



Eskom Just Energy Transition

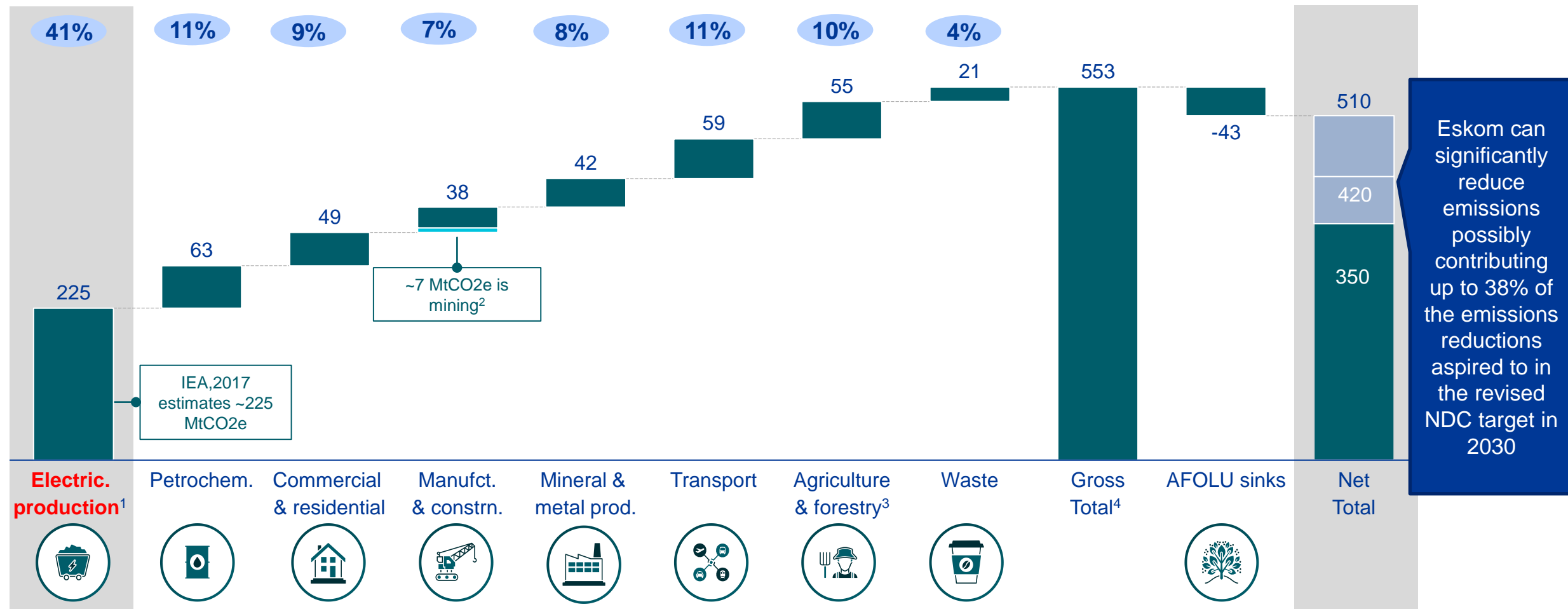
**Accelerating Coal Transition Investment Plan for
South Africa**

25 October 2022

Electricity production accounts for approximately 41% of total carbon emissions in South Africa – this is the quickest and cheapest sector to decarbonise

Overview of emissions in South Africa (MtCO₂e)

XX % of Gross total



. 1. Emission figures based on view of Electricity & Heat Production of which electricity production contributes >97% of emission 2. GHGI does not explicitly state estimate for mining emissions so this has been estimated. Assumed scope 1 emissions share of top 12 companies is same as their market share (80%) and use this to gross up to 100% . 3. Includes fossil fuel combustion for both agriculture and forestry 4. Gross total excludes categories 1A5 as it is not linked to any sectors and 1B1 to avoid the double counting of fugitive emissions from coal mining which are included in the mining sector emissions approximation
Source: GHGI (2017) IEA (2015), WEO (2019), CDP (2015), GHGI (2015), CAT, NBI-BCG Project Team

South Africa faces a uniquely challenging starting point, achieving a Just Energy Transition is critical

