

First Report

Recommendations on South Africa's draft updated Nationally Determined Contribution (NDC)

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Executive Summary

The Presidential Climate Commission (PCC) has been requested to make recommendations on South Africa's draft updated Nationally Determined Contribution (NDC). In doing so the PCC followed a public engagement process and drew on the diversity of views and inputs we received. The views expressed in this submission are the considered collective views of the Commissioners, and do not necessarily reflect the views of the organisations they come from.

The submission of the NDC to the United Nations Framework Convention on Climate Change (UNFCCC) in the build-up to COP 26 is an opportunity for South Africa to express its commitment to the Paris Agreement. The NDC enables South Africa to position itself internationally at the same time as addressing domestic development requirements for a suitably ambitious and just climate transition. Thus, the NDCs must speak to both domestic and international agendas; they can be said to be 'written on both sides of the page'.

The global context is rapidly changing. Technological innovation has enabled the deployment of low-emission energy technologies such as renewables at scale that are cost competitive with fossil fuels (IEA, 2020). Many of South Africa's global trading partners are adopting ambitious emission reduction and net-zero targets, which will potentially result in our emission-intensive products losing their competitiveness. The COVID pandemic has driven work and social interaction onto online platforms and accelerated digital transformation in the economy, while also revealing South Africa's vulnerability to systemic

shocks. Inaction in the face of such change threatens to unwind the developmental gains made since democracy, and is not an option. South Africa has to consider these risks prudently, and proactively anticipate and respond to change.

In formulating its recommendations, the PCC had access to the results of detailed modelling exercises undertaken by the National Business Initiative (NBI), the Council for Scientific and Industrial Research (CSIR), Meridian Economics and the Energy Systems Research Group (ESRG) at UCT. The main conclusions of the modelling exercises are broadly aligned. In particular, the ESRG modelling indicated that the current set of policies being pursued by government, if fully implemented, will likely result in a 2030 emissions level of 371 Mt CO₂-eq in the reference growth scenario, and 395 Mt CO₂-eq in the high growth scenario. Both of these emission outcomes are below the current proposed NDC emissions target range.

Over the next decade the least cost emission reductions (both in South Africa and globally) will mostly come from the electricity sector. There is scope for considerably greater emission reductions by accelerating energy efficiency measures, allowing for the earlier decommissioning and repurposing of coal-fired power stations as they reach the end of their economic life, and filling the gap with additional least-cost (and low-carbon) generation capacity. The Commission considered different emission ranges, ranging from retaining the trajectory in the draft updated NDC, to much stronger levels of ambition. Allowing for a

modest increase in the level of ambition, the Commission recommends that the target range for emissions in 2030 is lowered to 350 – 420 Mt CO₂-eq (ESRG 2021). In addition, the NDC should indicate South Africa's long-term emissions target of achieving net-zero carbon emissions by 2050, as set out in the country's low emission development strategy (LEDS).

There is little downside to increased ambition. The use of a target range provides flexibility, as the upper bound is the baseline against which the country is measured. The range also creates the conditions under which South Africa can mobilise support for higher ambition. The NDC should reaffirm that significant and wide-ranging international support, together with appropriate domestic action and enabling policies, are required to achieve these ambitions.

There is considerable upside to increased ambition. South Africa is well endowed with renewable resources. Credible modelling has demonstrated that an accelerated process of decarbonisation will increase levels of employment compared to the Integrated Resource Plan (IRP 2019) baseline. There are also considerable health benefits from reduced air pollution impacts and reduced risks posed by climate change, along with improved energy security, reduced climate risks for the industrial and financial sectors, and local manufacturing from green industrialisation.

In arguing for a proactive stance, we are mindful of the enormous challenges our country faces in terms of unemployment, poverty and inequality. South Africa is committed to a just transition to a net-zero and climate resilient society. Justice must be both procedural,

ensuring that the most climate-vulnerable groups (in particular women and young people) participate in decision making, and substantive, through climate-compatible development that addresses the needs of vulnerable workers (employed and unemployed) and communities. The process of transition to a decarbonised economy has to be carefully managed, and the social and economic cost of the transition for vulnerable groups must be factored into the planning process, while the economic opportunities of the transition should be fairly distributed. Accordingly the PCC believes that the NDC should reflect an approach that is socially just, evidence-based and ambitious.

The draft NDC recognises that adaptation to the effects of climate change is equally important in terms of South Africa's development priorities. Typically adaptation plans and their implementation have been neglected and adaptation has been underfunded compared to mitigation. The PCC recommends that the NDC set out clear priorities for adaptation, such as health, water security, food security, human settlements, energy access, infrastructure and biodiversity. Vulnerability to catastrophic climate change and its impact on women and youth are insufficiently addressed in the NDC. The importance of weather services, long range climate forecasting and disaster management preparedness should be highlighted. The NDC should focus on building adaptive capacity at sub-national (province and district) and community levels, as well as improving national level planning. The NDC should also recognise the interconnectedness of regional economies and ecosystems and integrate adaptation into Southern African Development Community

(SADC) and African Union inter-governmental processes.

A more ambitious NDC opens up the prospect of greater levels of international climate finance support. Climate finance flows should be mobilised to address three objectives simultaneously – South Africa's economic recovery; greater economic competitiveness from accelerated decarbonisation; and the social obligations and opportunities of a just transition. There are also a number of domestic measures that can be implemented to effectively utilise climate finance, including: finalising the green finance taxonomy; tagging public and private climate finance flows; linking flows to climate objectives; increasing small-scale, adaptation and just transition interventions; increasing the pipeline of bankable projects; more accurately assessing

the quantum of financing required; providing a clearer and more predictable regulatory framework; and increasing the number and capacity of implementing agencies.

There is a window of opportunity for mobilising additional climate finance to support a higher level of ambition in South Africa. National government should lead the process of putting together programmatic financing arrangements that can accelerate the transition process, and negotiating the scale and terms of concessional finance with multi-lateral development finance institutions. More broadly South Africa has an opportunity to shape a more robust framework for implementing the NDC through better leveraging private sector finance (debt and equity) using complementary national and international support.

