Petra Diamonds – Cullinan Diamond Mine

Mining and Energy Transition

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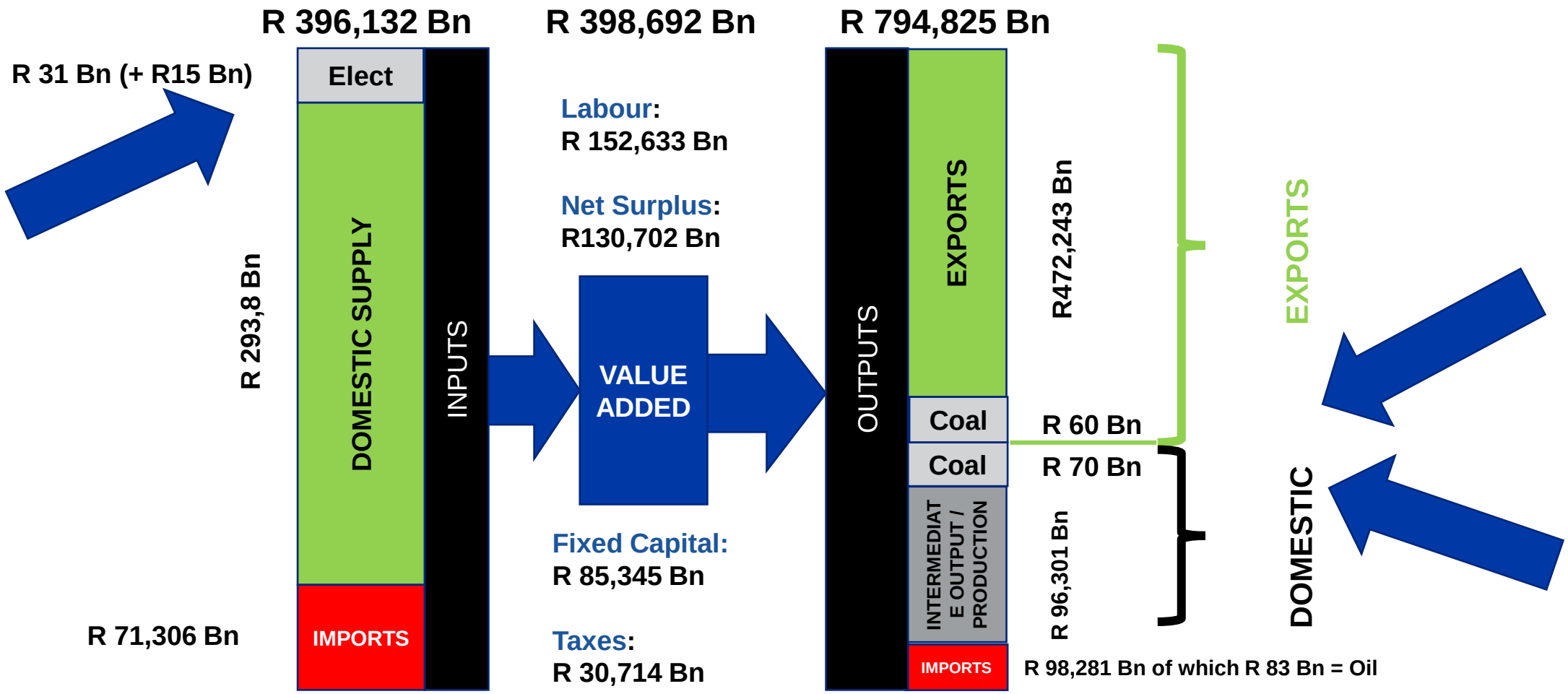
SOUTH AFRICA

