

JUST ENERGY TRANSITION

OPPORTUNITIES FOR A LOW CARBON, SOCIALY INCLUSIVE GROWTH AND LOCAL INDUSTRIALISATION

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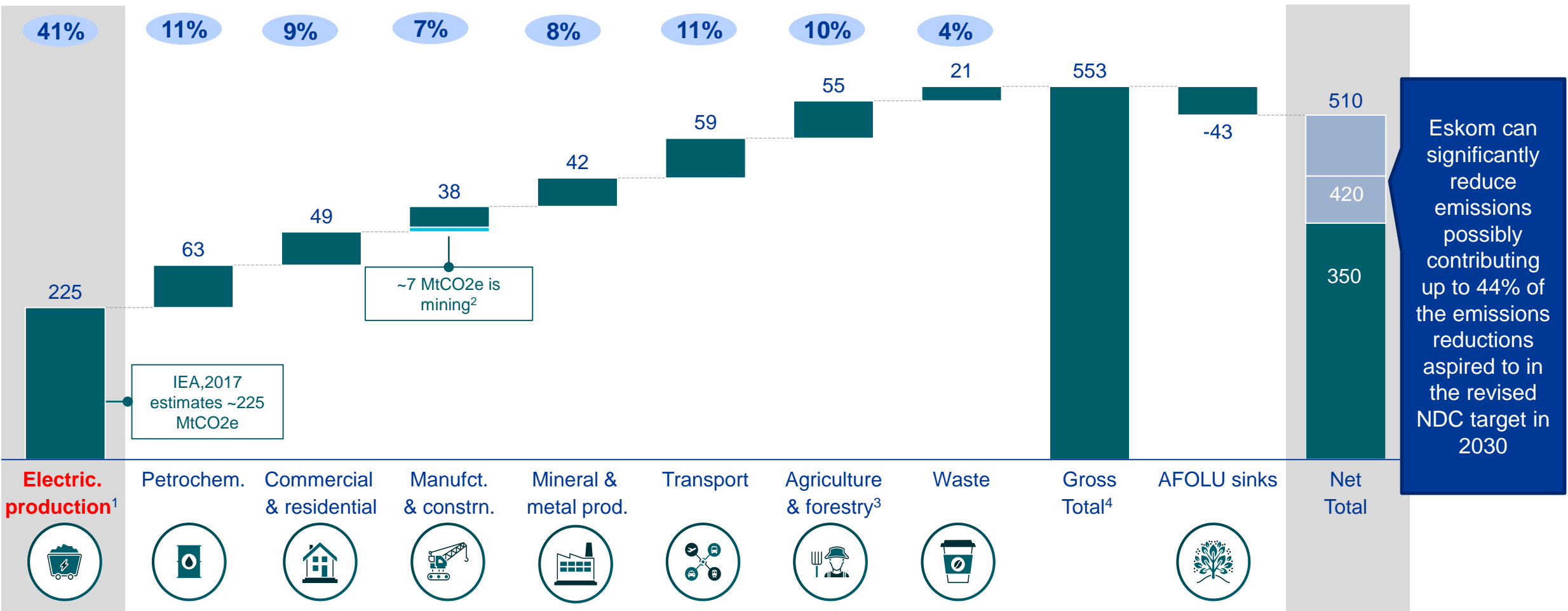


Electricity production accounts for approximately 41% of total carbon emissions in South Africa – this is the quickest and cheapest sector to decarbonise



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

Eskom can therefore drive a Just Energy Transition (JET) to transition the electricity market in a manner that positively impacts society

The JET refers to a **transition towards a low carbon**, climate resilient economy and society in a manner that **does not impede socio-economic development**, but does result in an **increase in sustainable jobs**. The JET is not a sudden shift in economic activity but it occurs in a **phased manner over time**



- **Shut down** requires power station and mine sites to be rehabilitated
- Repowering and Re-purposing provides an avenue to re-use the sites meaningfully,



- Repowering and Re-purposing sites will provide the opportunity for **job creation**
- Communities in surrounding areas will **continue benefiting from economic stimulation** and new job creation