1



Carbon intensive economy

Coal accounts for **~84%** of power generation (41% emissions from the electricity sector)

46% of South African exports at risk due to carbon tariffs

29000 annual premature deaths due to poor air quality

2



High unemployment and poverty rates

35% unemployment rate in Q1 2022, **3.5% higher** for women

2019 poverty rate in based on upper middle-income country line¹ was **~58%**

Coal transition **impacts Mpumalanga disproportionately**

3



Gender inequality in economic participation

Ratio of female to male labour force participation was **78%** rate as of 2019

Women earn about **25-35% less** than men in similar employment conditions

4



Capacity and funding shortages

Chronic power shortages and severe load shedding, which hampers growth

Ageing plant with poor availability

Eskom has a weak financial position and faces **~US\$ 22bn debt**

Doing nothing is not an option


The Eskom JET strategy ensures all three elements of a Just Energy Transition are achieved

 **Just:** Do better for people, creating jobs, and reindustrialising

Repowering and repurposing to bring jobs, income and cleaner environments to coal plant communities

 **Energy:** Secure sufficient clean, sustainable energy

SA electricity sector offers lowest cost biggest impact opportunity for unlocking **adequate, least-cost capacity** to provide security of supply

 **Transition:** Accelerating decarbonisation of electricity sector

Replace coal fired capacity with **zero carbon generation** and storage
Securing financial and project **partnerships** to implement JET



Enablers of a Just Energy Transition:

- Unlocking private sector investment
- Grid modernisation and institutionalising electricity markets
- Policy reform to align energy, environmental, industrial and fiscal policy
- Collaboration across government, labour and business

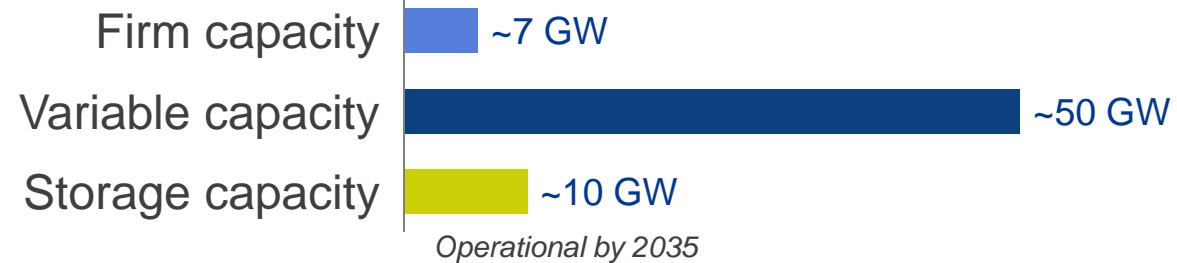
US\$ 70 bn investment in infrastructure will be required by 2035 to deliver on a successful power sector JET

Capacity required

Required to mitigate energy crisis

Estimated cost

Generation capacity



~US\$ 60bn

Transmission capacity

- Expansion and strengthening of transmission network
- ~8 000 km new line
 - ~101 substations

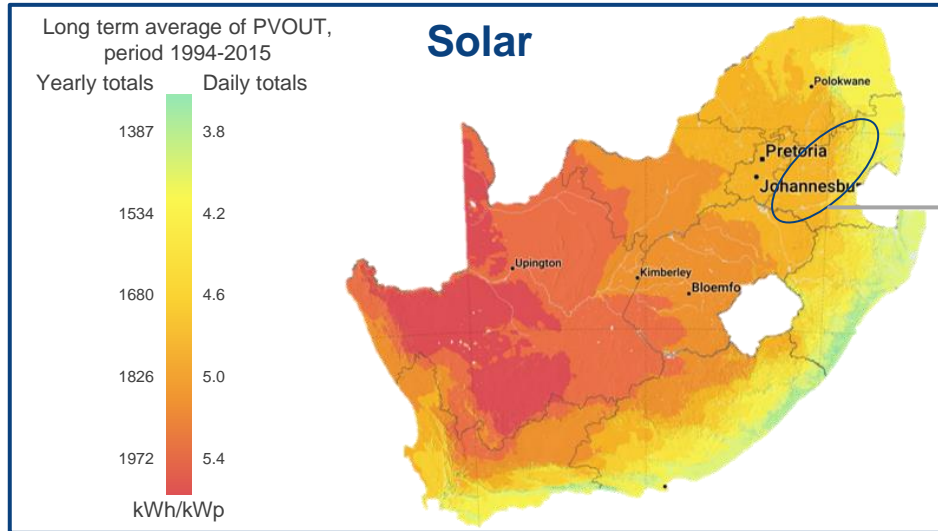
~US\$ 7bn

Distribution capacity

Strengthening of the distribution network for embedded generation ~7 500 km of line

