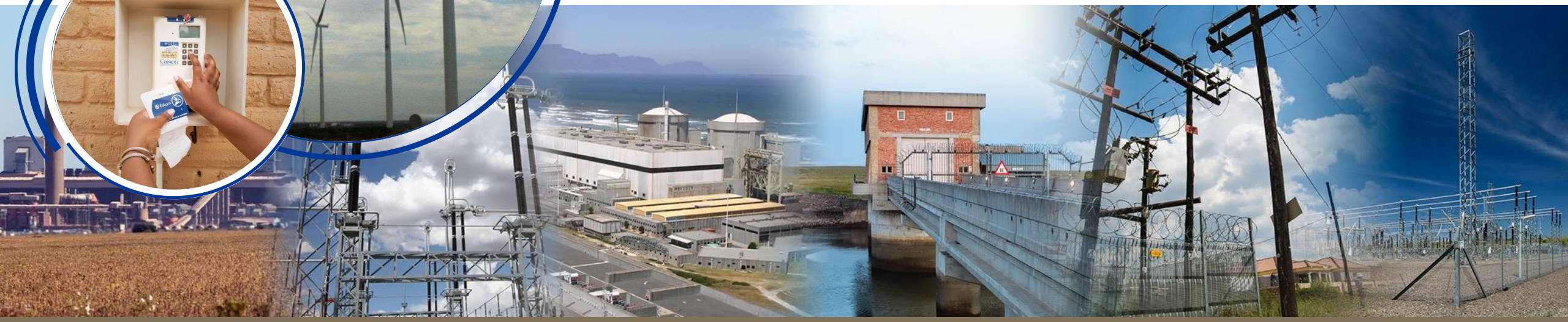


Executive summary

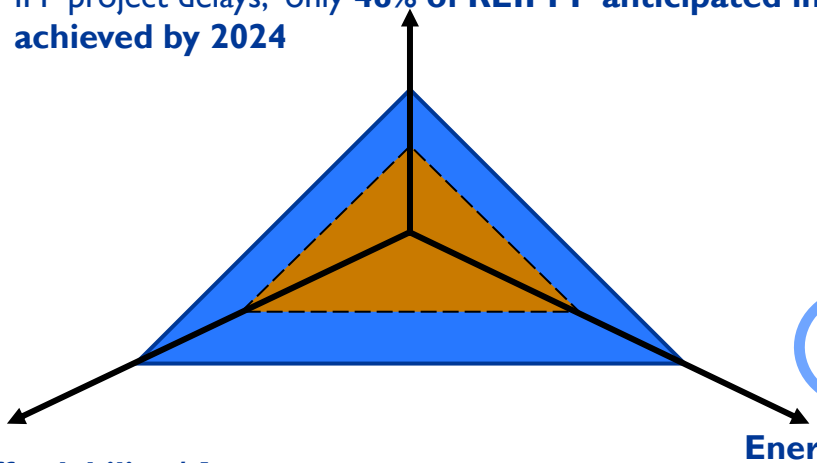
- South Africa, like many developing countries, is grappling with the energy trilemma
- Our strategy is to turnaround Eskom while we prepare for the inevitable transition, pivoting into a sustainable and competitive company
- Eskom's JET strategy and together with other initiatives contributes to addressing all components of the energy trilemma
    - Eskom's plan promotes the optimal use of existing coal fleet while rolling out clean energy capacity to ensure security of supply and energy sustainability
    - We are driving several strategic pilot and demonstration projects to find innovative solutions to MES compliance and decarbonization
- Lessons learnt from Komati and initiatives are incorporated into our approach to the repowering and repurposing initiatives at other stations
    - Repowering projects of more than 5000MW in capacity are in various stages of development across various sites
    - Repurposing initiatives have been focused to enable economic diversification and job creation in the affected areas
- While Eskom is pivotal to the transition, a number of risks need to be carefully considered in the formulation of policy

South Africa, like many developing countries, is grappling with the energy trilemma