CLIMATE CHANGE: RESPONSE STRATEGY

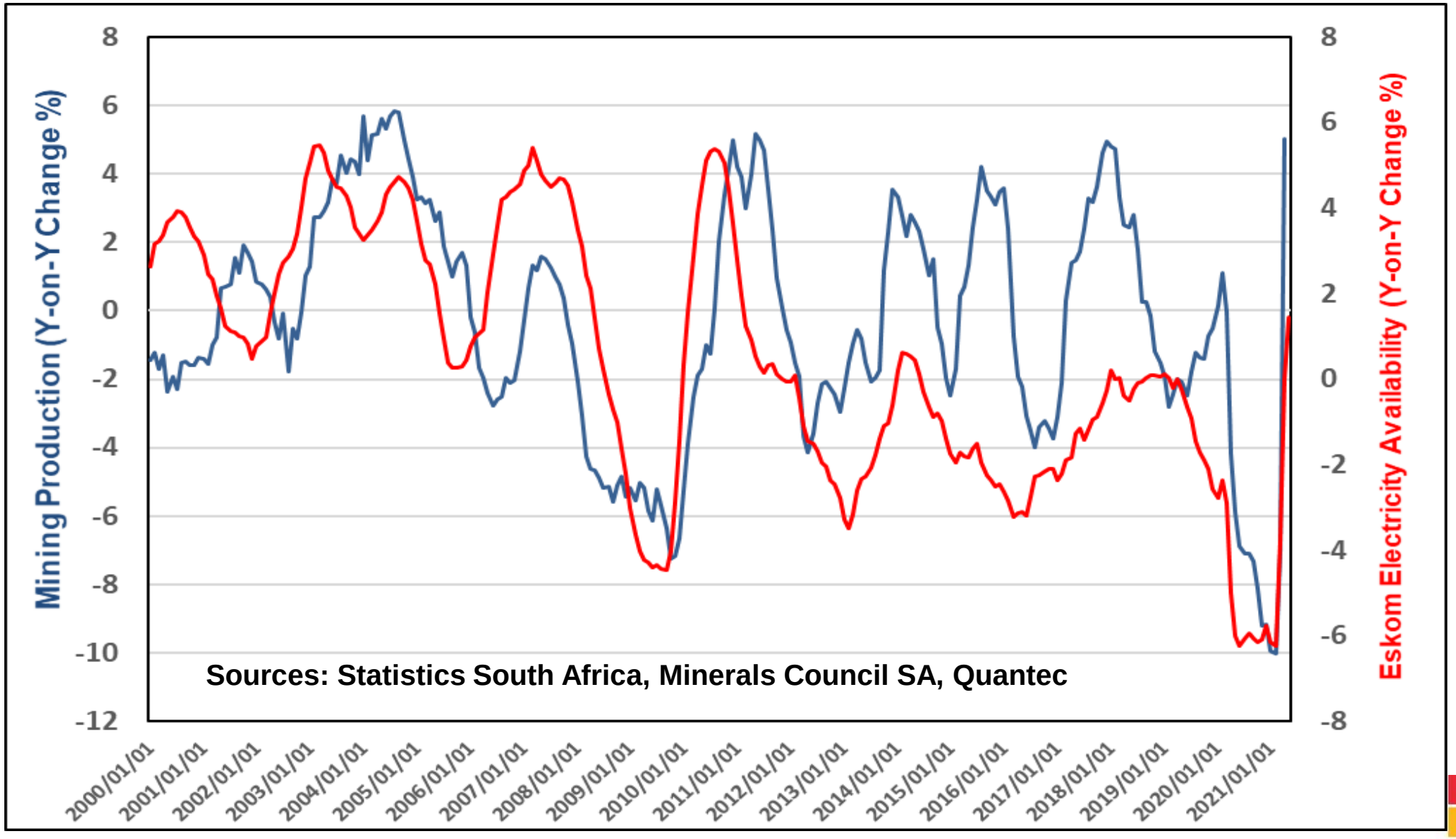
- Minerals Council understand the science of climate change that indicate that the concentrations of GHGs in the earth's atmosphere have been rising steadily since industrial revolution due to anthropogenic activities,
  - Therefore**, not climate change denialists**,
- Supportive of the implementation of measures to transition to a low carbon emissions economy through implementation of international and national policies.
  - Thus, **support a just energy transition**
- Minerals Council regards:
  - climate change as a **considerable threat** to the country and its socio-economic development hence significant progress has been made by member companies to mitigate and adapt to climate change
  - And an **existential threat** to the coal mining industry in particular
- The Mining Sector is
  - A **highly electricity intensive industry,** needing base load 24 hours a day