~US\$ 3bn

Mpumalanga has what it takes to become a renewable energy hub, more quickly than anywhere else in SA



1 Resources

- Average **~4.4-4.8 kWh/kWp¹** PV potential
- and average wind speed of **~6-7 m/s²**



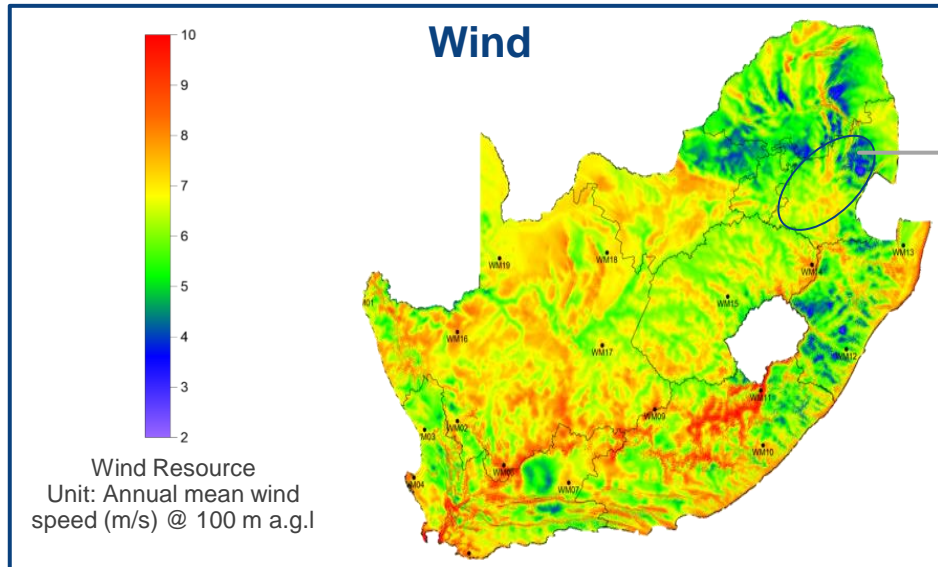
2 Grid Access

Transformer investments will unlock **~5GW** in grid capacity



3 People



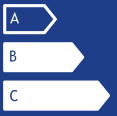
~200 000 people in the labour force that can be reskilled or trained to work in renewables sector



1. Best solar resource in Germany is 3.4kWh/kWp; 2. Best wind resource in Germany is 8.5 m/s
Source: SOLARGIS South Africa Photovoltaic Power Potential; WASA Project – High Resolution Wind Resource Map; SOLARGIS Germany Photovoltaic Power Potential; Global Wind Atlas – Germany; COBENEFITS Study: From coal to renewables in Mpumalanga



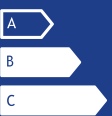
ACT IP consists of three projects that will build momentum for South Africa's coal transition with ACT funding of US\$500m



Projects	Summary of key activities	Total cost (US\$m) ¹	ACT Funding (US\$m)
 Project 1 – Retiring and Replacing Coal-based Power Generation Capacity	Decommissioning of Camden (1.6 GW), Hendrina (2 GW) and Grootvlei (1.2 GW) power stations	150	10
	Installing a total of 658 MW of solar PV, 242 MW of wind, 450 MW of energy storage and 1 synchronous condenser	2 000	230
	Mitigating socioeconomic impact through the transition of Eskom workers, support to enable economic diversification and stakeholder engagement	200	110
 Project 2 – Mpumalanga Community Development Project	Community mobilization and capacity building to enable meaningful participation in decision making and governance Support provincial and local government in developing just transition plans, strengthen governance and institutional capacity Investments in local development schemes and entrepreneurial initiatives that are inline with community priorities	155	100
 Project 3 – Energy Efficiency, Distributed Generation and Community Generation Programs	Development of a Mpumalanga focused EEPBIP to drive energy efficiency projects at a scale that will also create jobs	50	40
	Support and foster public and private investments in distributed generation systems	25	5
	Development of a Community Generation Program with hybrid ownership structures	25	5
Total		2 605	500

