OPEN: POLICY

NDCs, Critical Minerals & Climate Justice Series

SOUTH AFRICA: NATIONALLY DETERMINED CONTRIBUTION, CRITICAL MINERALS AND JUST ENERGY TRANSITION

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INTRODUCTION

From recent severe weather characterised by storms, floods, acute water scarcity, and related loss and damage in infrastructure and livelihoods, the reality of South Africa being a climate-vulnerable country has dawned. Meanwhile, South Africa continues to emit the highest levels of carbon in Africa.[1]

The country ranks as number 12 greenhouse gas (GHG) emitter globally, and first in Africa. South Africa has an industrialised economy that is heavily dependent on fossil fuels and trade in mineral commodities Thee key polluting sectors in South Africa are energy, transport, agriculture, mining, and industry. This is why South Africa's climate action strategy attracts interest, in particular the level of ambition of its nationally determined contribution[2] (NDC) submitted to the UN Framework Convention on Climate Change (UNFCCC). South Africa's current NDC commits the country to reducing its GHG emissions by 398-510 Mt CO2e (CO2 or equivalent) by 2025, and by a further 350-420 Mt by 2030.[3]

This brief reflects on the NDC in the context of transition minerals that are critical for the manufacture of renewable energy resources and the notion of just energy transition.

South Africa's NDC and Key Sectors

To combat climate change, the government of South Africa has developed several sectoral policies and plans to support the implementation of its NDC in climate mitigation and adaptation. For South Africa's energy transition, its Integrated Resource Plan (IRP) is a key strategy to deliver on its decarbonisation agenda.

SA SECTORS

ENERGY

- Relied heavily on coal for electricity generation
- High carbon emissions and air pollution
- Also renewables wind, solar, and hydroelectric
- Frequent load shedding, significant issue in South Africa affecting various sectors of the economy
- Policy shifts and regulatory changes are expected to shape the future of this sector

INDUSTRIAL PROCESSES AND PRODUCT USE

- Significant impact on the country's economy
- Manufacturing, mining, and other industries
- High emissions of air pollutants
- High reliance on fossil fuels
- High costs of reducing emissions

AGRICULTURE, FORESTRY AND OTHER LAND USE

- Land degradation, deforestation,
- Contributor to GHG emissions
- Vulnerable to climate change
- Vvulnerable to climate change, with rising temperatures and changing rainfall patterns impacting crop yields and livestock productivity

WASTE

- Dominated by landfilling, which produces methane, a potent GHG
- High levels of waste generation
- Low levels of waste recycling and composting
- High costs of waste management
- Environmental pollution

In the context of the global energy transition from fossil fuels to renewable energy, South Africa is endowed with critical minerals for the manufacture of green technologies.

SA's Critical Minerals and the Global Shift to Renewable Energy

The mining industry accounts for about 7.5 per cent of South Africa's GDP and employs over 457 000 people.[4] South Africa has, inter alia, manganese, platinum group minerals (PGM), and rare earth elements, which are all critical feedstock to renewable energy industrial processes. Manganese is a key metal in the manufacture of batteries, for the mass market of electric vehicles (EVs). It is reported that Tesla and Volkswagen lead the pack of automakers who view manganese (element no. 25 on the periodic table) as one of the abundant metals that could make EVs affordable.[5] Adding the potential for green hydrogen, South Africa has the vital feedstock for its smart energy transition, including the decarbonisation of the mining sector and value chain covering all types of emissions (scope 1, 2 and 3).

As the world's largest producer of manganese, South Africa is positioned to optimise its competitiveness in the EV industry value chains. But responsible sourcing means social and environmental justice must be the standard of this new fortune.

South Africa's Dirty Energy: Coal and the Energy Transition

South Africa's energy mix is dominated by coal (80 per cent of systems load). Renewable energy technologies (wind, solar photovoltaic, and concentrated solar power) jumped to a share of 7.3 per cent in 2022 and a total of 6.2 GW installed capacity.[6] The rest is composed of nuclear and fossil fuels (oil and gas).[7] However, South Africa sits on the horns of a dilemma due to persistent energy scarcity and insecurity. Acute shortage of electricity has been managed through load-shedding across household and business consumption. This hurts business operations and community welfare.