Energy trilemma in the South African context

Energy Security

- Continued risk of loadshedding in the context of increasing electricity demand
- IPP project delays, only **48% of REIPPP anticipated in IRP2019 achieved by 2024**



Energy Affordability / Access

- SA's socio economic status, high levels of unemployment (**~32.9%**), inequality (**Gini coefficient[1] 0.63**) and poverty
- GDP growth negatively impacted by energy crisis (**-1.5% percentage points for 2023**)
- Impact of coal phase-out – ~107 000 coal related workers estimated locally

Energy Sustainability

- Revised NDC targets **(350–420 Mt CO_2e by 2030)**, carbon tax and other policies placing additional pressure for decarbonisation
- **~80%** of electricity generation is fossil fuel based, **~47%** contribution to SA's GHG[1] emissions

Impact of these interlinkages in decision-making

- Decisions that impact the energy sector must be viewed along the dimensions of energy security, affordability and sustainability
- As a **developing country there are difficult trade-offs that need to be made to ensure security and affordability** in the short term
- Decision making during this dynamic context needs to **enable sufficient flexibility to respond** to changing context
- Eskom is **actively navigating** these objectives by
  - Driving the improvement of existing coal plant including roll out new clean capacity
  - Accelerating grid expansion to connect new capacity
  - Prioritising least cost generation and improving operational efficiencyy
  - Implementing an optimised compliance approach to MES and supporting the countries NDCs

Footnote: 1 GHG: Greenhouse Gas; 2 MES: Minimum Emissions Standards

Our strategy is to turnaround Eskom while we prepare for the inevitable transition, pivoting into a sustainable and competitive company

Commercial mandate
Assist in lowering the cost of doing business in SA, enabling Economic growth

Our Mandate

Social mandate
Providing Electricity in an efficient and sustainable manner

Our Vision
Sustainable power for a better future

Our Purpose
Powering growth sustainably

Shareholder's Priorities

Achieve Universal Access, Availability, Affordability and Quality	Attain sovereign and regional energy security	Drive industrialisation and lead innovation	Qualitatively transform energy demographics; elevate role of women and youth	Assert SA, continental and global energy leadership

Eskom Strategic Objectives

Pursue financial and operational sustainability

- Recover and **sustain EAF to 70%** in the long term
- Implement innovative solutions including Distribution Agency Agreement to reduce **municipal arrear debt & energy losses**
- Optimise cost and enhance revenue
- **Strengthen leadership stability** and upskill & reskill employees for future opportunities

Facilitate a competitive future energy industry

- **Operationalise Dx**, establish NewCo and operationalise Gx
- Fine-tune **Gx and Dx business models,** to improve customer centricity
- Drive **large scale new capacity projects** (gas, solar PV, wind, nuclear) incl. Renewables pipeline through Eskom Green
- Develop **Eskom's PSP/PPP model and unit**
- **Obtain unbundled tariffs approval (NERSA)**

Modernise our power system

- **Accelerate TDP execution** incl. alternative funding models
- Strengthen **Distribution network infrastructure** incl. smart meters and microgrids rollout
- Increase **flexibility of power system** infrastructure
- Develop and implement **digitalisation strategy**

Strive for net zero emissions by 2050

- Drive Komati, Grootvlei, Hendrina, Camden **repowering and repurposing initiatives**
- Collaborate with government on Minimum Emissions Standards and environmental compliance
- **Participate in Distributed Energy Resources (DERs)** and drive **eMobility**