1. Total package of US\$2.6bn will need to be co-financed with Multilateral Development Banks – World Bank (WB), International Finance Corporation (IFC), African Development Bank (AfDB) – as well as country counterparts, the private sector and others. The WB continues to lead the development of the Investment Plan with the South African Government, in coordination with IFC and AfDB

Expected outcomes of the IP will support the goal of achieving a Just Transition, particularly in Mpumalanga

Projects	Project Components	Outputs	Expected outcomes
 Project 1 – Retiring and Replacing Coal-based Power Generation Capacity	Decommission Camden, Hendrina, Grootvlei	Coal-based generation capacity retired	GHG emissions reduced by ~71 MtCO ₂ e over lifetime
	Repurposing and capacity replacement	Renewable generation capacity installed Auxiliary infrastructure installed	Renewable generation expanded, by ~900 MW and 450 MW of storage
	Socioeconomic impact mitigation	Coal power station workers re-skilled and re-employed	Sources of income maintained or created
 Project 2 – Mpumalanga Community Development Project	Community Driven Development	Economic regeneration packages in place	Economic diversification
 Project 3 – Energy Efficiency, Distributed Generation and Community Generation Programs	Energy efficiency and distributed generation	Renewable generation capacity installed Energy savings of ~145 GWh/yr	Renewable generation expanded GHG emission reduced, target of ~153 700 tCO ₂ e/year Economic diversification

Deep dive | Gender equality and social inclusion is integrated into the project plan



Targeted indicators

- Share of enterprises led by women and other excluded groups in repurposing supply chains increased
- Share of socially responsible enterprises in reclamation/repurposing supply chains increased
- Negative gender-specific impacts of coal transition mitigated
- Women and vulnerable groups' influence increased through improved leadership and decision-making capacities
- Gender equality and inclusion in retention/redeployment, and social/economic regeneration programs



Additional gender focused activities include:

- Actions to promote female employment (e.g., training for HR, management and women that seek for jobs, capacity building activities)
- Support to women-owned- and youth-led enterprises (e.g., financial literacy, business development services)
- Implementation of preventive measures to mitigate associated incidents or risks

Mitigating actions have been identified for the potential risks



Potential Risks

Implementation risk:

Delays in agreement and implementation across stakeholders

Sector risk:

Structural reform of Eskom might not be completed in time, financial vulnerability of Eskom

Political Risk:

Rising costs of borrowing for investments in new generation
Energy and Industrial policy misaligned to the JET pathway

Contract Risk:

Duration of coal supply contracts with private mines will go beyond retirement schedule of power plants



Mitigation

- Limited number of implementation partners with lead agency for each aspect:
 - Eskom for public sector implementation
 - Provincial economic development agency (Mpumalanga Green Cluster Agency) for most of community-based development activities
 - Private sector for renewables investment
- Public sector commitment to unbundling Eskom
- National Treasury fiscal support to Eskom
- South Africa's private sector has good liquidity in domestic capital
- Abundant land availability for new generation investments
- Policy and regulatory barriers escalated to the Presidency
- Eskom honouring all its supply contracts and redirecting contractual volumes to other plants in its coal fleet

The IP will be executed with close collaboration amongst the implementation partners

National Government partners



forestry, fisheries & the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA



public enterprises

Department:
Public Enterprises
REPUBLIC OF SOUTH AFRICA



national treasury

Department:
National Treasury
REPUBLIC OF SOUTH AFRICA



mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Public Utility



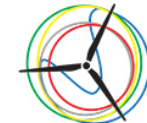
Local Governments and initiatives



MPUMALANGA
PROVINCIAL
GOVERNMENT



Private Sector



SAWEA
South African Wind Energy Association

SAPVIA

IPPs

Commercial Banks

Financial
Intermediaries

Eskom is already unlocking private sector investment in Mpumalanga

Land leasing scheme



31 000 hectares of Eskom land with potential PV capacity of **~7 GW** made available