- Potential for partnerships building on the benefits Eskom sites can bring
- Through this create the potential for new revenue streams



- Committed RE build and associated infrastructure will **increase scope for local manufacture and job creation**
- Potential for skills development and **retraining for employees and communities**

The Just Energy Transition is **NOT**

- **An exclusive transition** that seeks to marginalize the majority
- About **meeting global pressures** at the expense of national imperatives
- **Exporting** revenue and jobs

A Just Energy Transition can reignite industrialization in South Africa

Net zero emissions by 2050 with an increase in sustainable jobs underpinned by strategic objectives

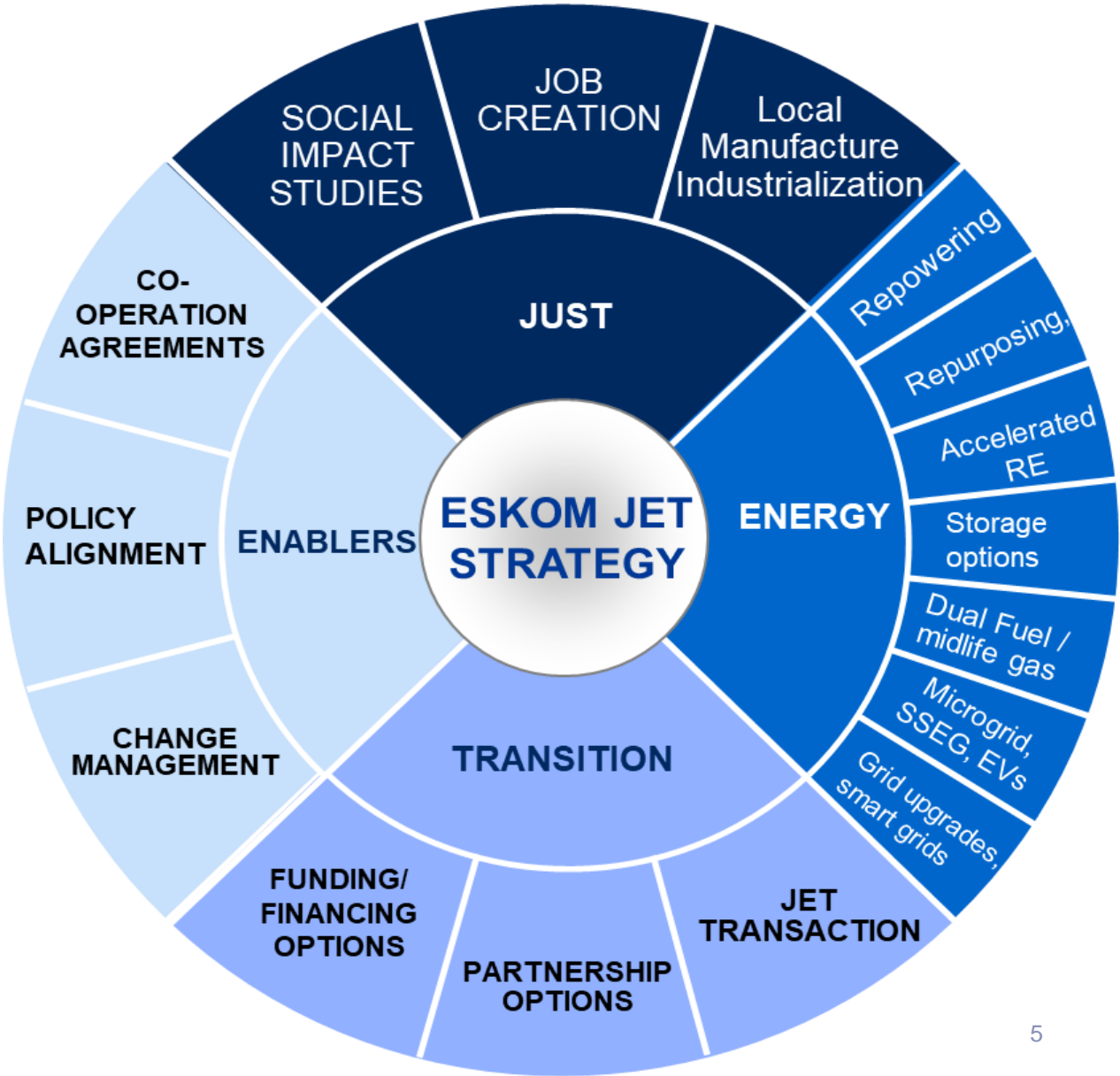






Net zero carbon emissions by 2050

- JET Vision: Net zero carbon emissions by 2050 with an increase in sustainable jobs
- Net zero implies still having residual emissions over the next 30 years, however technological changes could change this rapidly
- Mitigation and adaptation related activities



Net zero carbon emissions by 2050 with an increase in sustainable jobs underpinned by strategic objectives, and an ambitious implementation plan