Acronyms

Acronym	Explanation
AFOLU	Agriculture, Forestry and Other Land Uses.
CAT	Climate Action Tracker
CBAM	Carbon Border Adjustment Mechanism
CBDR&RC	Common but Differentiated Responsibilities and Respective Capabilities
CERC	Climate Equity Reference Calculator
CO ²	Carbon Dioxide
CPI	Climate Policy Initiative
CSIR	Council for Scientific and Industrial Research
DBSA	Development Bank of Southern Africa
DEA	Department of Environmental Affairs
DEFF	Department of Environment, Forestry and Fisheries
DFFE	Department of Forestry, Fisheries and Environment
DMRE	Department of Mineral Resources and Energy
EBA	Ecosystem Based Adaptation
EBM	Ecosystem Based Mitigation
EE	Energy Efficiency
ESRG	UCT's Energy Systems Research Group
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
LEDS	Low Emission Development Strategy
LULUCF	Land Use, Land-Use Change and Forestry
Mt CO ₂ -eq	Megatonne Carbon Dioxide Equivalent
NBI	National Business Initiative
NDP	National Development Plan
NDC	Nationally Determined Contribution
PAMS	Policies and Measures
PCC	Presidential Climate Commission
RSA	Republic of South Africa
SANBI	South African National Biodiversity Institute
SADC	Southern African Development Community
SAWS	South African Weather Service
UNFCCC	United Nations Framework Convention on Climate Change
UNSG	The Secretary General of the United Nations
USD	United States Dollars
ZAR	South African Rands

1. Approach to this Submission

The PCC is a multi-stakeholder body established by the President of the Republic of South Africa to advise government on the country's climate change response and pathways to a low-carbon climate-resilient economy and society. The PCC conducts its work in an open and transparent manner with the aim of building social consensus around the complex and challenging decisions required to successfully navigate the climate transition. The PCC's mandate emanates from the Presidential Jobs Summit held in 2018, and the PCC is committed to ensuring that the transition is socially just and that the needs of vulnerable groups are addressed.

The Department of Forestry, Fisheries and the Environment (DFFE) published its updated draft NDC for public comment, with the view to solicit inputs from all stakeholders before the NDC is approved by Cabinet and submitted to the UNFCCC. The DFFE also conducted stakeholder consultation workshops in each province and with different sectors. As part of this process the PCC was requested by the Minister for Forestry, Fisheries and the Environment to conduct public hearings and to make recommendations to government on the draft NDC. The PCC held hearings on 7th May 2021, at which stakeholders and social partners expressed their views and areas of consensus and disagreement were identified. Further modelling work was undertaken to understand the feasibility and socio-economic implications of different mitigation targets, as well as research on means of support. The Commission considered the stakeholder inputs and the results of the additional research on 4th June 2021 and

discussed and agreed on the following recommendations for government to consider in the updated NDC (Sections 2 to 4, below).

South Africa's Nationally Determined Contribution (NDC) is structured around the three goals of the UNFCCC's Paris Agreement related to mitigation, adaptation and means of support. These goals are:

- **Temperature Goal:** to hold global warming well below 2 °C above pre-industrial levels, while pursuing an ambitious 1.5°C.
- **Resilience Goal:** to increase the resilience of communities and businesses to the impacts of climate change, understanding that emission reductions will lower the cost of future climate impacts.
- **Financial Goal:** to direct finance flows (including private finance) towards low emission and climate resilient development.

Fundamental to the NDC process in the Paris Agreement is the need for ambition in successive NDCs. In updating their NDCs, countries must adopt a progressive approach and reflect the highest possible ambition within the context of their national circumstances. Targets must be credible and achievable, and countries must pursue policies and use their best efforts to achieve them.

Despite South Africa's middle income status and high emissions per capita, over 40% of households are deemed chronically poor and unemployment remains structurally high (Zizzamia, Schotte, and Leibbrandt, 2019). South Africa is ranked in the top five most unequal countries globally (Statistics South Africa 2019). The Economic Recovery and Development Plan (RSA, 2020) describes how current developmental challenges and low economic growth have been exacerbated by structural problems and the shock of the pandemic.

Climate change has the potential to further undermine people's livelihoods and the country's recovery plans. Climate change impacts are already increasing the incidence of extreme weather events and more cyclical, longer-term events such as droughts, flooding and reduced agricultural production. The potential scale of these impacts is shown by the Intergovernmental Panel on Climate Change's (IPCC) Special Report on Global Warming of 1.5°C (IPCC, 2018). South Africa has been experiencing temperature increases well above the global average and this trend will continue, even with average global temperature rise being restricted to 1.5 degrees Celsius.

South Africa's NDC is a statement to its citizens about how it is addressing the climate challenge, and a statement to the world about our intention to make a fair contribution to the global efforts to address it. South Africa is in the top 20 emitters of CO₂ in the world and the highest CO₂ emitter on the African continent (Ritchie & Roser, 2020). This is in large part due to an energy system which relies heavily on fossil fuels in the form of coal and oil. South Africa has already committed itself to contribute to global efforts to reduce emissions by implementing

effective policies and measures as rapidly as possible. At issue is the rate and pace of such decarbonisation. Since the adoption of the Paris Agreement, various estimates have been made of each country's 'fair share' of emission reductions to reach the global target, taking into account historical differences between developed and developing countries and their respective capabilities.

There are crucial national interests at stake. Decarbonising our emissions-intensive economy will lead to major structural changes that will affect livelihoods, working conditions, skills and job prospects. At the same time, inaction in the face of global shifts towards greater decarbonisation pose strategic risks to South Africa's trade dependent economy and balance of payment. Looming trade and investment restrictions for emissions-intensive products and projects could adversely affect South Africa. A recent study estimates that the risk of a global low-carbon transition to South African asset prices and revenues could amount to more than \$120 billion by 2035 (Huxham et al, 2019). The changes to demand in global coal and oil markets are largely beyond our control, but South Africa can determine the pace at which its energy system, mining and industrial processes decarbonise, and hence the carbon intensity of our exports). There are significant opportunities as well. South Africa has a unique set of natural endowments that can support a low-carbon energy system and a globally competitive green economy. Such insights highlight the strategic decisions the country needs to make about how to position itself.



