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TOWARDS A JUST TRANSITION

PCC Recommendations on Electricity Planning and JET-IP

Lephalale Community Consultation – 20 February 2023

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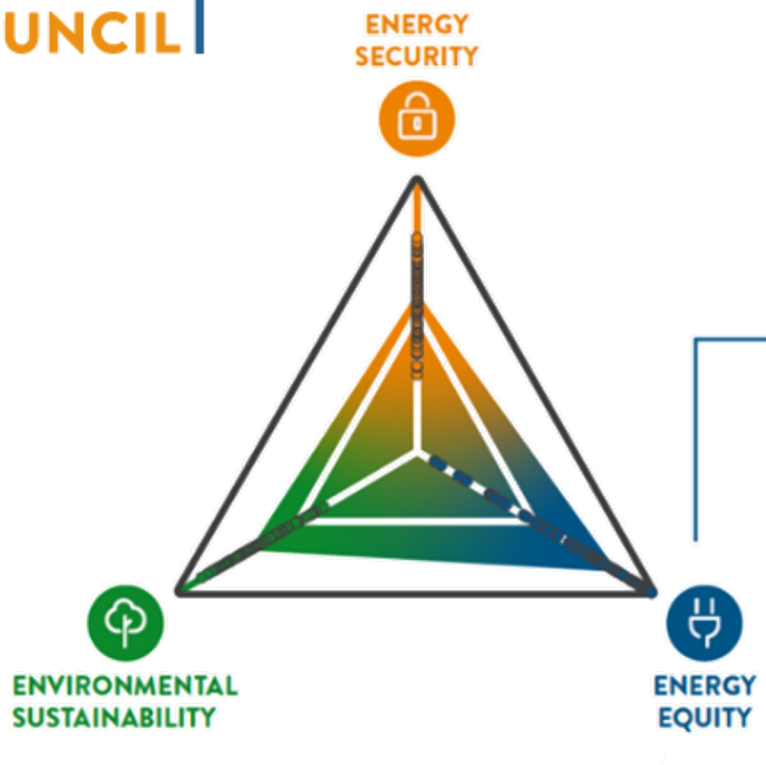
PCC Recommendations on Electricity Planning

Our learning and our preliminary conclusions, for discussion and updating

Evaluation of energy systems must consider energy security, equity and sustainability; as well as just transition elements

WORLD ENERGY COUNCIL



Reflects a nation's capacity to meet current and future energy demand reliably, withstand and bounce back swiftly from system shocks with minimal disruption to supplies.

Reliability and stability

Assesses a country's ability to provide universal access to affordable, fairly priced and abundant energy for domestic and commercial use.

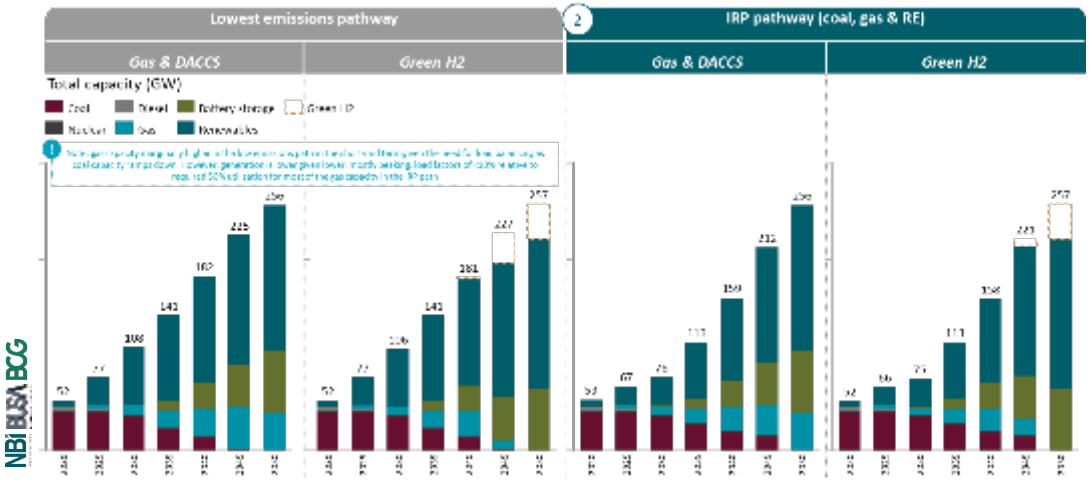
Access, affordability, fair distribution of benefits and costs