-  **Just:** *Doing better for people and the planet, Growing localisation and industrialisation*
-  **Energy:** *Cleaner, sustainable electricity provision*
-  **Transition:** *Transformational change of business models, attracting green financing*
-  **Enablers:** *Collaboration across constituencies*

Eskom has identified a pipeline of projects in support of its Just Energy Transition Strategy, that requires substantial financing

Generation

Prioritised capacity opportunities and associated funding required

Project	MW	Cost Estimate ¹ (Rm)	Timing
Komati PV	100,00	2103 - 3155	12-18 months
Komati Gas*	1 000,00	15300	24-48 months
Sere PV	600,00	8323 – 12485	18-48 months
Kleinzee	300,00	5067 – 7601	12-24 months
Aberdeen	200,00	3581 – 5371	24-26 months
Majuba PV	65,00	838 – 1258	12-24 months
Tutuka PV	65,90	845 – 1274	12-18 months
Arnot PV	17,00	222 – 334	12-18 months
Duvha PV	23,50	304 – 456	12-18 months
Lethabo PV	75,00	968 – 1452	12-18 months
Olyvenhouts drift PV	550,00	7700 – 11250	12-18 months
Other wind*	100,00	1992-3500	TBD
Microgrid*	1 400,00	60200	6-12 months
RBay gas*	3 000,00	70000	24-60 months
Komati Battery storage	244 MWh	3360 – 5039	12-18 months
Total funding required		180 809 – 198 975	