As a starting point, the PCC believes the NDC should reflect an approach that is socially just, evidence-based and ambitious:

- The NDC should give expression to the need for a **“just transition”**, to which Government and its social partners are committed. We need to protect those most vulnerable to climate change, including women, children, people with disabilities, the poor and the unemployed, and protect workers' jobs and livelihoods as the economy shifts to cleaner, more sustainable production.
- The NDC's policy framework should be **“evidence-based”**. This means that trade-offs and decisions should be informed by the best available research and science, allowing effective targeting of interventions and optimal use of the country's resources.
- The NDC should be **“ambitious”**. The climate transition presents South Africa with a unique opportunity to advance its development goals of poverty eradication, economic transformation, and job creation in the process of reducing emissions and building resilience. Ambition involves a forward-looking approach that seeks to reposition the country within the global economy and take advantage of rapid technological and economic change. Innovation and improving knowledge about climate change means that objectives which are ambitious today will become the new baseline and reduce the cost burden of future interventions.

There is no doubt that the climate transition we are going through will involve deep societal transformation within energy, industrial, ecological and urban systems, amongst others. In the process of change there will be sectors of the economy that grow and sectors that decline. It is important to plan and manage this process so that vulnerable groups are supported to adjust, adapt and prosper and no one sector is left behind. South Africa's National Development Plan (NDP) has incorporated the concept of the *just transition* into its policies and planning for the country, and sets out a plan for South Africa to transition to an environmentally sustainable, climate-resilient, low-carbon economy and just society.

President Ramaphosa's Statement to the UNSG Climate Action Summit on 23 September 2019 elaborated that *“as part of ensuring a just transition we will need to put measures in place that plan for workforce reskilling and job absorption, social protection and livelihood creation, incentivising new green sectors, diversifying coal dependent regional economies, and developing labour and social plans as and when ageing coal-fired power plants are decommissioned.”* This was reaffirmed in the State of the Nation Address delivered on 11 February 2021 when the President urged that *“As we mobilise all of the resources at our disposal to support economic recovery, we cannot lose sight of the threat that climate change poses to our environmental health, socio-economic development and economic growth.”* Specifically, he charged that *“[t]he Commission will work on a plan for a just transition to a low-carbon economy and climate resilient society.”*



The only way in which South Africa can navigate the climate transition is by seizing the opportunities provided by changing market conditions at the same time as making sure that those who are most vulnerable to change are supported to adapt. This submission is therefore intended to support moving forward with the requisite level of ambition, urgency and determination required to address the climate

challenge effectively. These elements are the foundation for the PCC's analysis and recommendations on the draft NDC. In the following sections of the submission, issues are identified and recommendations made with respect to the adaptation (A1-A6), mitigation (M1-M7) and means of support (MoS1-MoS3) components of the NDC.

2. Addressing Adaptation Effectively

The PCC welcomes the inclusion of South Africa's first Adaptation Communication in the draft updated NDC. Both globally and domestically, adaptation is not given the priority it deserves and there is a lack of concrete and effective action. In a country already experiencing significant rates of warming and associated climate impacts such as drought and flooding, disproportionately borne by vulnerable and marginalised sectors of our society, it assists in focussing attention on the urgent need to adapt to impacts that are already locked in. As one of the first countries to incorporate its Adaptation Communication into an NDC, South Africa is demonstrating global leadership on this issue.

The National Climate Change Response Policy recognises that if multi-lateral action fails to limit the average global temperature increase to below at least 2°C, the potential impacts on South and Southern Africa in the medium-to

long-term are potentially catastrophic. The prospect of temperature increases around 3 - 4°C along the coast, and 6 - 7°C in the interior after 2050 will change life as we know it for ever – lower and less predictable rainfall and increased evaporation will dramatically limit water availability and affect human health, agriculture and the environment more broadly; floods, droughts, veld and forest fires will increase in frequency and severity; parts of the country will be uninhabitable; sea-level rise will undermine coastal infrastructure; while mass extinctions of endemic plant and animal species will greatly reduce South Africa's biodiversity (DEA, 2011). In the face of such life-threatening changes, South Africa has to take action and integrate long-range adaptation planning into decision making processes in all spheres of government, the economy and society.

2.1 A just transition to inform adaptation response

A "just transition" has typically been understood in relation to worker vulnerability to economic shifts from rapid decarbonisation, but it is important to emphasize that social justice is equally important in climate adaptation. Lack of access to productive land, water, energy and safe housing means that poor communities have lower adaptive capacities and are particularly vulnerable. Vulnerability is the propensity to be adversely affected, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (DEFF, 2019). Vulnerable groups can be identified by factors such as gender, age, disabilities, household income and reliance on public-sector services. Social and economic development including access to basic services are the starting point for strengthening adaptive capacity and resilience. If planned and implemented effectively, increasing adaptive capacities can in turn unlock socio-economic development, create jobs and enterprises, and stimulate local sustainable production and consumption.

A1. The adaptation section in the NDC should be explicitly linked to the overall framework of a socially just transition.

2.2 Prioritise adaptation sectors and actions

Climate change will affect communities and sectors in society differently according to the risks and hazards they face, their vulnerabilities and their adaptive capacity. It is important to accurately understand sectoral impacts and co-develop measures jointly with affected communities to address them. Given the capacity gaps that exist in the public sector and South Africa's fiscal constraints, this will be a massive challenge, and specific sectors and actions will need to be prioritised. Prioritisation should involve planning, resource mobilisation and development of implementation capacity. Based on stakeholder interactions and informed by the National Climate Change Adaptation Strategy (DEFF, 2019), water, agriculture, health, biodiversity, human settlements and infrastructure are the most important adaptive sectors. The following specific measures should be focused on within each priority sector:

- **Water:** improve water governance mechanisms to ensure water access; strengthen water security by securing and safeguarding the resource base in strategic catchments; avoid developments that constrain water resources and exacerbate vulnerability to climate impacts; effectively deploy and maintain flood protection measures; develop and implement hydro-metrological monitoring systems; institute ambitious water conservation and demand reduction measures in municipalities.
- **Agriculture:** ensure the development of multi-hazard early warning systems for farmers; support the implementation of climate-smart agriculture, at scale, to enhance food security, both for small-scale farmers and large scale monoculture systems.
- **Health:** ensure the monitoring, surveillance and early warning systems for climate induced diseases are effective and able to support timeous responses; support the development of research capacity on the climate change impacts on health systems, including how to improve long-term planning for, and effective responses to, climate change related epidemics.
- **Biodiversity:** develop effective systems that monitor the impacts of climate change on biodiversity and ecological infrastructure; invest in ecosystem-based approaches to climate change, including Ecosystem Based Adaptation (EBA) and Ecosystem Based Mitigation (EBM).
- **Human Settlements:** ensure municipal infrastructure is able to cope with extreme weather events, for example by improving water security and improving storm water management; undertake planning and facilitate investment for denser low-carbon cities; consider climate risks in the development of new settlements and mainstream climate science into building standards; address coastal settlements and support the continued effective function of their water, energy and transport systems.
- **Infrastructure:** 'climate proof' the design and implementation of new energy, water and transportation infrastructure programmes, in order to reduce the incidence and costs of service disruptions; retrofit existing infrastructure to make it more climate resilient, and improve maintenance to ensure existing infrastructure continues delivering services effectively.

A2. The NDC should prioritise specific sectors - health, water, biodiversity, agriculture, human settlements and infrastructure - and actions within them to ensure greater resilience to climate shocks.

2.3 Focus on gender impacts in adaptation programmes

Vulnerable groups need to be actively considered and effectively integrated in the design and implementation of adaptation initiatives. Women in rural and poor communities are particularly vulnerable to climate impacts. The National Climate Change Adaptation Strategy has emphasized the importance of gender equity in the climate response (DEFF, 2019). This requires the generation and use of gender disaggregated data in planning, design of projects and associated monitoring and reporting.

A3. The NDC should clearly support the effective consideration and incorporation of gender impacts in adaptation projects, as part of the NDC's broader commitment to ensuring the climate change response addresses the needs of vulnerable groups.

2.4 Importance of climate information for effective adaptation planning

The provision of accurate and reliable climate information is the foundation for effective adaptation planning in the country. The National Framework for Climate Services (DEA, 2016) developed in collaboration with the South African Weather Services (SAWS), was intended to ensure investment in the provision of these services. To date the framework has not been fully implemented, and greater investment is needed in information gathering, sharing and timely use of information for planning purposes. Climate services that require attention include long range climate forecasting, scenario planning and early warning systems.

A4. The NDC should support the implementation of the National Framework for Climate Services to assist in improving climate information and forecasting services.

2.5 Capacity-building at the sub-national level

A key reason that adaptation issues do not have the required focus is the lack of capacity in sub-national institutions that are key implementers of adaptation-related programmes and projects. The sub-national level includes provinces, cities, municipalities (district and local) and communities. These are the structures that deal with the direct impacts of climate change on a daily and ongoing basis. The climate response at local government level is crucial, particularly in terms of the systems and processes for planning, budgeting and infrastructure investment in municipalities. The weak and declining capacity of many municipalities is aggravated by the way that climate change is treated in a 'silo' manner and not integrated within municipal decision making. There are difficulties in translating adaptation planning into practical, fully financed, programmes to improve resilience. A database of adaptation programmes and projects that reflect best practice could assist.

A5. The NDC should stress the importance of building capacity at the sub-national level in the design, planning and financing of adaptation programmes and projects.

2.6 Working co-operatively with neighbouring countries and regional structures

Climate change impacts occur at a regional scale, particularly in relation to ecosystems, water catchments and region wide droughts and their impact on food security. These impacts and their causes do not respect legislative and institutional boundaries, and addressing them requires timely and effective co-ordination between countries. This is best done through regional structures, which themselves need to be supported and strengthened to fulfil this role.

A6. The NDC should stress the importance of regional co-operation, both at SADC and continental level. This needs to be emphasised in South Africa's regional diplomacy, especially regarding mutual interdependence on issues such as health, water, migration, and agriculture.

3. Meeting the mitigation challenge

Under the Paris Agreement countries are expected to submit progressively more ambitious NDCs reflecting the highest possible level of ambition while taking into account national circumstances. The NDC mitigation targets should be aligned with the goal of limiting global temperature increase to well below 2°C above pre-industrial levels, while pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.¹

South Africa's mitigation trajectory reflects a target range with lower and upper bounds. This approach allows for contingencies and adaptability if future conditions change or the country achieves higher levels of economic growth.

The draft NDC proposes an emissions target range of 398 to 510 Mt CO₂-eq in 2025 and 398 to 440 Mt CO₂-eq in 2030. This is a 17 per cent and 28 per cent decline in the upper end of the target range in 2025 and 2030, respectively, relative to the previous NDC submitted in 2015 (with a target range of 398 to 614 Mt CO₂-eq.). The draft NDC currently states "South Africa considers these updated mitigation goals as our highest possible ambition in the light of our national circumstances, and as South Africa's fair contribution to the long-term mitigation goal" (in Section 1(c) Paragraph 1 Page 3 and Section 4(a) Paragraph 3 Page 13).

3.1 Draft emissions trajectory falls outside the 'fair share' range

The concept of "fairness" is an important link between individual countries' contributions and the overall temperature and other goals of the Paris Agreement. The magnitude of each individual country's contribution must be "fair and ambitious" in the light of common but differentiated responsibilities and respective capabilities. Estimations of "fairness and ambition" have been based on technical analyses of required global pathways to achieve the Paris Agreement's long-term goals, as well as technical analyses of the costs and benefits of national GHG emissions pathways (UCT 2021a).² The "fair share" range for South Africa's contribution has been analysed using the Climate Equity Reference Calculator

¹ The Paris Agreement's long-term temperature goal is defined as "holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels" (UNFCCC 2015).

² In determining South Africa's "fair share", a global pathway of 2 degrees (with a 66% probability of

staying below 2 degrees) has been used as a proxy for 2 degrees. Some commentators regard this as a good representation of "well below 2 degrees", which is required by the Paris Agreement, while others disagree. A "fair share" for "well below 2 degrees" lies somewhere between the 2 and 1.5 degrees fair shares for each country.