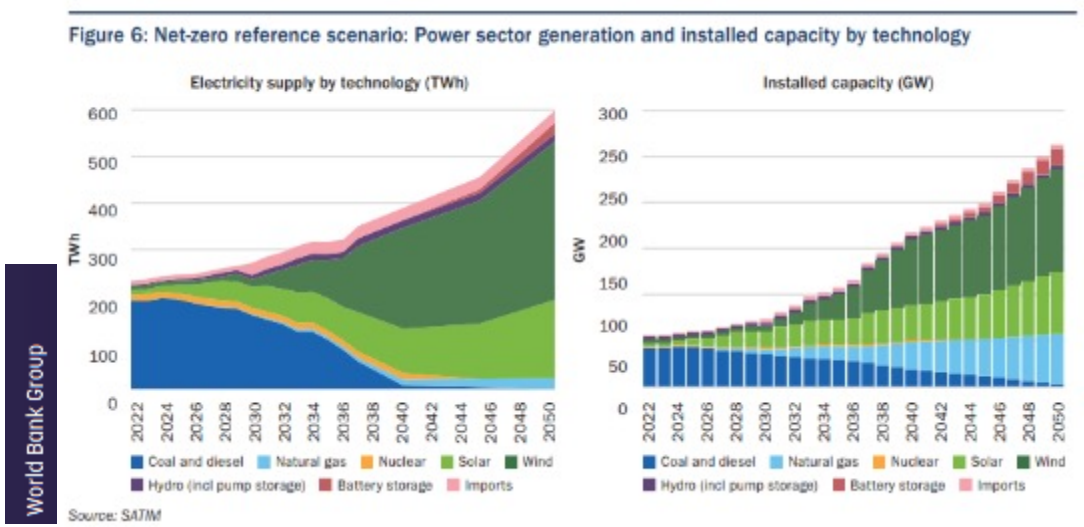
Represents the transition of a country's energy system towards mitigating and avoiding potential environmental harm and climate change impacts.

Climate change, water, and health

There are several local and international, consultative studies that we can draw on

All of which consider the trilemma and conclude similarly, least cost systems are drive by renewables, battery storage and peaking gas





- Massive, urgent investment in renewables
- Urgent investment in the grid
- No new coal or nuclear
- Limited role for gas for peaking
- Investment in storage
- The need to manage inertia and frequency
- Energy efficiency is critical