Distribution

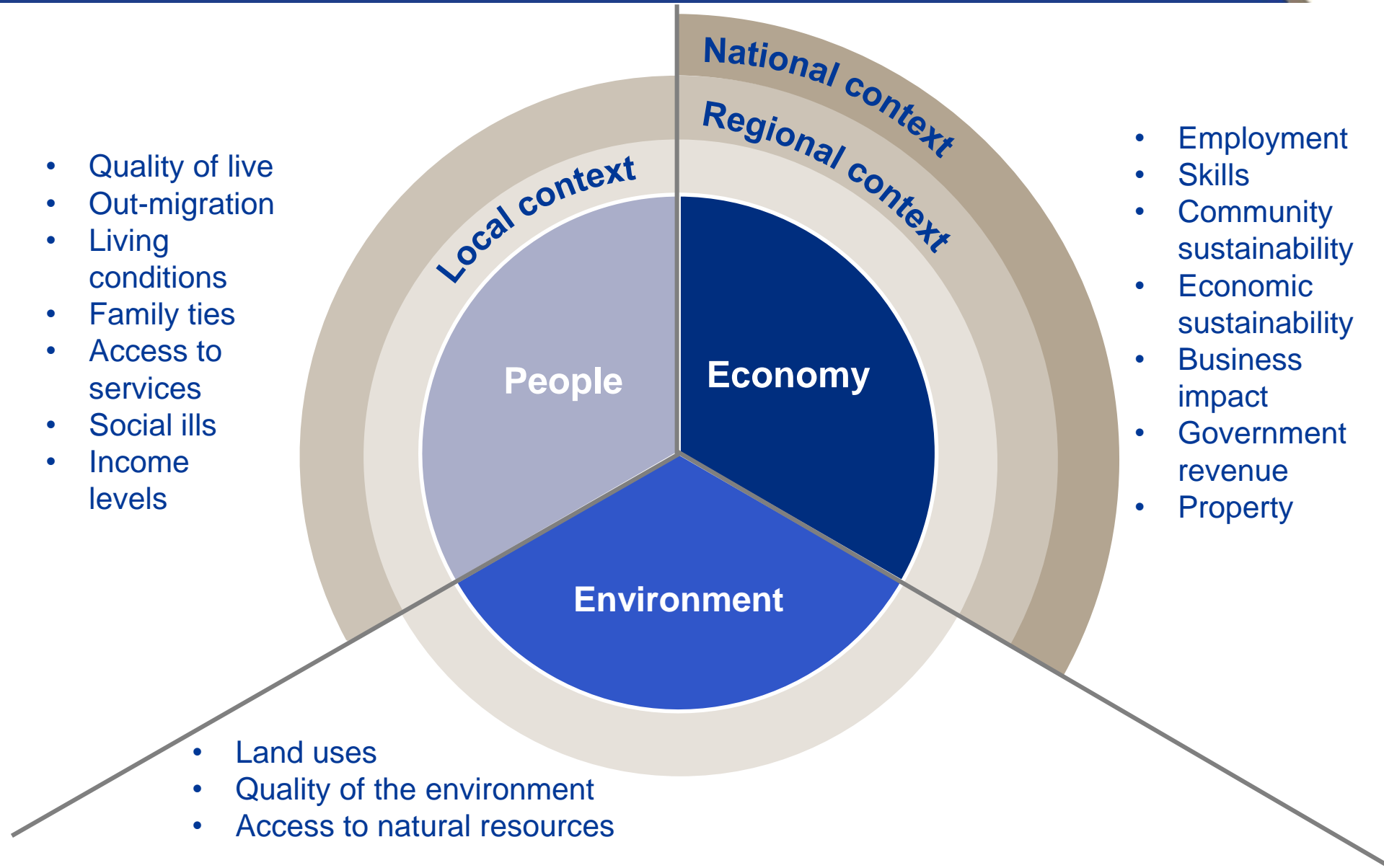
- **Strengthening of critical corridors** on the Distribution grid to enable connections of IPP's, Distributed Energy Resources (DER) (**R30bn**)
- Rollout of **micro grid solutions to electrify 13% of the population (R15bn)** to deliver against government's electrification programme
- Enable **bidirectional energy management and flexibility**, facilitate an inverted energy economy