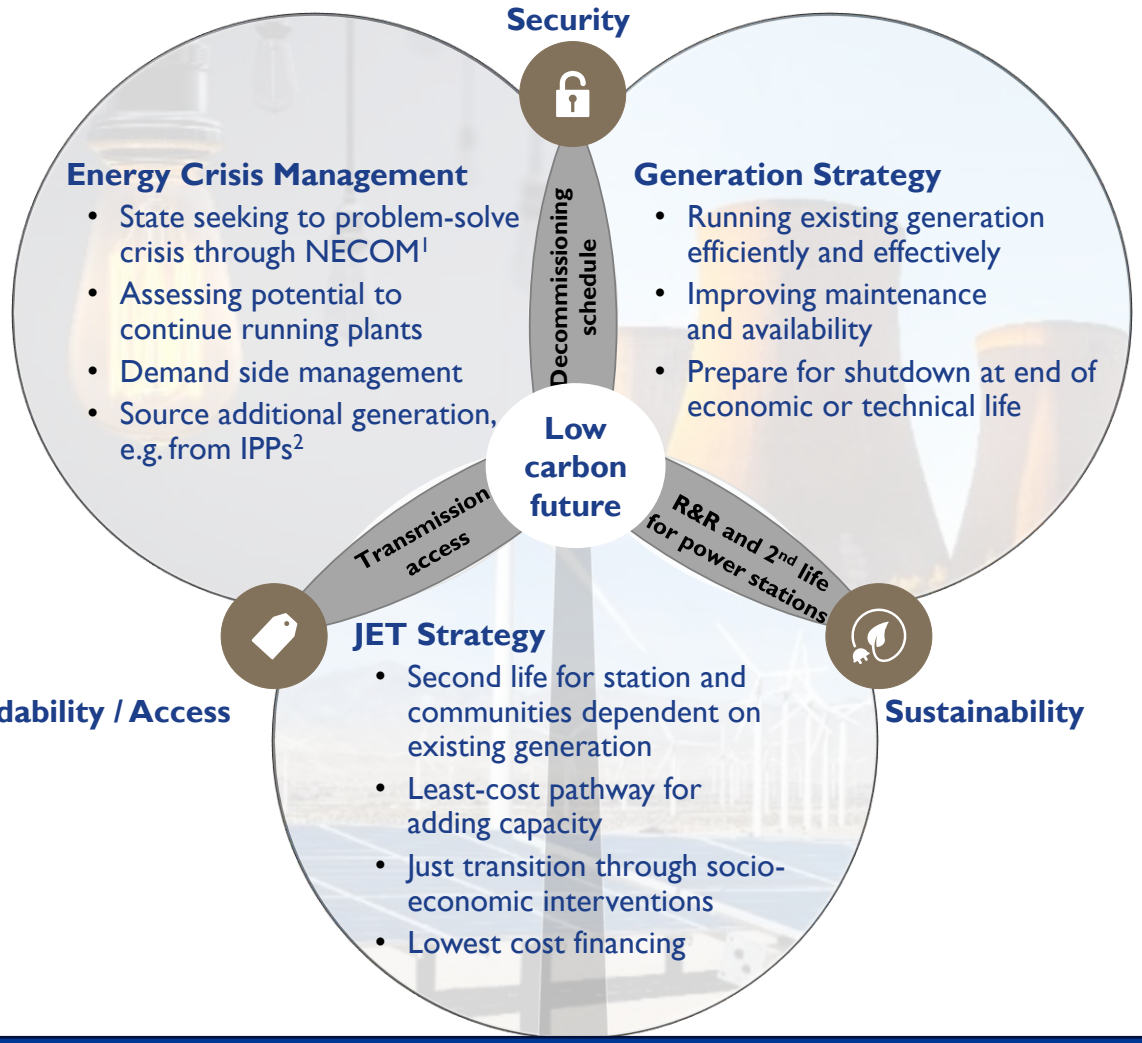
Entrench a high-performance ethical culture, innovation and agility

Improve controls & governance processes to address fraud, corruption and criminality

Drive socio-economic transformation

OUR VALUES: Zero Harm | Integrity | Innovation | Sinobuntu | Customer Satisfaction | Excellence

Eskom's JET strategy and together with other initiatives contributes to addressing all components of the energy trilemma



Security

Improves security by

- Adding new Eskom generation capacity
- Improving plant Energy Availability Factor (EAF) and system stability
- Addressing quality of supply through pumped hydros, synch condensers, gas as transition fuel, and open to nuclear