- Cost is driven by the rate of coal closure

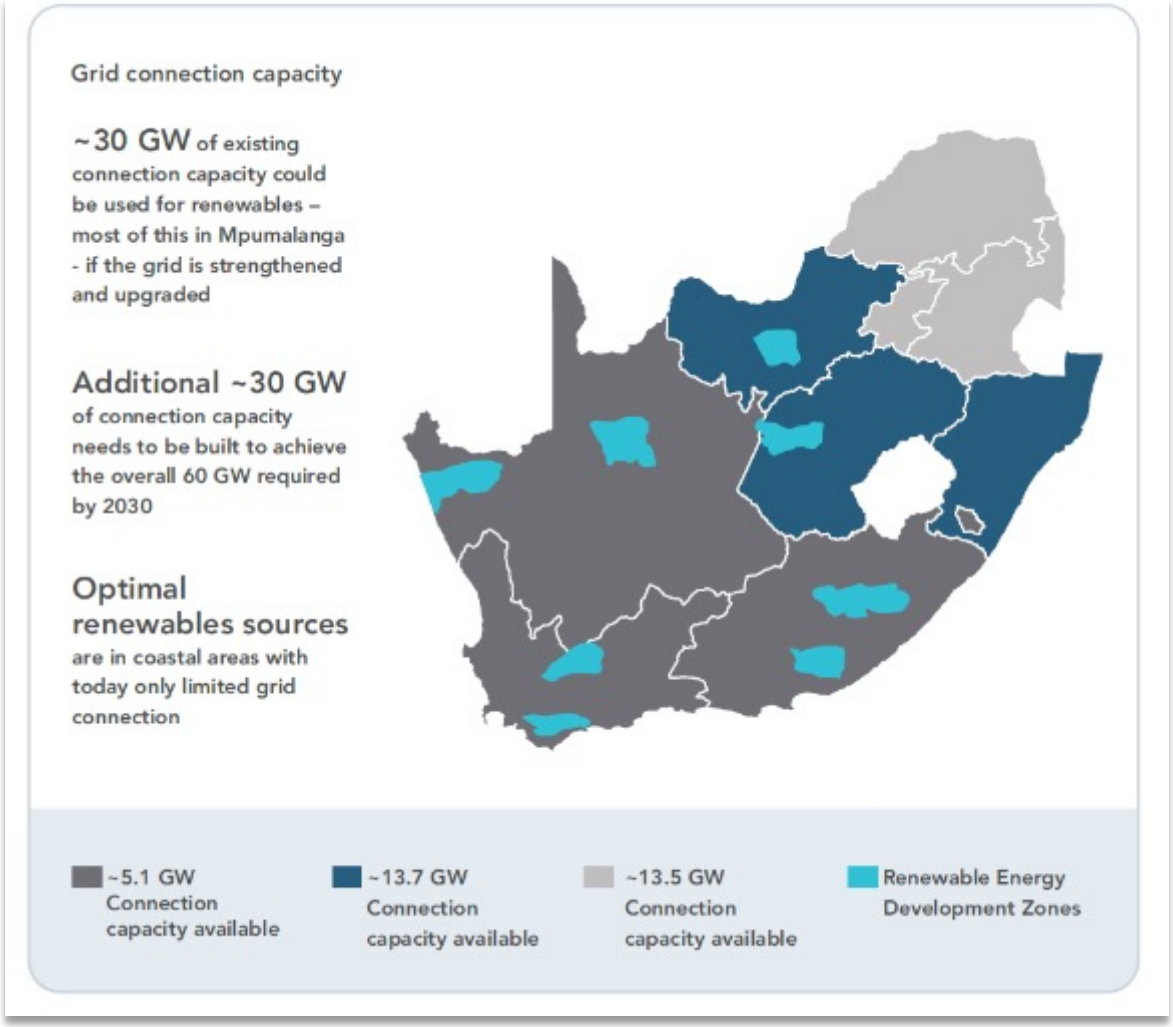
- We should watch technologies like SMR and CCS but they are not yet mature

Across the trilemma categories renewable systems are considered better, or even

		Variable RE Systems	Traditional Systems
ENVIRONMENTAL SUSTAINABILITY	Climate Change	✓	✗
	Water	✓	✗
	Air Quality and Health	✓	✗
ENERGY EQUITY	Access	✓	✗
	Affordability	✓	✗
	Fair distribution of benefits and costs	?	?
ENERGY SECURITY	Reliability	✓	✓
	Stability	✓	✓

There is however a short-term energy crisis that needs to be urgently addressed; short term energy solutions will also be renewables based

The constraint to short-term solutions is grid availability. We need to stimulate renewable investment where grid access is available.



- The efficiency of non-optimal locations in South Africa are still better than that of renewable energy deployment in Europe
- Collocated renewables and storage can maximise the energy output in the short term
- This will require governance reform including transparency on queuing for grid connections
- The advantage of a regional renewable development approach are twofold:
  - Distribution of renewable jobs
  - The ability to create very detailed spatial plans
- Batteries co-located with renewables can flatten congestion on the grid; and batteries in cities and homes can flatten peaking demand

Long term and short-term solutions must both have the Just Transition at their heart

Short Term (2028 to 2030):

- Pricing and social support measures for those most impacted by load shedding and who do not have access to or cannot afford electricity
- Re-skilling and re-training of vulnerable workers
- Provide job opportunities and training for the youth
- Resolving the skills and jobs planning ecosystem challenges
- Build the capacity of local government to support changes in generation and billing
- Job creation through infrastructure investment, including in regions in transition
- Inclusion of black owned business in infrastructure investment and in value chain opportunities
- Repurposing the coal fleet inline with decommissioning schedules

Long Term (post 2030):

- Localisation of manufacturing
- Job Creation outside of power (economic diversification)
- Finding ownership solutions that reduce inequality
- Long term land rehabilitation and re-use

Every effort is needed, we must continue to implement known solutions

Improve EAF as much as possible

- coal contract delivery to spec and remove poor quality coal from system,
- reduce crime and corruption,
- keep to maintenance schedules, enhance quality of maintenance teams
- Consider pilot O&M contract for coal fired power station