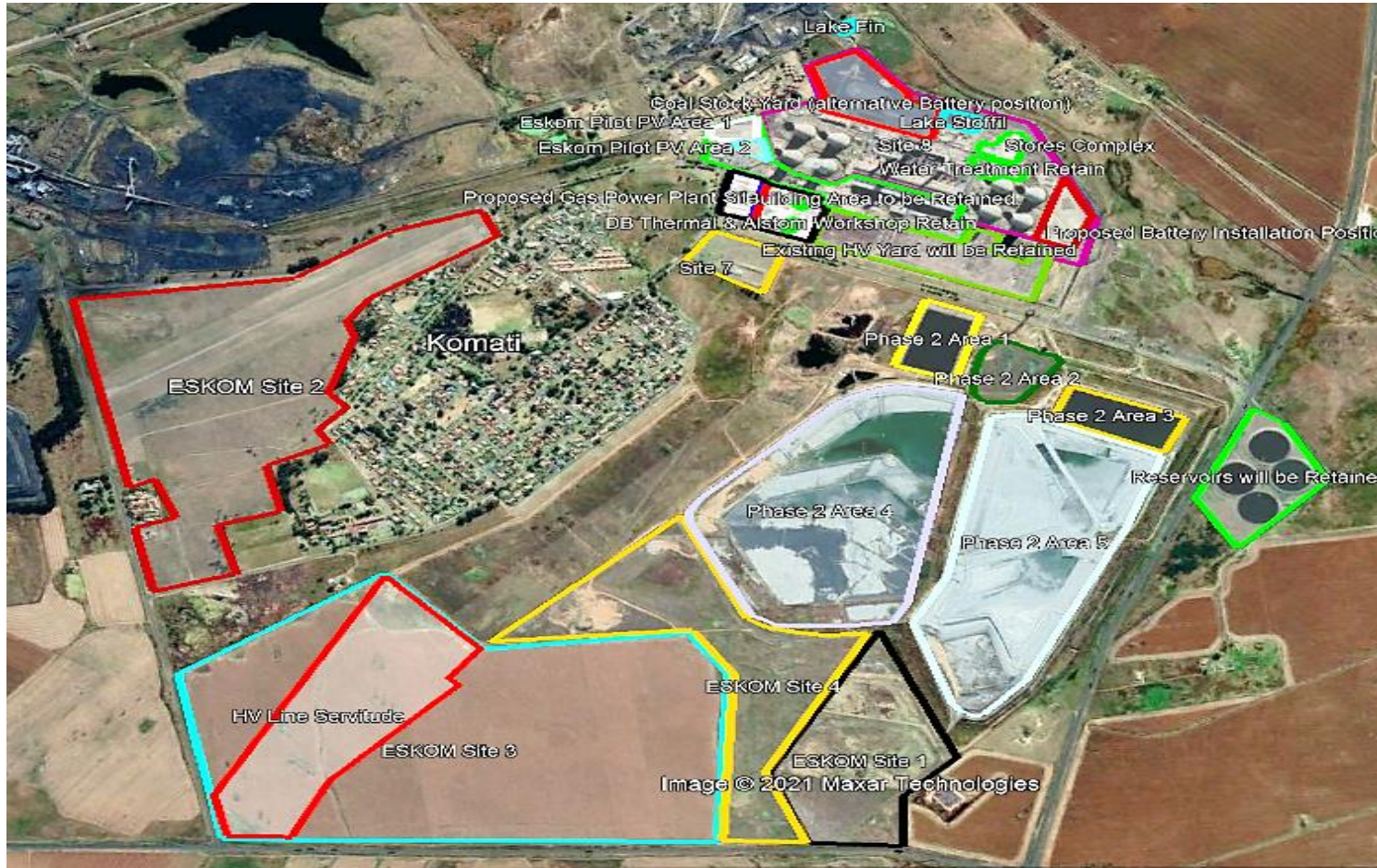
Transmission

- Deliver at least **8000 km of transmission grid (R120bn)** expansion to connect new capacity in line with IRP and accelerated shutdown
- Construct 12 substations across four provinces (Northern Cape, Western Cape, Eastern Cape and Free State)
- Install 110 **transformers** to deliver network strengthening requirements up to 2030

Grid strengthening, in the Northern and Eastern Cape provinces, is a key enabler for the roll-out of new renewable capacity in these areas. Repurposing and repowering will allow for optimisation of grid capacity in Mpumalanga.

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In support of our Just Energy Transition work, we completed socio-economic impact studies for Komati, Grootvlei and Hendrina. Secured funding for seven more studies





Areas suitable for solar arrays, batteries, and possible gas power plan

Independent Assessments of Repowering and Repurposing Potential

1. Repowering Initiatives:

- Solar (~100MWp) + 50MWp Ash Dam
- Battery Storage (600MWh)
- Gas (possible 500MW)
- Wind (50MW)
- SCO

2. Repurposing Initiatives:

- Microgrid Assembly
- AgriVoltaics (500kWp)