Affordability / Access

Enhances affordability and access by

- Prioritising the least-cost generation pathway
- Improving efficiency of existing Eskom generation
- Rolling out microgrids for increased access

Sustainability

Ensures sustainability by

- Charting path to more sustainable Eskom generation portfolio
- Improving efficiency of existing Eskom generation
- Fast-tracking addition of new, cleaner energy sources

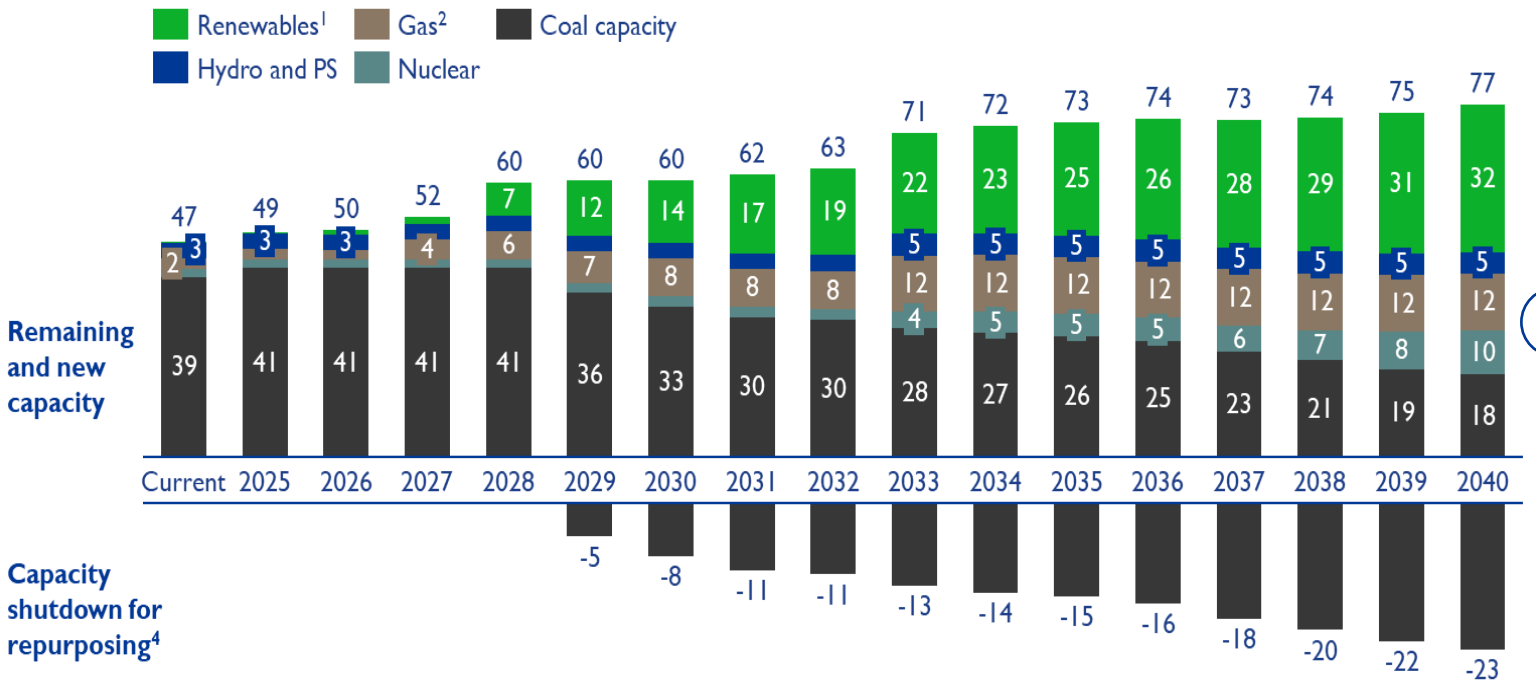
The JET strategy is not a coal versus renewable position but rather an opportunity for a considered approach towards transitioning from high emitting sources of energy towards cleaner sources of energy