Continue work on a Just Transition

- Continue work on Just Transition and build capacity in JT office
- Decommissioning & repurposing of Komati with economic diversification and RE training centre (with SAROTEC)
- Collaboration with Mpumalanga province around economic and industrial development strategy to create a green energy hub
- Work with Mpumalanga stakeholders on economic diversification and jobs planning

Set up independent transmission company and invest in grid expansion

Work with public and private stakeholders to drive Energy Efficiency

Get us much new generation on the grid as possible

- Feed-in tariffs and wheeling
- Private sector generation
- Enable black owned PPAs to develop their opportunities,
- Continue to use available Eskom land
- Collocate batteries with generation to maximize grid utilisation
- Aggregate consumer systems in cities to drive additional generation and storage

Specific Draft Recommendations

The PCC believe that the priority interventions, with the deepest systemic impact, and that are aligned with climate positive outcomes and meet the criteria of the energy trilemma are:

- Develop a short-term spatial plan that maximises grid usage. This should be done in a transparent and public manner providing realistic information to the public about impacts on load shedding.
- Large scale governance reform, including:
  - The establishment of an independent grid operator (ITSMO), responsible for energy planning and adequately capitalise it
  - Making queuing systems for grid access transparent
  - Adjusting the pricing system to be cost reflective and unbundled (separate prices for energy services and power purchased)
  - Set-up day ahead market
- A huge drive on energy efficiency, storage (batteries) and demand side management
- Invest in grid upgrades to support the continuing addition of renewable generation
- Support public, private and household renewable energy generation and storage, including through tariff structures and entrenching the role of cities. This will require policy reform and significant support to municipalities to both implement and to ensure revenue security.
- Ensure measures are implemented to support those most impacted by load shedding and who cannot afford electricity, especially SMMEs. This would include disbursing and improving free basic electricity.
- Support the Just Transition with economic diversification efforts in regions in transition (including accelerating the adoption and implementation of SAREM)

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Thank you and Questions

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JET-IP Consultation Presentation

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SOUTH AFRICA'S JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP) 2023-2027

SOUTH AFRICA'S JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP) 2023-2027

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Approach to Just Energy Transition investment planning

- South Africa faces **serious climate risks**: physical impacts of climate change, the carbon intensive nature of our economy, and the risks of not managing a low carbon transition in an orderly way that supports affected workers, communities, and industries.
- South Africa is in the early stages of a move from a **high-carbon economy to a net zero economy** by 2050.
- The **phased energy transition** will be well-researched, well-managed, and structured to address the challenges of poverty, inequality, unemployment, and economic exclusion.
- This is a '**whole of society**' transition and will involve all sectors of society.
- The establishment of the Presidential Climate Commission (PCC) and its Just Transition Framework has created that basis for **social partners to align** around the just energy transition.
- In submitting an ambitious updated Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC) in 2021, South Africa raised the question of how its climate action could be **supported by the international community** in keeping with the Paris Agreement.
- The JET IP sets out South Africa's **scale of need and financing options** between 2023 and 2027 to decarbonise the economy at the rate that would be required to meet its NDC targets.

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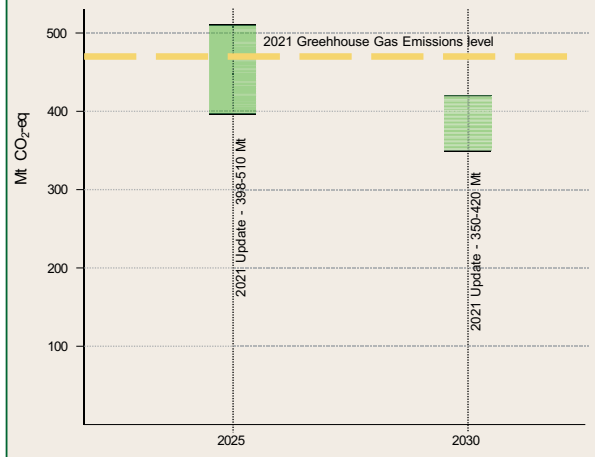
Building a pathway towards a low carbon and climate resilient society

To decarbonise the economy to within the target range by 2030

350-420 Mt CO_2 eq



requires initial funding of

~ ZAR 1.5 trillion over five years 2023-2027

from multiple sources

- Developed countries
- Private sector investors
- Development Finance Institutions
- Government
- Philanthropies
- Multilateral Development Banks

in three priority sectors

- **Electricity**
- **New Energy Vehicles**
- **Green Hydrogen**

and two cross-cutting areas

- **Skills development**
- **Municipalities**

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through a Just Energy Transition that