Mining Sector Components (Energy & Coal): 2020

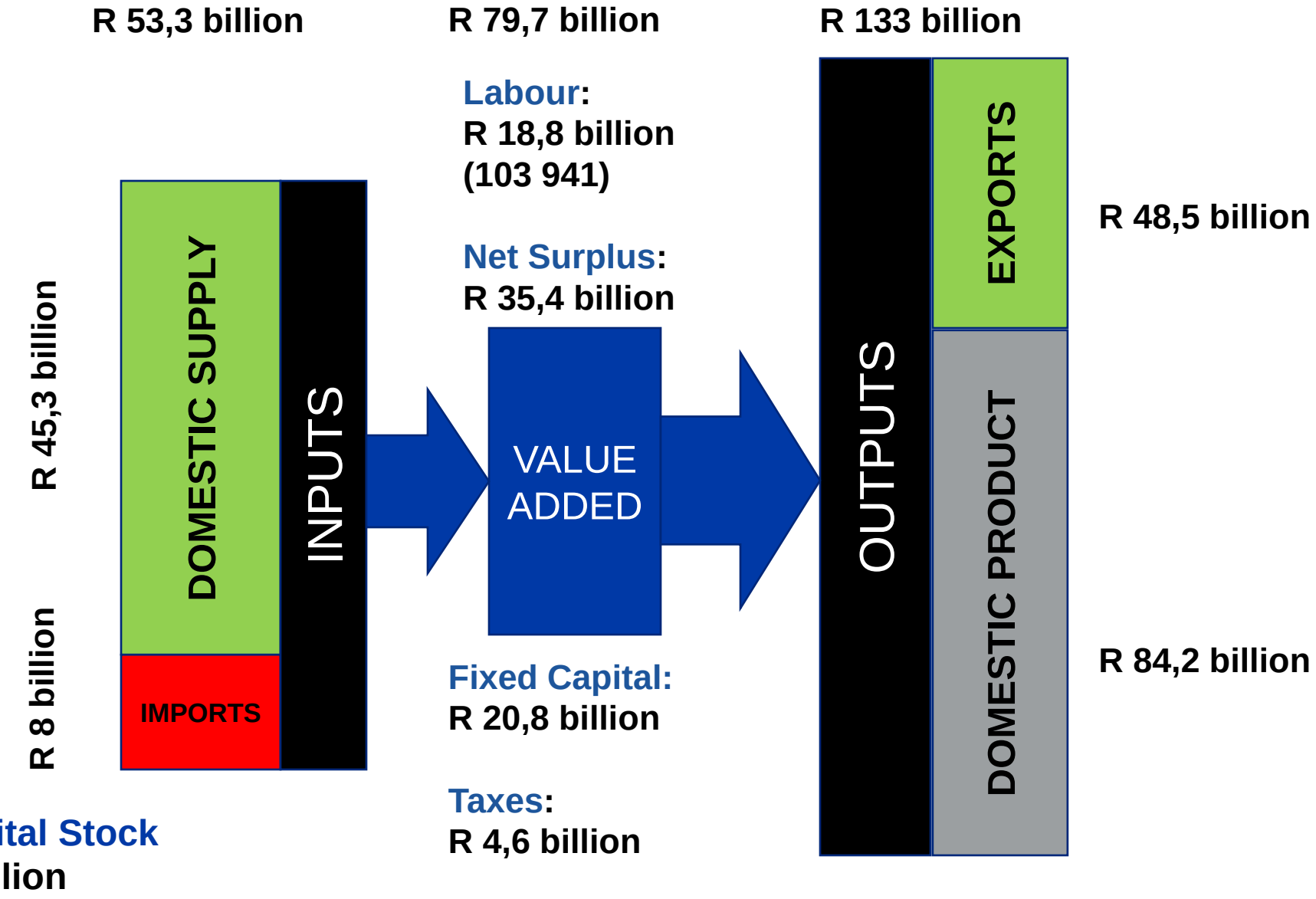


Sources: Statistics South Africa, Minerals Council SA, Quantec

Mining/Electricity “Heartbeats”