Footnote: NECOM – National energy crisis committee, IPP – Independent power producer

Eskom's plan promotes the optimal use of existing coal fleet while rolling out clean energy capacity to ensure security of supply and energy sustainability

Eskom will roll out clean energy as it gradually ramps down coal plant

Cumulative GW (calendar years)
Indicative: Includes aspirational and unfunded projects as well as nuclear new build



Key Insights

- Eskom's generating mix will transition from **predominantly coal** to a **balanced mix** with **primarily clean energy sources by 2040**
- This will achieve **the 40% reduction in overall emissions by 2030 (at fleet level)** while supporting the countries commitment to the NDCs
- An optimal approach to emissions compliance will ensure cleaner coal fleet while investing in clean energy
- Renewable energy (including battery storage) roll out will be through the **combination of repowering of older coal-fired** power stations slated for ramping down by FY30 (Camden, Hendrina, Grootvlei, Arnot and Komati) and **new projects at various other stations** and locations (Kusile, Kendal, Lethabo, Sere and Lephalale)
- **Dedicated Eskom Renewable unit established** to ensure accelerated implementation of projects and partnering with private sector

Eskom's risk adjusted approach to the transition balances energy security, sustainability while ensuring electricity is accessible and affordable to all South Africans

We are driving several strategic pilot and demonstration projects to find innovative solutions to MES compliance and decarbonisation

Minimum Emissions Standards

- Coal Co-firing with ammonia
- High Efficiency Low Emission (incl. CFB)
- Flue gas desulphurisation (incl. WFGD, Dry FGD & Semi-Dry FGD)

Decarbonisation

- Carbon Capture and Storage
- Carbon Utilisation/Recycling
- Coal Co-firing with biomass
- Gas Turbine hydrogen firing

A collaborative project between Eskom RT&D, Coaltech, CSIR and SANEDI which aims to develop an CFB boiler towards demonstration is currently in engineering development phase intended for demonstration in 2028/29 years.

FGD: Flue gas desulphurisation; WFGD: Wet flue gas desulphurisation *CCUS: carbon capture utilisation and storage; CCS: Carbon capture storage; FCB: Fludised Combustion Bed*

Lessons learnt from Komati and initiatives are incorporated into our approach to the repowering and repurposing initiatives at other stations

Lessons Learnt	What we have learnt	What we are doing
 **Early start/planning and implementation is crucial**	• **Upfront preparatory work** critical in **identifying impacts** and **supporting project design** and **implementation strategy**.	• **Decouple stations operations from R&R and implement R&R independent of station operations.** • **Jet Strategies approved for Hendrina, Camden, Grootvlei, and advanced for Arnot and Kriel**
 **Economic diversification is key to JET**	• **Repowering provides construction jobs, but Repurposing has the potential to contribute to socio-economic development**	• **Establishment** of a **horticulture centre** at **Grootvlei.** Establishment of Ash beneficiation centres at the three stations for **brick making and road filling**, **PPE manufacture**, **Steel manufacture, copper recycling** etc.
 **Social dialogue and co-creation is key**	• It is **critical** that **communities are taken along** the journey with us	• We have already begun, in close **collaboration** with the Provincial **government**, key **stakeholder engagements** with **communities** around **Grootvlei**, **engaging** on **JET opportunities** and the impact of station shutdown • We are **expanding** this to **Hendrina, Camden and Arnot**
 **Training of staff and communities**	• **Community, staff and contractor upskilling and reskilling identified** as key to deliver a just transition	• **Lessons learnt** from the implementation of the Training centre at Komati are being **applied** at **Grootvlei** and **Hendrina** • **Engagements** underway with **TVETs** to **expand** the training centres' **reach and scope**, and to **incorporate** their **curricula** into our **training centres**
 **Funding**	• **Komati funding agreement** was only **concluded after the station was shut down**	• Commenced **engagements** with various **Multilateral Development Banks** for **front loading** and **upfront R&R at Camden, Grootvlei and Hendrina**
 **Partnerships**	• **The transition is bigger than Eskom. All affected parties need to work together to collaborate towards achieving a truly Just Transition**	• The Eskom JET partnership strategy is approved and various partnership opportunities are in implementation. The Grootvlei Climate Smart Horticulture Centre bears testament to this.