- Protects vulnerable workers and communities
- Builds energy security
- Expands energy access
- Promotes industrial development
- Drives innovation
- Develops sustainable livelihoods
- Enables economic diversification
- Spurs inclusive economic growth

in alignment with South Africa's

- National Development Plan
- Just Transition Framework

SOUTH AFRICA'S JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP) 2023-2027

Funding requirements 2023–2027	ZAR billion (US$ billion)
Electricity Sector	711.4 (47.2)
New Energy Vehicle (NEV) Sector	128.1 (8.5)
Green Hydrogen (GH_2) Sector	319.0 (21.2)
Skills development	2.7 (0.18)
Municipal capacity	319.1 (21.3)
TOTAL	**1 480 (98.7)**

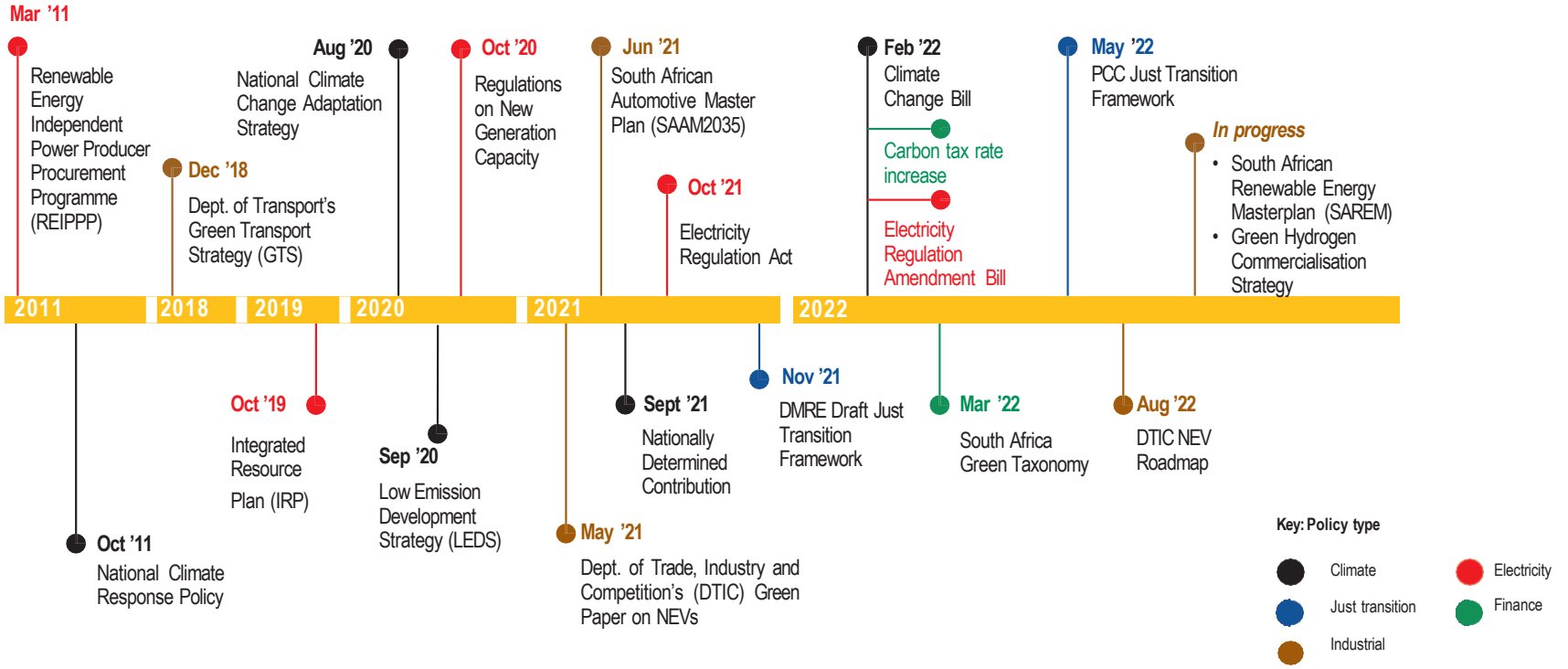
Achieving the JET IP outcomes is dependent on the scale and nature of financial support that South Africa can secure from the international community to complement domestic resources. At the 26th Conference of the Parties (COP) in 2021, a Just Energy Transition Partnership (JETP) was forged with France, Germany, United Kingdom, the European Union, and the United States (forming the International Partners Group [IPG]) in which the IPG undertook to mobilise US$8.5 billion over five years to support South Africa's just energy transition. The initial IPG offer of US$8.5 billion is thus a catalytic contribution towards addressing the JET IP priorities.