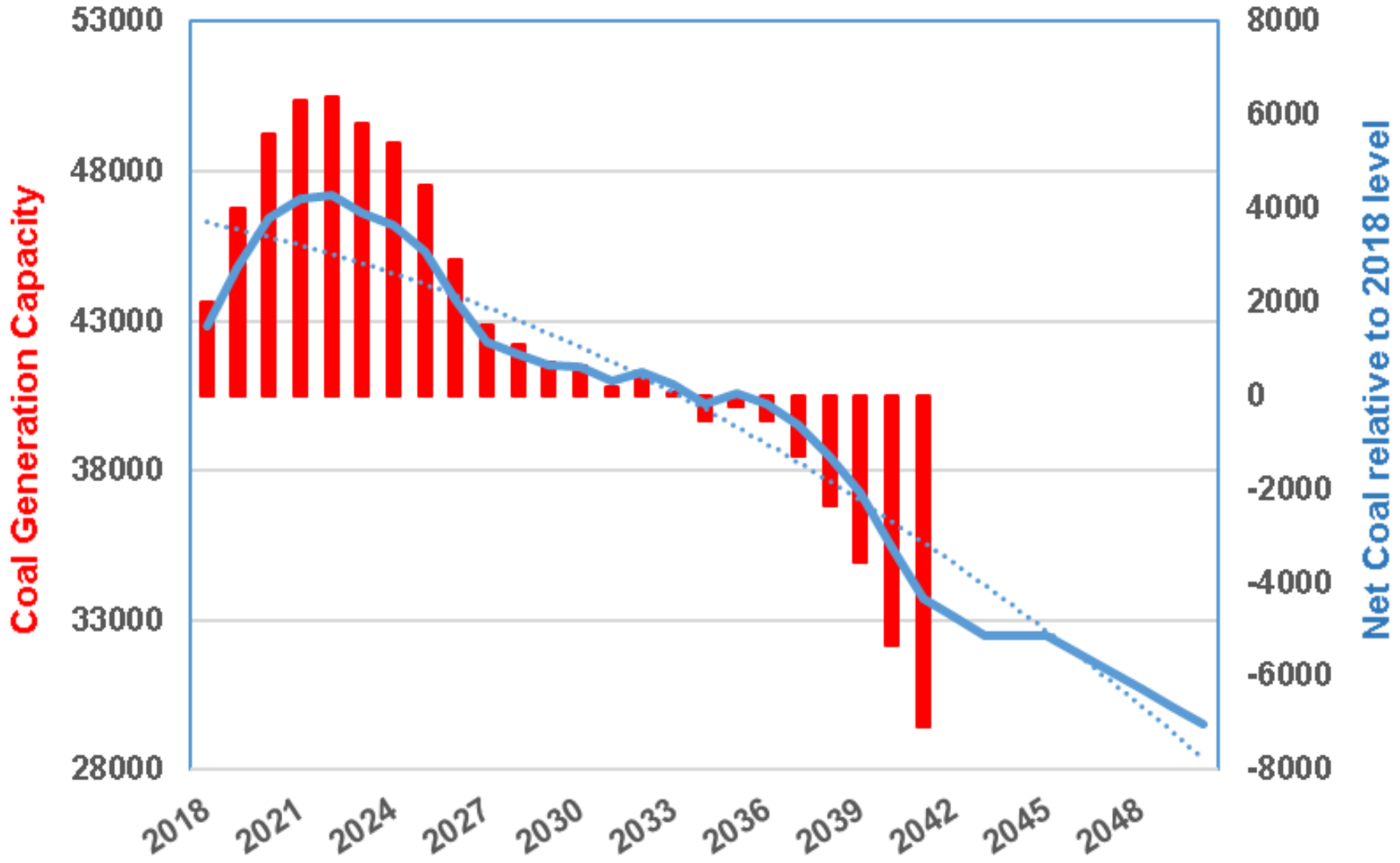


Coal Mining Sector Components: 2020



Fixed Capital Stock
R 170,3 billion

Possible impact on coal mining production



Source: StatsSA Population Census, 2011 / SAIMM

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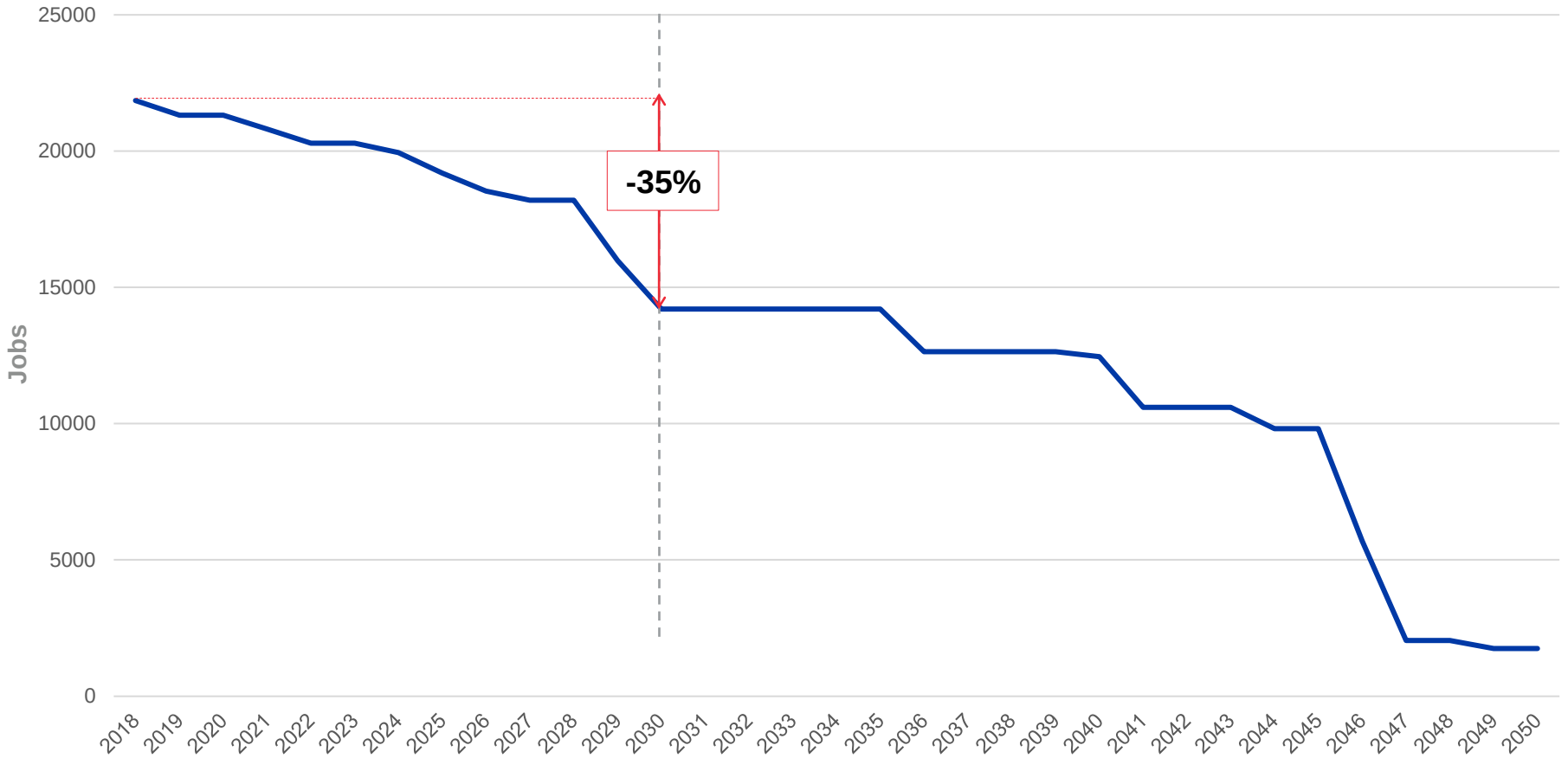
Possible impact on coal mining employment

Employment figures, selected mining companies, 2018-2050



Key Insights

Rate of decline of employment:

- 35% in 12 years (2018 - 2030)
- 92% in 32 years (2018 – 2050)

2018-2030:

- Average of 638 workers exiting employment per year

NB: Job losses projections extrapolated from amount of employees per mine at time of SLP publication and estimated year of closure per mine. Factors such as retrenchment and redeployment plans, new mines opening, job creation programmes, enterprise development interventions, among others will affect these figures.