Strategic infrastructure investments



Eskom makes grid investments that will unlock **17 GW** of grid capacity by 2027

Coal station repowering and repurposing



Repower decommissioned coal plans with renewables and **repurposing** facilities, e.g. Komati R&R Project

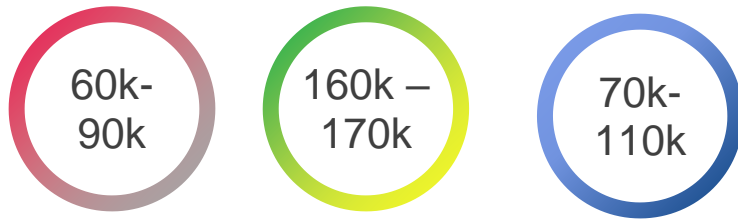
Virtual LV wheeling agreements



Eskom offers **virtual wheeling** agreements to **link renewables producers to end users**

Renewable power will not only meet demand, but create jobs and economic growth while improving the environment

Net jobs created by 2035

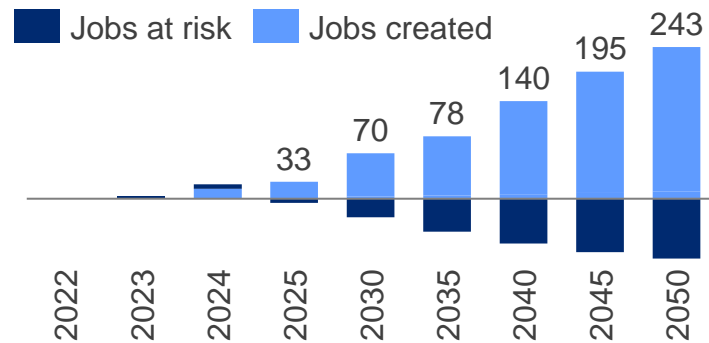


Jobs at risk

Jobs created

Net jobs

Cumulative net jobs created by 2050



Local economy and global competitiveness



Taking advantage of **existing grid capacity** in the region, brings **invaluable investment**



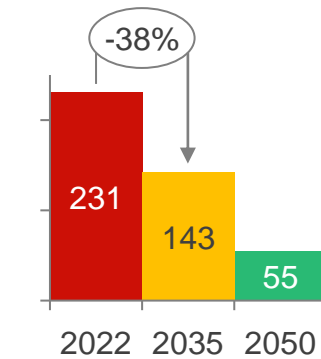
Carbon taxes avoided protecting competitiveness of South African exports and protecting tourism, local manufacturing and trade



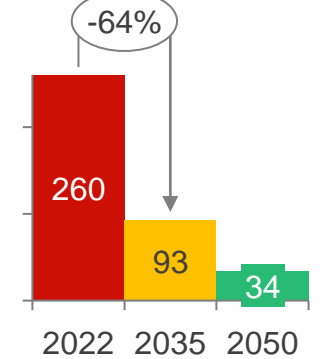
New industries and local manufacturing born from transition due to opportunities in the renewables value chain

Health and environmental improvements

Carbon emission
MtCO2e



Annual water usage
Billion litres



By 2035:

- **Thousands of lives improved as less people fall ill** from air pollution, reduction in energy poverty
- **~50% reduction in CO2, 66% reduction in SO2 emissions; 58% for PM**
- **~170bn litres of water** previously used for power generation can be **made available for agricultural uses**

Eskom will retire 22 GW coal capacity by 2035

SA's JET will RE-Ignite growth, starting with Mpumalanga, the place of the rising sun



RE-Power



~7 GW firm capacity, **~50 GW** renewable capacity and **~10 GW** storage added by 2035



RE-Purposing



Existing facilities used to create **new industries and new jobs**, such as microgrid assemblies and agrivoltaics at Komati



RE-Skill



First new renewables training facility established at Komati Power Station



RE-Empower



280 000 net new permanent jobs to be created nationally, **25 000¹ – 72 000² new jobs** to be created in Mpumalanga



RE-Duce



143 MtCO₂e emissions reduction by 2035, net-zero emissions by 2050 and **~225bn litres** reduction in water use of by 2050

Thank you