(CERC) and the Climate Action Tracker (CAT) with recently updated (post-COVID) values for both tools.³ The approach CERC uses, as well as giving prominence to historical responsibility for GHG emissions (via cumulative GHG emissions over a historical period), and to the capability of countries to mitigate (via GDP /capita), explicitly recognizes the challenges of development and poverty alleviation faced by developing countries. It does this via the exclusion of a certain proportion of both income and emissions from the responsibility and capability of countries, for the proportion of each country's population which is below a "development threshold", which in these cases is set to USD7500 per person per annum.

In terms of the revised CAT assessment (September 2020) the upper bound of the updated NDC emissions target range (440 Mt CO₂-eq) is incompatible with the 2°C temperature goal and is deemed to be "insufficient". In terms of the CERC assessment the upper bound is incompatible with the 2°C goal using 'reference' growth rates (under 2,5 percent), but does fall within the 2°C range for higher growth rate (about 4,4 per cent). The bottom of the range of 398 Mt CO₂-eq falls within the 2°C range for the CERC and CAT assessments, although the UCT application of the CERC methodology indicates that even the lower bound falls outside the 2°C range. The CERC calculation for a 1.5°C pathway would be 274 - 352 Mt CO₂-eq (if Land Use, Land-Use Change and Forestry (LULUCF) is factored in), compared to the presently proposed 398 and 440 Mt CO₂-eq in the draft updated NDC (which also includes LULUCF).⁴

M1. The upper and lower bounds of the emissions trajectory in the NDC should be compatible with South Africa's 'fair share' of emission reductions, taking into account common but differentiated responsibilities and respective capabilities.

3.2 NDC targets should align with long-term mitigation goals

The IPCC has indicated that the world needs to become carbon neutral by mid-century or sooner to avoid devastating climate impacts (IPCC, 2018). 'Net-zero' carbon dioxide emissions means that residual emissions of carbon dioxide must be balanced with their removal.⁵ The Paris agreement has no individual obligations to achieve net-zero, but envisions nationally determined efforts to meet the global goal, and thus invites (via article 4.19) the development of Low-Emission Development strategies (LEDS). South African has submitted its LEDS to the UNFCCC in September 2020, in which it has indicated a long-term goal of net-zero carbon emissions by 2050 (RSA, 2020).⁶ More recently the Just Transition Pathways

³ The CAT assessment of fair shares has changed by -5 Mt for lower range, -16 Mt for 1.5,-20 Mt for 2 °C and -31 Mt for the upper end of its fair share range. The revised CERC assessment varies by -115 Mt at the bottom of the range and -116 Mt at the top of the range – a very large shift.

⁴ CERC have used a figure which includes LULUCF to make it directly comparable to the draft NDC update figure.

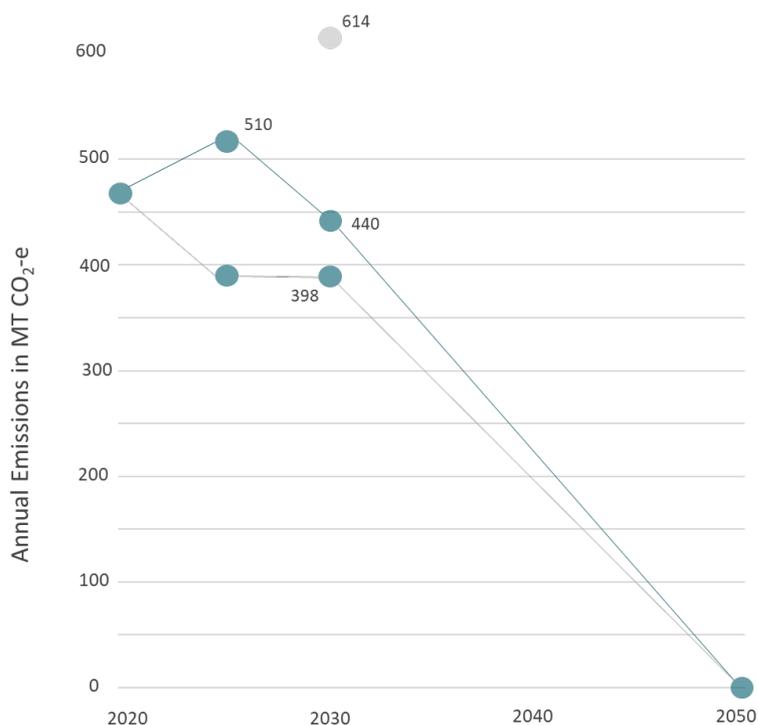
⁵ 'Net-zero' as opposed to absolute 'zero' targets have been criticised for relying on uncertain future carbon capture technologies, and delaying important decisions about the phasing out of fossil fuels.

⁶ South Africa's Low-Emission Development Strategy 2050 (LEDS) states that "We thus commit to ultimately moving towards a goal of net-zero carbon emissions by 2050, which will require various interventions to reduce greenhouse

modelling exercise undertaken by the NBI has sought to map out a technically and financially feasible set of pathways for South African business sectors that would achieve carbon neutrality by 2050 (NBI, 2021). Subsequently, some of the largest emitters in South Africa have made commitments that support the country's goal of net-zero carbon emissions by 2050. Eskom, the country's largest GHG emitter, has committed, in principle, to net-zero emissions by 2050, while Anglo American has set a global target of achieving carbon neutrality by 2040. One of South Africa's largest coal miners, Exxaro, aims to attain carbon-neutrality by 2050, while SASOL is exploring pathways to achieving net-zero by 2050 (with an announcement expected in September 2021).

The 2025 and 2030 emissions trajectory indicated in the NDC is important for determining whether the country's long term mitigation goals can be achieved in time and with least regret. Failure to commit to more ambitious targets now will likely make the necessary emissions reduction trajectory significantly steeper and more difficult to attain after 2030. This is demonstrated by plotting the current level of emissions, the draft updated NDC targets and the net-zero target, as indicated in Figure 1 below.

Figure 1: Draft updated NDC emissions trajectory in relation to long-term net-zero goal



Source: NBI, 2021

M2. The NDC should reaffirm South Africa's commitment to reaching 'net-zero' carbon emissions by 2050. A net-zero target will be consistent with the direction other countries are taking and will set the context for evaluating the 2025 – 2030 emission trajectory.

gas emissions". 'Net-zero carbon emissions' refers to carbon neutrality, but excludes other GHG emissions which are harder to abate, hence it is a less ambitious objective than 'net-zero emissions'.