Source: SLPs (27 mining operations in Mpumalanga) / team analysis

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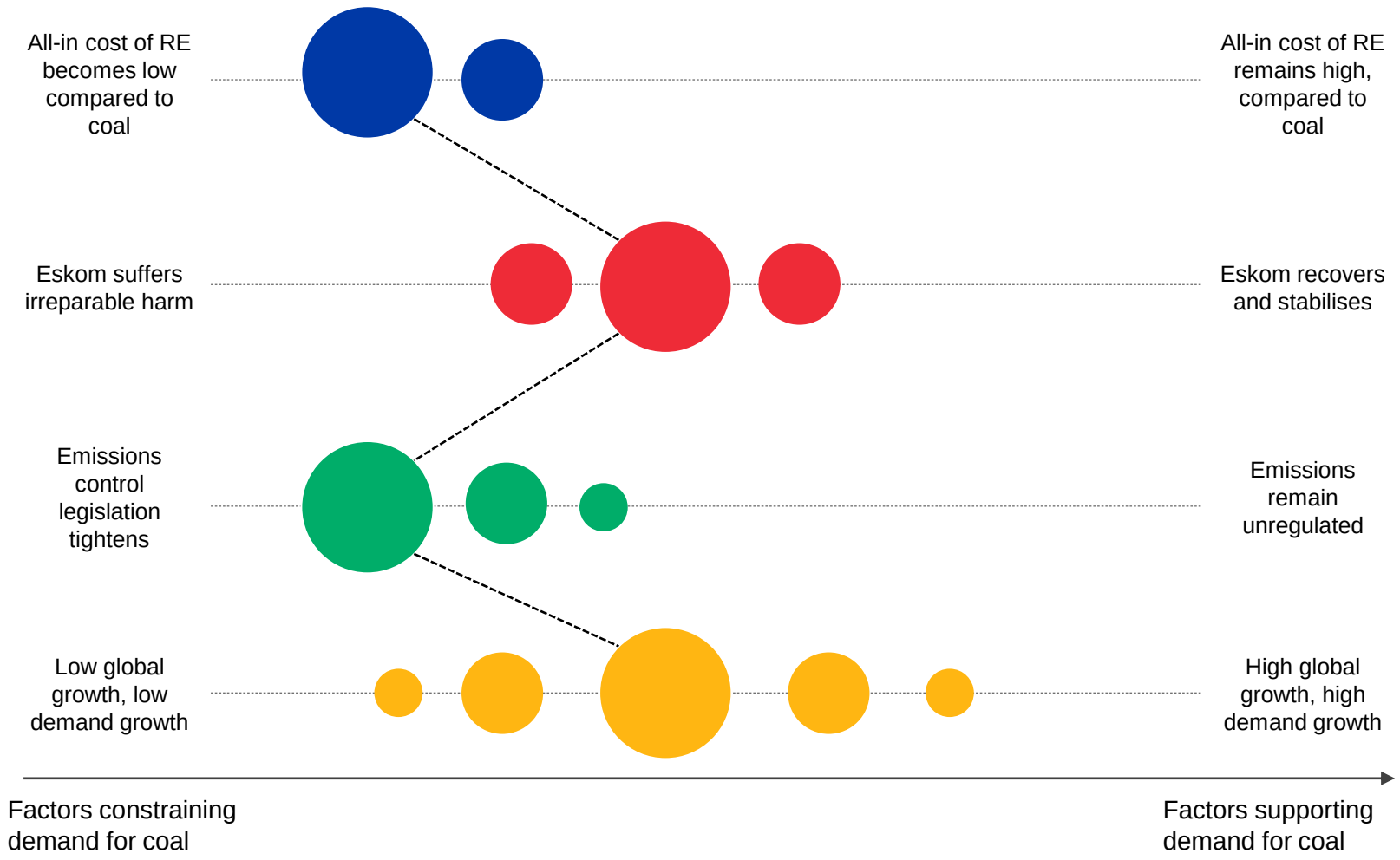
…and many of these come to the same conclusion – it's not looking great

Relative cost of renewable energy

Security of SA power supply

Emissions control legislation

Demand growth



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There is increasing pressure on Minerals Council SA to communicate its position on climate change and the energy transition

Pressures	Nature	Example issues
Conflicting member positions	• Different members have different views, and have made different commitments based on membership or involvement in different groups	• Firms with large international shareholder exposure face pressure to actively move away from coal / fossil-fuels • Firms with assets in new / green economy commodities will see commercial value in driving an energy transition
National actors (PCCC / NBI)	• Minerals Council is involved in conversations with different groups who are driving a decarbonisation agenda that will affect the mining industry	• Decisions that will affect the mining industry are being driven without active, member-backed or data-driven input from the Minerals Council • Minerals Council requires a well-informed and coherent position from which to protect the interests of all members
Third party activities (e.g. activists)	• Pressure from third parties, including communities and other influential non-governmental groups	• Important community and stakeholder groups with interests in the coal value chain have not been provided a credible pathway to protect livelihoods through the transition • Environmental and related groups will place increasing pressure on policymakers
Peer organisations	• Groups such as ICMM and other mining chambers have adopted climate change positions, which may place expectations on the SA industry	• International groups have demonstrated the plausibility of an industry-wide approach, including members that have operations in SA • Driving international interest in the sector may require a more clearly defined, and relatable position, compared to other jurisdictions