South Africa's energy insecurity has pushed the government to fast-track renewable energy installations. This has included the liberalisation of regulatory restrictions.

The uptake has been fast as solar farms and domestic-level rooftop panels are being installed. Banks such as FNB, ABSA, Standard Bank, and Nedbank have jumped onto the business opportunity and are offering their private clients loan facilities to install rooftop solar energy systems. For a country characterised by poverty, unemployment, and inequality, access to renewable electricity may reproduce the social asymmetries founded in South Africa's past.

The transition away from coal and other fossil fuels has attracted significant interest from most climate pundits. The sequencing of the coal transition will have a significant impact on industries, workers, and communities. The Presidential Climate Commission has put in place South Africa's Just Transition Framework. Its mandate is to ensure that the benefits and burdens of South Africa's energy transition are shared equitably across all sectors of society and that no one is left behind.[8]

Government policies and initiatives, such as the Renewable Energy Independent Power Producer Procurement (REIPPP) programme, are aimed at promoting renewable energy sources such as solar and wind while reducing reliance on coal and other fossil fuels.

Social and Environmental Injustices in the Mining Sector

Little is being done to protect miners

The health, occupational and safety hazards associated with the extractive sector must be addressed. These include neurological health risks. For example, there is little that is being done to protect miners exposed to manganese dust or fumes. Miners are vulnerable to contracting manganism, a neurological condition whose symptoms are similar to those of Parkinson's disease. Severe depression, slow motor movement and anxiety are characteristics of manganism.

In addition, miners suffer damages to internal organs such as kidneys, lungs and liver.

The health hazards extend to negative impacts on communities, biodiversity and several other effects extensively documented about South Africa's mining sector such as deformities in babies. Occupational health and safety hazards are injustices that must be addressed as part of responsible sourcing of critical minerals and the energy transition.

Environmental Impacts and Mining

The mining and energy sectors are the biggest GHG emitters in South Africa, with energy accounting for about 78 per cent of GHG emissions.[9] Mining activities depend on energy for most processes. For instance, the mining sector consumes almost a third of Eskom's largely coal-generated power supply.[10]

Mining is a heavy polluter, contaminating air, water, and soil, and affecting biodiversity and natural ecosystems. In Mpumalanga large-scale coal mining activities have caused contamination of rivers and groundwater sources, threatening access to fresh water for humans, animals, and plants.[11] Further, the mining, processing, and transportation of minerals contribute to GHG emissions and environmental degradation.

ESG and Corporate Accountability

Hope can be placed in rising demands for corporate accountability in areas such as climate disclosures, Extractive Industry Transparency Initiative (EITI) mechanisms and UN Business and Human Rights Guiding Principles. Termed environmental, social, and governance (ESG) disclosures and reporting mechanisms, the mining sector is now subjected to these sustainability and transparency standards. However, ESG reporting remain largely voluntary in nature and is vulnerable to greenwashing. Moreover, statutory means such as environmental laws and regulations still leaves a lot to be desired due to weak enforcement by regulatory authorities.

With the surge in the demand for critical minerals, safeguards against a repeat of weak corporate accountability standards cannot be tolerated.

Climate-smart critical mining practices must be at the core of South Africa's just transition agenda, yet authorities are lagging behind due to lack of climate framework laws to govern mining revenues for optimal fiscal gains.