3.3 Current policies will result in emissions below the draft updated NDC trajectory

In preparing these recommendations, the PCC commissioned additional modelling work by the Energy Systems Research Group (ESRG) at UCT. The Integrated Resource Plan 2019 (IRP) was used as the basis for the modelling, together with additional policies and measures such as the current energy efficiency targets, the Green Transport Strategy and the carbon tax for phases 1 and 2 (on the assumption that the tax does not increase in real terms from its level at the end of phase 1). For synthetic fuels production, it was assumed that Sasol's 10% emissions reduction target would be met by 2030 via the substitution of on-site generation of electricity from coal by renewable electricity and energy and process efficiency improvements. No further mitigation was assumed by 2030. Two economic growth rates were used as previously discussed with the National Treasury and South African Reserve Bank.

Based on these assumptions, the anticipated emissions level in 2030 is 371 Mt CO₂-eq in the reference growth scenario, and 395 Mt CO₂-eq for the high growth scenario. Both of these emission outcomes are below the current proposed NDC emissions target range.

M3. The implementation of current policies and programmes allows for increased ambition in the updated NDC.

3.4 Additional mitigation is possible at least cost with minimal macro-economic effects

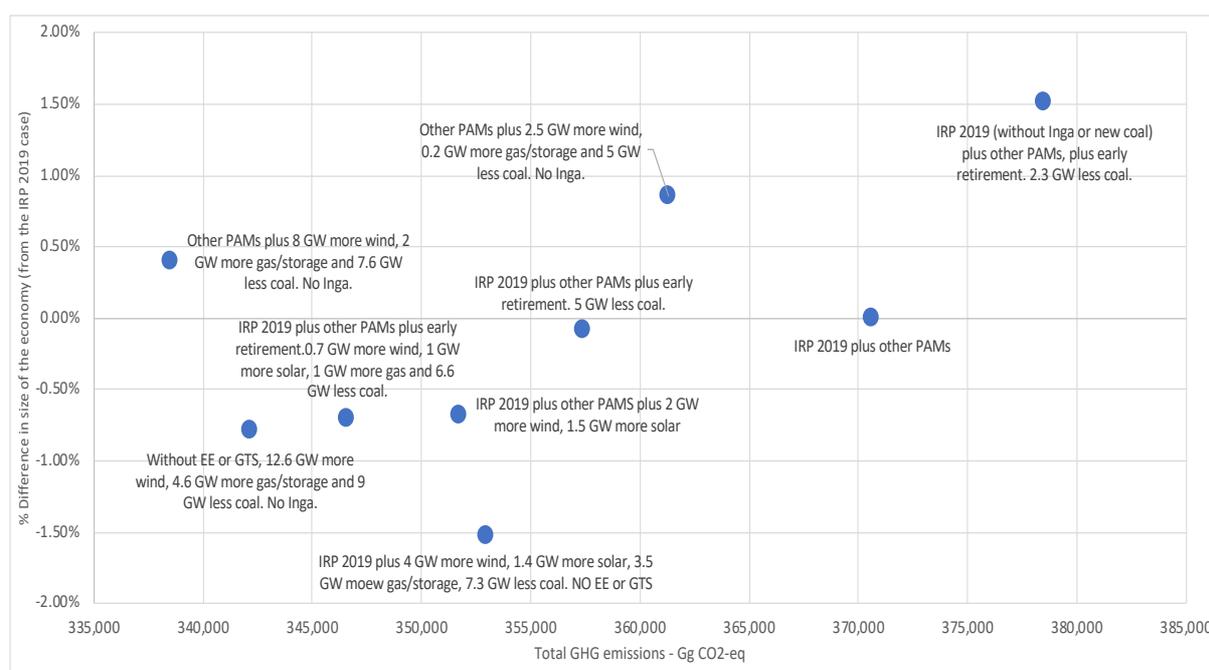
The ESRG modelling indicates that, over the next decade, between 70 and 90 per cent of emission reductions will come from the electricity sector, which is key to decarbonising South Africa's economy. This is because it is the cheapest sector in which to reduce emissions, with mature renewable energy technologies whose costs will continue to get cheaper every year. The transport sector will make up the rest of the emission reductions, due to underlying technology and modal shifts from road to rail.

The ESRG modelling examined a range of policy options to achieve particular emission outcomes. The least cost options for decarbonisation include the endogenous retirement and repurposing of coal fired power stations (triggered when they fall below a 40% utilisation rate)⁷ and higher levels of energy

⁷ The CSIR (2020) has noted that "There is currently no available literature on the minimum capacity factors at which the existing South African coal fleet can technically operate". The CSIR has shown that for a generic plant, the likely range for South African average fleet minimum capacity factor is "between 39-52%", based on an assumed minimum operating level and availability factor.

efficiency. More ambitious emission reductions can be achieved by a faster rollout of renewable energy, with concomitant investments in storage and peaking power. Accelerated investment in renewable energy for a moderate level of ambition beyond the IRP 2019 will not have negative impacts on the economy. The results of the modelling exercise are presented in Figure 2 below.

Figure 2: Economic impacts and emission outcomes associated with different policy options



Source: ESRG 2021

The modelling indicates that there are growth neutral or growth positive combinations of policies and measures that could significantly lower South Africa's emissions trajectory. It is technically and economically feasible (with the requisite financial support) to achieve emissions in the 350 to 370 Mt CO₂-eq range by 2030 with minimal impact on GDP (less than 0,5% relative to the IRP base case). The modelling outcomes are aligned with the NBI, Meridian and CSIR analyses which show that on a least cost basis by 2030 the electricity mix is likely to be renewables dominant. Depending on the CO₂ ambition level, wind and solar PV technologies can be expected to account for 29 to 64 per cent of the energy mix by 2030 (Wright et al. 2020).