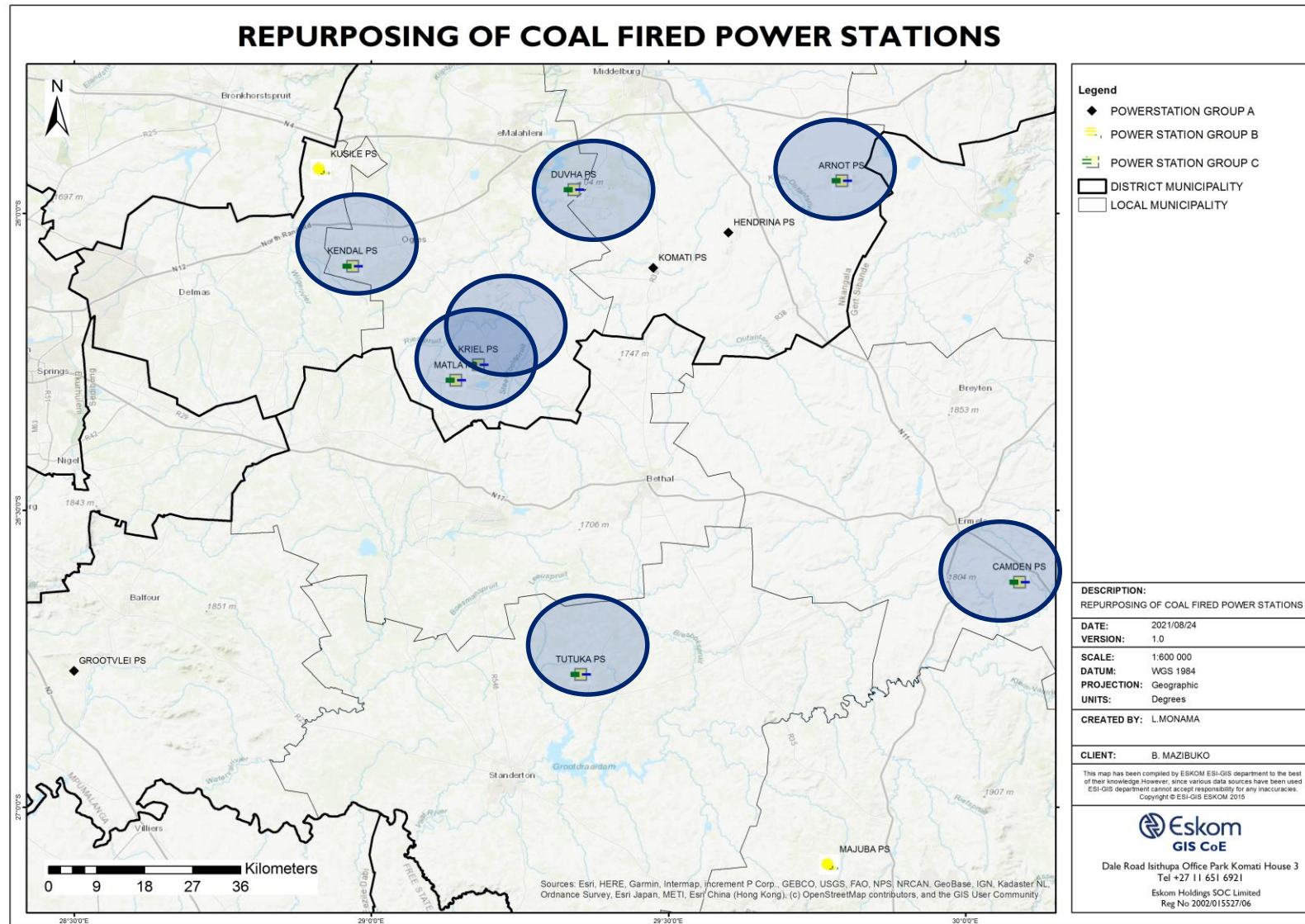
3. RE Training Facility

- Enabling, Empowering, Reskilling, Upskilling
 - ✓ Skills required for long term jobs in the renewables value chain.
 - ✓ Curriculum developed with SAWEA and SAPVIA

4. Additional SEIM Initiatives:

- Enabling, Empowering, Reskilling, Upskilling
 - ✓ Microgrid Assembly
 - ✓ Farming (Aquaponics, Raised beds, etc)
 - ✓ Enterprise Development
 - ✓ SMME Incubator
 - ✓ *Digital Hubs*

Socio-economic assessment for the shutdown, repowering and repurposing of Camden, Arnot, Kriel, Matla, Duvha, Tutuka and Kendal coal-fired power stations



Scope of Work:

- Conducting socio-economic risk assessments to identify social and economic risks, opportunities and benefits for the impacted communities and municipalities
- Consult and engage with affected communities and stakeholders
- Formulating a list of possible mitigation interventions
- Developing a socio-economic management and implementation plan with project profiles
- Compiling the final social plan(s) accompanied by a monitoring and evaluation plan

	Description		Example
	Agriculture and agro-processing	<ul style="list-style-type: none"> Growth and development of agricultural enterprises and agroprocessing for employment creation and improved food security community gardens to employment opportunities for unemployed individuals and food security 	assisting small-scale and emerging farmers, larger scale projects Community garden
	Digital activation of communities	<ul style="list-style-type: none"> Facilitate access to business opportunity's training and the world improve stakeholder engagement as well as community and enterprise development 	Community empowerment 4IR upskill and reskill local labourers
	Skills development	<ul style="list-style-type: none"> Skilling, upskilling and reskilling for the JET, 4IR - the new markets and economies training and skills development needs to contribute towards the employability of individuals equipping community members with the skills to meet the developmental needs- measure and realign skills Career Development Centre for unemployed and unskilled labour. Skilled, unskilled and semiskilled local labour, local post-school education facilities 	Increase the skill base Skills for new technologies and merging markets Equip individuals with technical skills
	SMME development	<ul style="list-style-type: none"> Providing a platform for SA-based suppliers to develop into global suppliers, including a platform for emerging suppliers to develop linking existing businesses to value-adding commercial activities Develop South African based suppliers relevant to the energy sector Sustenance of local business Creation of new jobs in the local area 	Creation of new jobs in the local area promotion of SMMEs and informal traders Sustenance of the economy
	Digital hubs	<ul style="list-style-type: none"> initiative by the DTIC aimed at connecting communities through digital, and ITC provision of skills training, business development support services, access to workspaces, and access to training on cross-cutting skills development facilitate ability to adapt to the 4IR provide the youth and unemployed with several skills inherent to the modern working environment 	Skills training, business development support services, access to workspaces
	CSR projects	<ul style="list-style-type: none"> Supporting the local communities based on social needs Supporting the transition 	Education Health Programmes Early Childhood Development

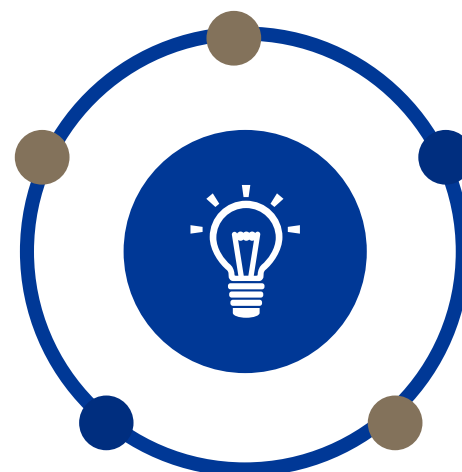
The JET will support and drive implementation of various policies and related frameworks across government

Department of Public Enterprises

In managing the transition, alternative economic activities shall be developed and implemented to economically sustain communities dependent on the power stations and associated coal mines. JET framework for SOCs being developed.

Department of Mineral Resources and Energy

A just transition to a low carbon-emitting economy will be facilitated by integrating various work streams that relate to transitioning to an energy mix as per the IRP2019, with coal being part of it for the next 50 years. DMRE JT framework being developed.



National Planning Commission

A low carbon future is positioned as the only realistic option. This presents potential for innovation around energy systems.

National Treasury

Treasury is seeking to protect the economy and unlock economic opportunities that will enhance the country's ability to adapt to the rapidly changing climate and realise socio-economic benefits from the transition to a lower carbon, greener economy

Department of Environment, Forestry and Fisheries

All policy measures targeting the low carbon transition are aligned with the fulfilment of the country's developmental objectives, which include alleviating poverty and reducing inequality, creating sustainable jobs

The Presidential Climate Commission (PCC)
Will define a Just Transition vision for the country and pursue its implementation

It is crucial, that environmental; fiscal; energy and industrial policies complement and not contradict each other