The South African Climate Response and Action

South Africa, through its Peak-Plateau-Decline approach to GHG emission reduction, has indicated its intention to achieve net-zero emissions by 2050.[12]

Table 1: Emission Reduction Targets

YEAR	TARGET	CORRESPONDING PERIOD OF IMPLEMENTATION
2025	South Africa's annual GHG emissions will be in a range from 398-510 Mt CO2-eq.	2021-2025
2030	South Africa's annual GHG emissions will be in a range from 350-420 Mt CO2-eq.	2026-2030

In its updated NDC, South Africa's target is to reduce GHG emissions by 28 per cent below business-as-usual (BAU) levels by 2025, and 42 per cent by 2030.[13] These reductions are relative to a BAU scenario that assumes no policy interventions. Despite being a step in the right direction, the updated target is not yet compatible with limiting warming to 1.5°C.[14]

Sectoral Plans and Regulations Supportive of SA's NDC

South Africa has developed several sectoral plans to achieve its mitigation targets and support the implementation of its NDC. The following are a few examples:

ENERGY ACTION PLAN

- Fix Eskom
- Accelerate private investment
- Fast-track the procurement
- Invest in rooftop solar
- Transform the electricity sector

INTERGRATED RESOURCES PLAN

- Energy Security Energy and Economic development
- Energy Access
- Environmental
- Sustainability
- Diversification of Energy Sources
- Promotion of renewable energy
- Grid Infrastructure

NATIONAL ENERGY EFFICIENCY STRATEGY (NEES)

- Policy and Regulation
- Capacity Building and Awareness
- Market Transformation
- Energy Efficiency in Industry
- Energy Efficiency in Buildings
- Energy Efficiency in Transportation
- Energy Efficiency in Public Sector

PEAK, PLATEAU, AND DECLINE (PPD) POLICY

- Sustainability of reductions
- Adaptation
- Continued Emissions Reduction
- Ensuring measures do not exceed the established peak level

JUST TRANSITION POLICY

- Social Equity
- Labour Market Transition
- Environmental Sustainability
- Governance and Stakeholder Engagement
- Investment and local development
- Energy Transition from fossil fuels to renewables
- Health and safety for workers
- Energy security

In addition to its sectoral plans, South Africa has made reforms to liberalise energy regulation and allow local government and private capital investment in electricity generation, and fast-tracking the procurement of new renewable energy generation capacity to facilitate renewable energy installations and battery storage.[15] South Africa is in the process of introducing climate change framework laws and policies. Examples include the Climate Change Bill and draft National Climate Change Adaptation Strategy (NCCAS).

The NCCAS provides a common vision of climate change adaptation and resilience for South Africa. The Carbon Tax Act was enacted in June 2019 and is based on the polluter-pays-principle. The Carbon Tax Act places a price on GHG emissions and its impact is yet to be evaluated. Environmental, energy and mining laws complete the disintegrated nature of climate-relevant laws and policies.

Mobilising Climate Finance

South Africa's climate ambition remains insufficient. A more ambitious strategy will require adequate financial resources. Domestic resource mobilisation (DRM), mainly through taxation and levies is still a major source of climate finance, and is complemented by private capital. However, the South African economy, which is recovering from the shocks induced by Covid-19 and the geo-political impacts of the Russia-Ukraine conflict on the world economy, is unable to carry the Just Transition burden without external assistance. Against other budget commitment, there is limited fiscal space to finance the country's just energy transition and NDC plans. Multilateral facilities such as the Clean Development Mechanism,[16] the Green Climate Fund, the Global Environment Facility, and various aid and lending instruments under the World Bank[17] are some of the available climate finance options, but these take time to materialise into real support.

Will the SA JEPT become real?

The Group of 7 industrialised countries has committed to a $8.5 billion Just Energy Transition Partnership (JETP). This will mainly help South Africa to transition away from coal to renewable energy. Announced in November 2021, the JEPT parties are South Africa and the EU, France, Germany, the UK, and the US.[18] The Netherlands, Denmark, and Spain recently joined the JEPT. On paper, and in the rhetoric of climate diplomatic speak, South Africa will receive funds to support its country-driven strategies, consistent with Article 9 of the Paris Agreement.[19] If realised, the deal looks promising but is not free from controversy. These are not free funds. There are more loans and FDI than grants.

South Africa must be wary of getting itself into a vicious debt trap, and in the process, losing fiscal space to pursue its autonomous development trajectory in terms of the National Development Plan 2030. Moreover, international pledges take time to materialise: the $100 billion per year from 2020 that was pledged to developing countries at the 15th Conference of Parties (COP15) of the UNFCCC in Copenhagen in 2009 is yet to be seen. Developed countries' political will to climate change action is at best questionable, and at worst insincere. To this end, DRM remains the most strategic choice to pursue.