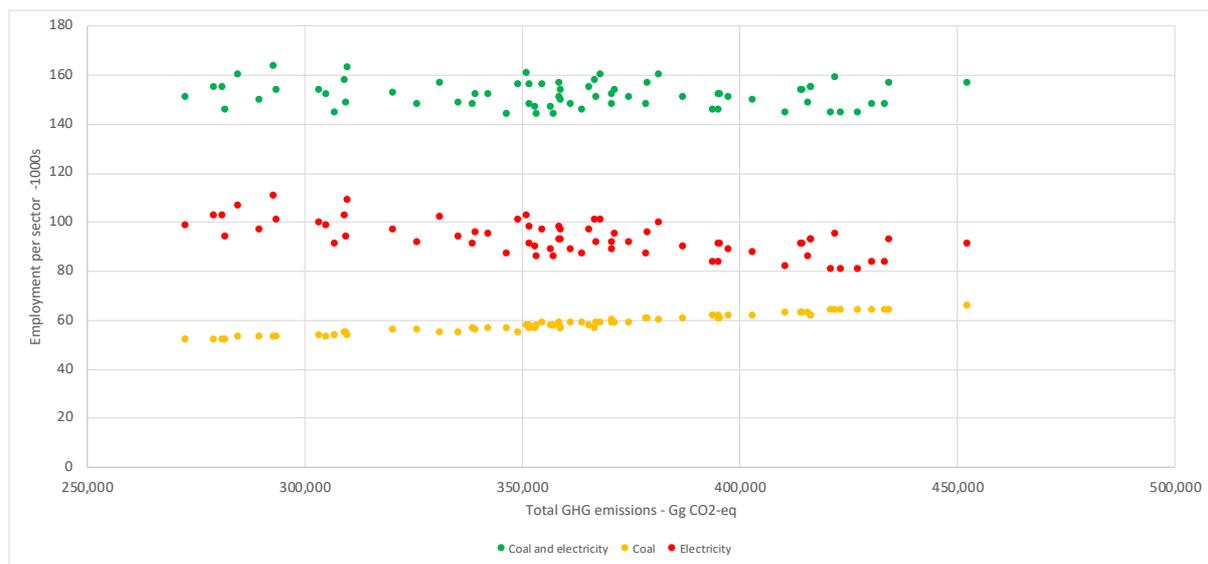
This indicates that there is scope for increasing ambition beyond existing policies.

M4: Further ambition beyond existing policies is possible by adopting least-cost measures to accelerate emissions reductions, provided that the required investment is supported by scaled up climate finance.

3.5 There are positive externalities and jobs associated with more rapid decarbonisation

The modelling indicates that a higher level of mitigation is associated with higher levels of employment. There will be some job losses from coal fired power stations and coal mining that will have to be managed through just transition interventions, but these will be offset by jobs associated with renewable energy, battery storage, peaking power and energy efficiency measures (ESRG, 2021 and NBI, 2021).

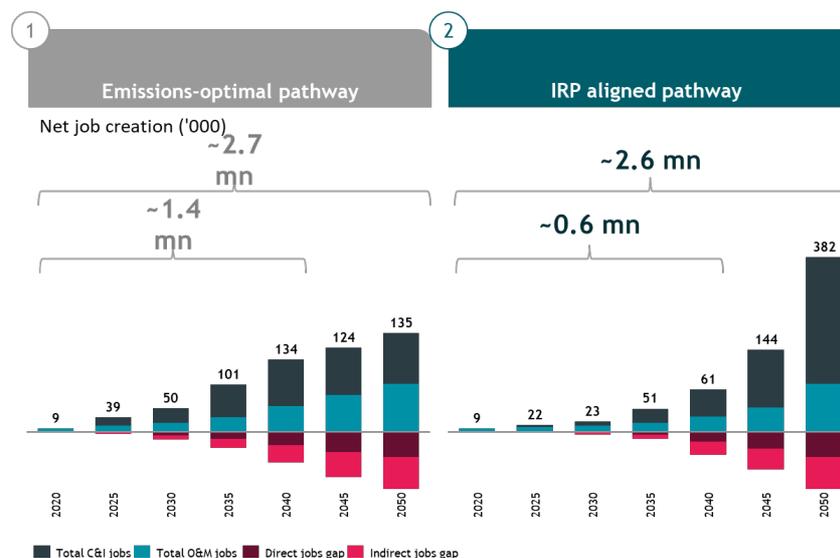
Figure 3: Employment outcomes of emission reductions in coal and electricity sectors



Source: ESRG 2021

The NBI just transition Pathways modelling exercise projected even higher levels of employment in the short to medium term, associated with an emissions-optimal pathway (as opposed to an IRP-aligned pathway) driven by an initial overbuilding of renewable energy capacity.

Figure 4: Employment outcomes of different energy pathways



Source: NBI 2021

These modelling exercises do not as yet factor in measures to manage the decommissioning processes and minimise negative employment and social impacts. It is absolutely crucial that measures are implemented to repurpose facilities, facilitate the jobs transition and mitigate adverse impacts on workers, vulnerable communities, women and youth. This includes actively considering and addressing the spatial nature of any negative employment impacts.

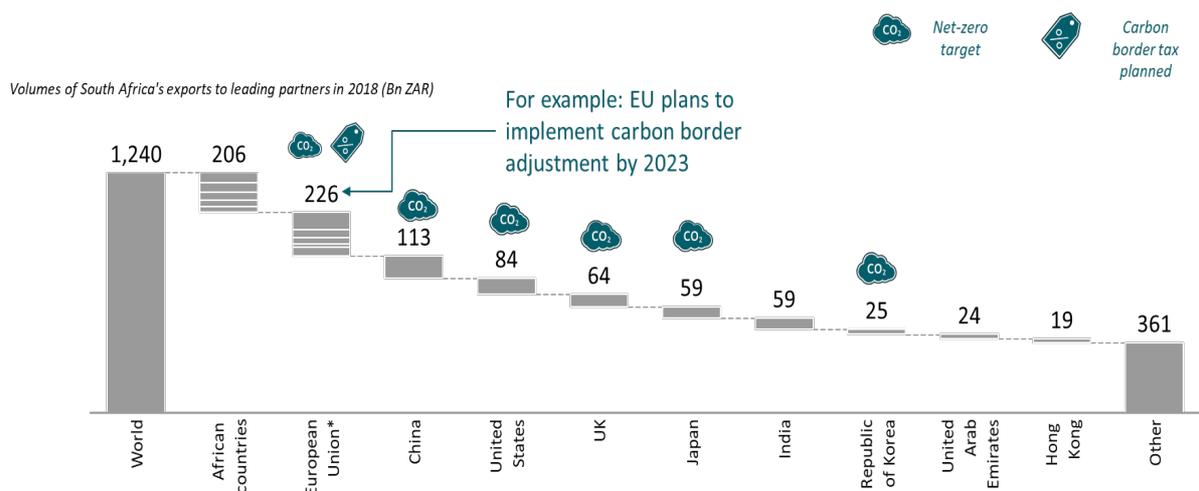
Lowering greenhouse gas emissions also has significant co-benefits in terms of air pollution and health, as well as water, which impacts directly on livelihoods.