The JET IP is an invitation to international and local investors and donors to partner with South Africa on its just energy transition journey.

SOUTH AFRICA'S JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP) 2023-2027

SOUTH AFRICA'S ENABLING POLICY ENVIRONMENT FOR THE JET IP

The enabling policy, institutional, and regulatory framework for climate-related investments in mitigation, adaptation and a just energy transition demonstrates South Africa's resolve to fundamentally restructure the electricity sector, address energy insecruity and energy poverty, and build human capital for a new energy economy.



SOUTH AFRICA'S JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP) 2023-2027

JET IP PRIORITIES 2023-2027

National electricity sector's infrastructure investment needs	ZAR billion
Coal plant decommissioning	4.1
Transmission	131.8
Distribution	13.8
New solar photovoltaic (PV)	233.2
New wind	241.7
New batteries	23.1
TOTAL	**647.7**

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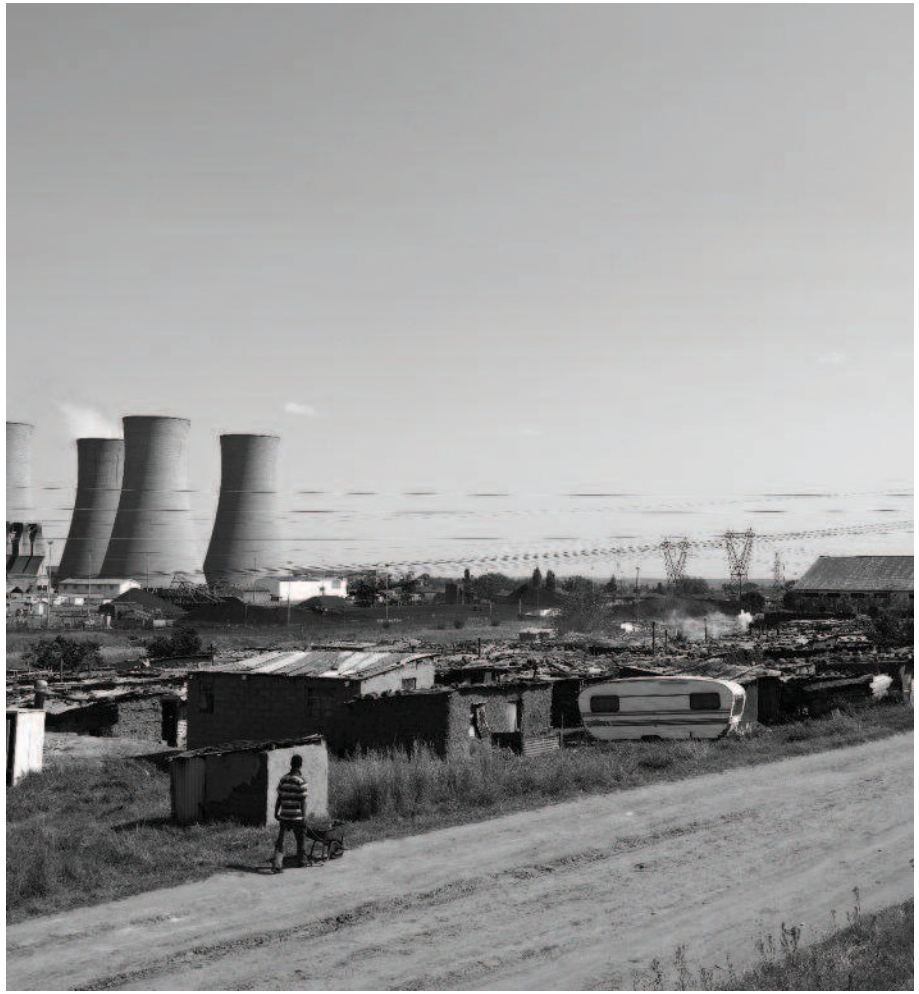