Critical Minerals Value Addition Must contribute to DRM

In the absence of adequate local climate finance, and stalled global sources, DRM means that value addition to critical minerals must be part of the mix. The beneficiation approach to minerals in South Africa[20] will have a double effect. First, value addition will increase fiscal benefits and South Africa's export earnings, creating jobs, and strengthening local development. Secondly, South Africa will be able to manufacture renewable energy technologies for domestic consumption, saving on imported components such as solar panels, wind turbines, and related smart technologies. According to the South African government, beneficiation is a deliberate policy intervention seeking to move South Africa from being a resource based, to a knowledge-based economy, creating economic sustainability beyond the mining phase.[21] Critical minerals must therefore be linked to SA's industrialisation. However, South Africa has neither developed a critical minerals list nor a critical minerals strategy. Other parts of the world such as the European Union have clearly defined a list of critical minerals and strategies vital to their industrial needs.[22] The African Union has developed a draft African Green Minerals Development strategy as an integral part of the African Mining Vision – a continental framework for mineral-based structural transformation which South Africa can align its critical minerals policy development.

In support of endogenous climate strategies, global climate agreements such as the JETP must be value-adding to domestic industrial needs and, ultimately, result in technological and structural economic transformation.

Beneficiation: Industrial Diversification and Development

South Africa is the most industrialised country on the African continent. It has however struggled to diversify its economy.[23] The energy transition is an opportunity for South Africa to diversify into the manufacturing of renewable energy technologies. South Africa's automotive industry is aligning with local and global electric vehicle manufacturing and supply needs. For example, Ford South Africa has invested in upgrading its infrastructural capacity to manufacture electric vehicles that will be rolled out from its production lines in 2024. Considering the availability of critical minerals (manganese, PGM, and rare earth metals), and the potential of hydrogen,[24] there is a huge scope for South Africa's advanced automotive industry to ease into the global electric vehicles and battery manufacturing supply and value chains.

South Africa makes about half a million vehicles annually and this is ranked the third economic sector, after mining and financial services. For these reasons, a recalibration of industrial, mineral and financial sector development policies, especially to de-bottleneck supply-side manufacturing and industrial constraints, is needed if South Africa is to meet global demand for EVs and batteries. Through the African Continental Free Trade Area (AfCTA), diversification of the minerals value chain must thrive on the basis of a a growing domestic and intra-Africa market for renewable energy.

Just Transition: A Social License is required

Community involvement is key to climate action. In South Africa, the involvement of interested and affected parties is a constitutional and legislative imperative.

This right is at the core of administrative law, democracy, and good governance. However, this right is threatened by administrative and corporate actions that often side-line local communities in investment decisions. It has become a disturbing feature of environmental and climate governance where corporations have resorted to intimidation lawsuits (also known as Strategic Litigation Against Public Participation) to silence activists and community leadership.[25]

This must not be the case. Communities will never issue a "social license" to allow mining activities to operate in their areas if involvement is reduced to tokenism and remains well below the universal standard of free, prior and informed consent. Decisions about resettlement to give way to critical minerals exploration, solar farms, wind turbines, and production contracts must involve communities. This is the essence of a just transition towards a climate-resilient development model in South Africa. If this is not guaranteed by the rule of law, the risks of social conflict and civil unrest cannot be ruled out.

Conclusion

South Africa is facing a significant challenge in reducing its GHG emissions. The dominance of its mining assets in driving the emission of GHGs is significant. However, mining and mineral value chains are pivotal to the energy transition. Domestic resource mobilisation will be critical, but this must be pivoted on multilateral cooperation. Ultimately, the energy transition and climate-resilient development must be framed within human rights-based approaches – ensuring justice for climate vulnerable groups such as women, children, people living with disabilities, and local communities through accountable natural resources governance. Future reviews and updates of the NDC must be participatory, making the voices of communities heard and count.

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