Repowering projects of more than 5000MW in capacity are in various stages of development across various sites

Station	Capacity
Komati	122MW PV 150MW BESS
Grootvlei	195MW PV 150MW BESS
Arnot	800MW 200MW BESS 168MW Wind
Camden	680MW PV
Hendrina	587MW PV
Kriel	800MW PV 200MW BESS 1000MW Gas

Milestones

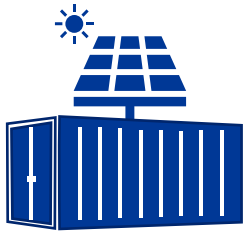
- JET Strategies approved for all sites and project development underway
- **Legislative and regulatory and legislative approvals:**
  - Komati – Section 34, PFMA, PPPFA approved
  - Komati EIA obtained
  - Grootvlei EIA contract awarded
  - Camden and Hendrina RFP evaluations to conduct EIA in progress
- **Design progress:**
  - Topographic survey concluded, evaluations for geotechnical investigations RFQ concluded at Grootvlei
  - Grid applications submitted for Arnot, Hendrina, Kriel and Camden
  - Owner's Engineers appointed for Komati

Next steps

- **Komati:**
  - Shortlisting of supply and installation of 72MW PV and 150MW BESS - Contract award expected 2025
  - Assessments underway for alternate Long Duration Energy Storage (LDES) options
- **Grootvlei:**
  - PV and BESS – completion of execution by 2029
  - Progress with upfront planning work
- Project development work for repowering underway at **Arnot, Camden, Hendrina and Kriel** with the intention of having them in commercial operation before 2030

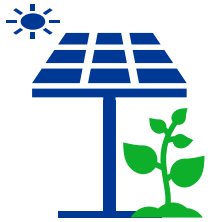
Footnote: PV – Photovoltaic, BESS Battery energy storage system, EIA – Environmental impact assessment, PFMA – Public finance management act, PPPFA -Preferential procurement policy framework act, RFP – Request for proposal

Repurposing initiatives have been focused to enable economic diversification and job creation in the affected areas



Containerised Microgrid (CMG)

CMG assembly lines completed, delivered **13 CMGs** last year



Agrivoltaics

500kW PV and aquaponics plant completed

Welding training workshop

Accredited welding training centre, and a solar PV lab established with training underway

Skills development

679 people upskilled in soft skills, entrepreneurial skills and renewable technology to aid repurposing initiatives and stimulate local economies

Current Focus areas:

Strategic projects:

- Six projects prioritised for 2025 - PPE distribution, Copper recycling, Steel component fabrication, Call centre, Waste tyre processing, AIS removal and pelletisation

Career and enterprise development:

- SME accelerator programme and Coaching support underway (22 small businesses already participating)
- CV workshops, data analysis, data engineering and internship programme

Community Projects:

- Implementation of a 15ha commercial agriculture by 2027
- Exploring alternative options for ash beneficiation

Footnote: AIS – Alien Invasive Species

While Eskom is pivotal to the transition, a number of risks need to be carefully considered in the formulation of policy

Security of supply	▪ Eskom as the default 'backup of last resort', providing baseload – plants need to remain efficient and reliable to support the transition
Funding	▪ True cost of the transition, (considering both adaptation and mitigation) needs to be efficiently funded through transparent cost allocations and grant funding taking the social disparities into account
Equity	▪ Coordinated approach led by Government making sure all stakeholders, i.e. industry, civil society, regulators etc. considering new economies & skills training to absorb affected workforce
Execution	▪ Execution risks to be minimised by setting targets that are realistic and can be delivered given the country context and global supply capacity

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The End