Mpumalanga's just transition investment needs	ZAR billion
Repurposing coal plants	3.4
Repurposing coal mining land	13
Improving infrastructure for development	12.3
Diversifying local economies	24
Caring for the coal workforce	5.6
Investing in youth and preparing future generations for the transition	0.75
Planning for success	0.3
Instituting policies for post-mining redevelopment	0.05
Building capacity for success	1
TOTAL	**60.4**

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Electricity sector's just transition investment needs	ZAR billion
Manufacturing and localising the clean energy value chain	1.60
Piloting social ownership models	1.65
TOTAL	**3.25**

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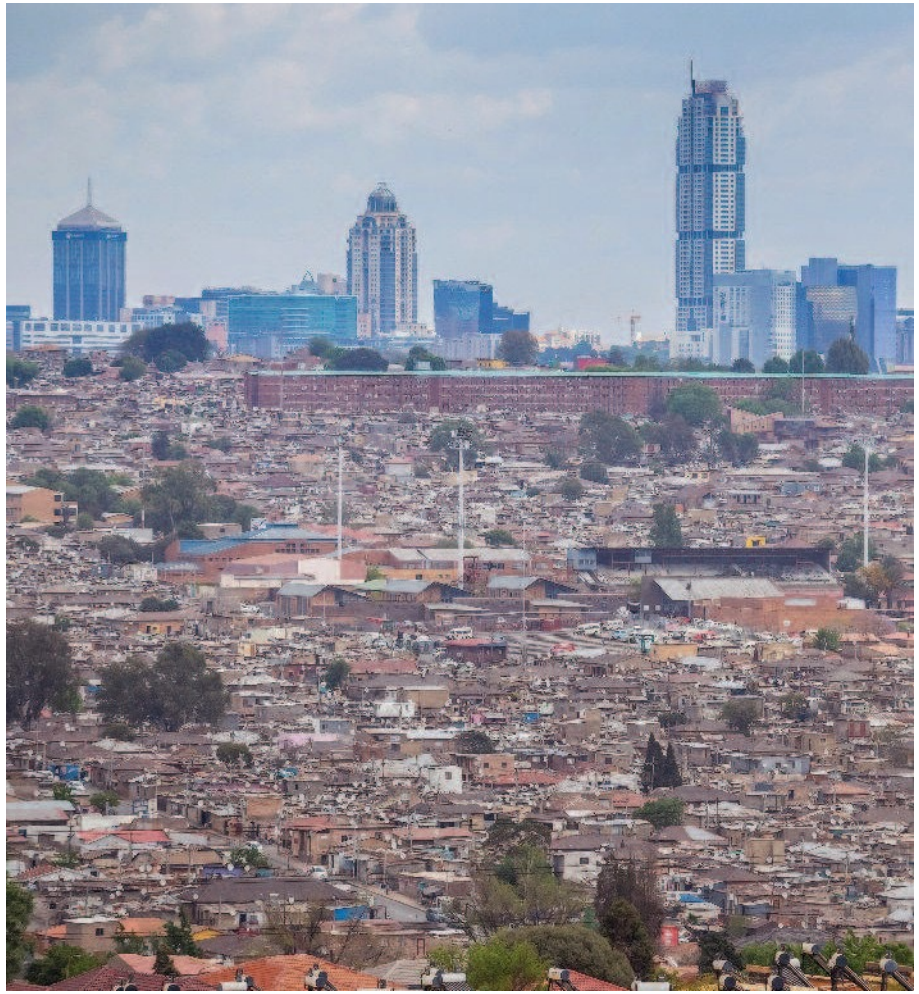

Municipal investment needs	ZAR billion
Infrastructure: Distribution maintenance	200
Infrastructure: Distribution modernisation for NEVs	73
Infrastructure: Electrification backlog	45
Operational: Demand-side management	0.5
Operational: Energy access design	0.1
Capability and capacity	0.23
Collective planning	0.03
Municipal revenue modelling	0.2
TOTAL	**319.1**

SOUTH AFRICA'S JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP) 2023-2027

NEV sector's investment needs	ZAR billion
Industrial development and innovation	41.4
Public transport	6.1
Mobility emissions abatement	6.8
Early adoption and innovation	1.8
Technical assistance	1.6
NEV deployment support	70.4
TOTAL	**128.1**