A position on climate change can take many different forms, depending on the level of buy-in

Strategic principles	Recognising the issue in SA	Taking a position on the role of mining in CC	Making commitments regarding CC	Development of an action plan to address CC
The guiding principles Minerals Council members have agreed to abide by	**Acknowledging and defining the issues arising from mining related to Climate Change**	**Specifying the role that industry wants to play in the fight against climate change**	**Defining specific goals that the industry wishes to achieve, though without active implementation**	**Creating a very clear and actionable plan that is well-resourced and managed**
• All members subject to the Membership Compact • Three objectives (build trust / transform / partner) • Five core values • Ten principles; in particular: ◦ **Integrate sustainable development** ◦ **Improve environmental performance** ◦ **Encourage responsible use of products** • Strategic Plan (Goals 3&4)	• Minerals Council does not have a comprehensive, consolidated view on what its contribution is across the entire energy value chain and scope of emissions • Social issues and challenges have not been well defined or mapped out • **This means that Minerals Council cannot easily describe its climate-change related state**	• There exist important differences in corporate position based on size, commodity, and ownership structure of different firms • Communities and other stakeholder groups further place expectations on industry actions and responsibility • **Scientifically sound, socially responsive, and commercially sensitive**	• Numerous organisations have individually – or as part of other groups – made commitments regarding Climate Change • Positions are being taken that will create a diversity of approaches over time and fragment the industry approach	• Various groups, including at the policy level, are shaping positions that will directly affect the mining industry (e.g. PCCC / NBI / BUSA) • Minerals Council, while being involved in the conversation, **currently has limited ability to drive the conversation**
• Minerals Council Membership Compact • Minerals Council Strategic Plan	• Revised IRP • Government policy / legal commitments • White papers	• ICMM Position on Climate Change		• Minerals Council Australia Climate Action Plan

Roadmap Innovation and Technology Options

Roadmap innovation and technology options

Extraction
- Hot Hole Management
- Continuous transport
- Mapping of Underground Bord and Pillars

Emission Control
- Carbon Capture and Storage (CCS)
- Oxy-fuel Combustion
- Methane Capture
- High Efficiency, low emissions (HELE) technologies for Eskom

Waste Management and Use
- Valorisation of waste
- Ash use
- Heavy metal filtering
- Circulation fluidised combustion for discard mining
- Heap leaching
- Ash Utilisation for the Production of insulation material
- Production of ash pearls

Rehabilitation
- Biotechnology for Mine Rehabilitation
- Soil Regeneration
- Mine Rehabilitation to Solar Farms

Generation
- In-situ Gasification of Coal
- Waste heat recovery from coal fired power plants

Coal Processing
- Dry Processing
- Shift from washing to scrubbing
- Optical sorting

Social
- Developing better SHE Reskilling and training programs
- Changing the role for unions
- Noise hearing loss reduction
- UV Light Use for Decontamination