SOUTH AFRICA'S JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP) 2023-2027

GH_2 Sector investment needs	ZAR billion
Project Feasibility costs	
Aviation Fuel	0.10
e-methanol	0.12
Fuel Cell	0.16
GH and Green Ammonia	3.70
Green Steel	0.20
Hydrogen Mobility	0.10
Infrastructure	0.13
Subtotal	**4.51**

GH_2 Sector investment needs	ZAR billion
Capital costs (for above projects)	
Aviation Fuel	8.00
e-methanol	12.00
Fuel Cell	1.40
GH and Green Ammonia	109.30
Green Steel	13.20
Hydrogen Mobility	6.60
Infrastructure	13.00
Subtotal	**163.50**

GH_2 Sector investment needs	ZAR billion
Port project development	1.00
Port infrastructure capital	150.00
Subtotal	**151.00**

TOTAL	**319.01**

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Skills development investment needs	ZAR billion
Skills hub/platform for JET and the Future of Work (high-level coordination)	0.05
Pilot Skills Development Zones in Mpumalanga, Eastern Cape, Northern Cape	1.6
Mobilise allocations to JET from existing public and private post-school education and training (PSET) funding per annum	1
TOTAL	**2.65**

FINANCING THE JET IP

The following principles guide the quality of finance that South Africa is seeking for the JET IP:

- Finance should follow **UNFCCC principles for developed countries support to developing countries**
- Finance should be **additional to existing climate and development commitments**
- Financing instruments should **reflect South Africa's unique needs** as reflected in the JET IP
- Financing of the **just transition components should be mainstreamed**
- **Sovereign debt terms should be more attractive** than could be secured in the capital markets
- Finance flows from partner countries should be **predictable and certain**
- Finance should be **channelled through institutions best placed** to manage them
- Partnerships with the private sector should **foster appropriate risk sharing**
- **Governance and safeguards** must be in place.

The success of the JET IP will depend on the scale and availability of concessional finance, including grants. Limited public finance must be strategically deployed to mobilise larger volumes of financing, particularly from the private sector and institutional investors. The overall indicative funding gap for the JET IP over five years is approximately ZAR 700 billion (44%).

SOUTH AFRICA'S JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP) 2023-2027

The IPG US$8.5bn offer comprises grants, concessional and commercial loans, and guarantee instruments, contributing to approximately 12% of South Africa's JET IP funding needs for the period.

Sources and financing instruments of the IPG offer

US$ millions	Grants / TA	Concessional Loans	Commercial Loans	Guarantees	Total (source)
CIF/ACT ($500m to leverage an additional $2.1bn)	50	2 555	0	0	**2 605**
European Union – EIB	35	1 000	0	0	**1 035**
France	2.5	1 000	0	0	**1 002.5**
Germany	198	770	0	0	**968**
United Kingdom	24	0	500	1 300	**1 824**
United States[141]	20.15	0	1 000	0	**1 020.15**
Total (instrument)	**329.7**	**5 325**	**1 500**	**1 300**	**8 455**

SOUTH AFRICA'S JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP) 2023-2027

Features of the JET IP implementation

	Ministerial oversight, governance and political coordination.
	National government oversight, coordination of the country-wide JET IP to update national plans, mobilise ongoing financing, and monitor and report national results.
	Institution-specific funding agreements between the providers of finance and implementing institutions.
	National Treasury-managed sovereign loan agreements with providers of finance.
	National intermediary institutions (for example DBSA, IDC) managing disbursements of capital from providers of finance to municipalities, private companies, and non-governmental organisations.
	Community-level governance and trade union structures for ongoing needs identification, visibility of projects progress, monitoring, and learning; and social partner organisations playing intermediary roles in social support investments.
	Private sector investors in renewable energy infrastructure, just energy transition social support, NEVs, and GH2 will also contribute to national results monitoring.

SOUTH AFRICA'S JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP) 2023-2027

Strong governance arrangements

to ensure leadership, oversight, transparency, safeguards, and accountability

Robust management arrangements

for planning, performance, reporting, and communications, at various locations of the JET IP delivery

Monitoring, Evaluation & Learning Framework

for the measurement of success and continuous improvement

Risk Management Framework

for identifying potential risks and implementing mitigation measures to reduce material risks to the JET IP

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Find the JET IP on www.thepresidency.gov.za