General
- Digital technologies
- Incubation Hub

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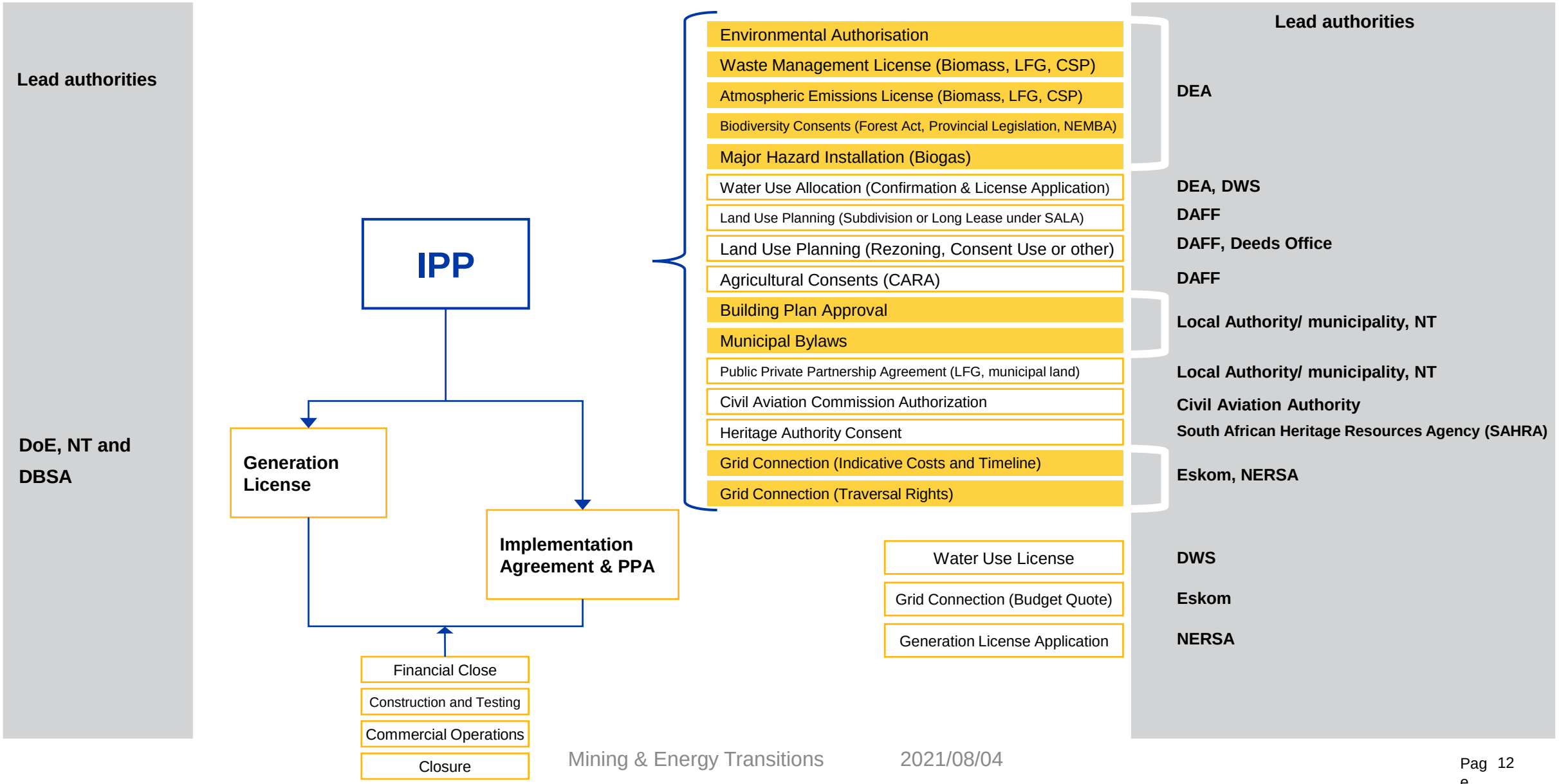
REGULATORY PROCESS TO INVEST IN SELF GENERATION



Initial challenge: 'Foresighting' impacts/Institutional Dilemma

- Policy on reducing emissions has not been translated into consistent actions
  - Even IRP not consistently implemented (e.g. procurement plans, Musina Makhado plant)
  - Carbon pricing and budgets not finalised
  - Result: Unclear planning timeframes
- Governance of the coal value chain is fragmented
- Main regulatory departments do not have mandate to drive just transition

National departments	State-owned agencies	Mpuma-langa and Limpopo	Munici-palities
DMRE: Regulate mining; IRP; electricity market structure; IPP procurement	Eskom: Manage and supply the national grid; transmission lines and purchases from IPPs; pricing subject to NERSA	Promote economic develop-ment vision, but limited resources or powers; manage SEZs	LED, but mostly focused on infrastructure provision; manage municipal budgets and local infrastructure provision
dtic: IDC and incentives; SEZs (Musina Makhado); BBBEE			
DFFE: Emissions targets; regulate pollution; promote just transition	Transnet: Coal transport to ports and power stations		
NT: Subsidies to Eskom; carbon and mining taxes			

Source: TIPS July 2021, PCCCC Inputs

Thank you

04 August 2021
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