M5. South Africa should maximise the employment and other co-benefits from more rapid mitigation, at the same time as addressing negative local employment effects, particularly in Mpumalanga.

3.6 There are risks associated with a lower level of ambition

Many of South Africa's trade partners are making net-zero commitments and will be looking to procure goods that will help them achieve those goals. One of South Africa's major export partners, the European Union, announced the European Green Deal in 2019 and proposed the introduction of a Carbon Border Adjustment Mechanism (CBAM) in 2023 to address the risks of carbon leakage.

Figure 5: South Africa's exports are vulnerable to global mitigation measures



* Top 4 trade partners within EU are Germany, Netherlands & Belgium, and among those with most aggressive targets. Note: Exchange rate based in 2018 average = R 13:24/US\$ | Source: World Integrated Trade Solution 2018; Press research

Source: NBI 2021

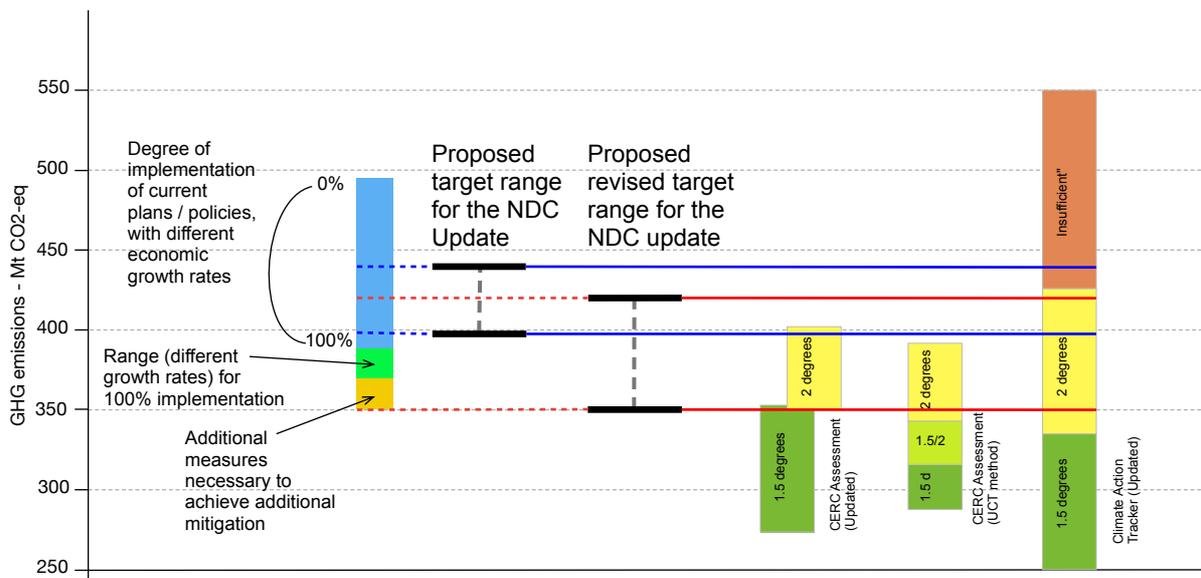
Taking into account the imminent implementation of border carbon adjustments by the European Union and other developed countries, South Africa is at risk of having its domestic exports subject to higher tariffs and non-tariff trade barriers. On the other hand, a sufficiently ambitious NDC would boost the country's export competitiveness and expand new sectors of the economy.

M6: The NDC should note the sensitivity of tradable sectors of South Africa's economy to global carbon measures as trading partners embark on net-zero targets and seek to be competitive in low-carbon goods and services.

3.7 Updated NDC's target range can be adjusted to reflect fair share

The Commission considered various options for revised upper and lower bounds of the NDC range as presented by technical experts. The options extended from no change to the trajectory in the draft updated NDC, to a lower bound as low as 286 Mt CO₂-eq, which is the CERC lower bound on a 1.5 degree trajectory (excluding LULUCF). Lowering the upper bound of the range from 440 to 420 Mt CO₂-eq and the lower bound of the range from 398 to 350 Mt CO₂-eq is a relatively low risk and a no-regret option. South Africa's current policies, including full implementation of the IRP and energy efficiency targets, positions South Africa within the revised range.

Figure 6: South Africa's emissions trajectory and fair share ranges



Source: ESRG 2021

A revised upper bound of 420 Mt CO₂-eq is 2°C compatible in the CAT and CERC reference growth. Lowering of the upper bound sends a clear signal regarding ambition and commitment to implement current policies. The proposed lower bound of 350 Mt CO₂-eq is in line with an augmented IRP 2019 (with some earlier retirement and more renewable energy) and is 1.5 degree compatible in some analyses.

Lowering the emissions target signals South Africa's commitment to current policies and measures, and could unlock additional investments to support the just transition. From a legal perspective, the risk of not achieving the target is low as the full implementation of current policies will result in emissions outcomes in the region of 371 Mt CO₂-eq, well below 420 Mt CO₂-eq and providing a sufficient cushion in the event of higher levels of economic growth and other uncertainties. There is a sufficient margin of error to accommodate any failure to implement existing measures.

M7. The NDC should lower South Africa's emissions target range to at least 350 – 420 Mt CO₂-eq by 2030. This will be consistent with South Africa's fair share contribution to a 2°C global target.

4. Access to and Effective Use of Climate Finance

The climate finance targets in the draft NDC are USD 4.5 billion per annum in the period 2021-2024 and USD 8 billion per annum in the period 2025-2030. These are an increase on historic levels of access to international climate finance (approximately USD 2.4 billion for 2017 and 2018) (DFFE, 2020), but are not linked to actual mitigation, adaptation and just transition costs. The draft NDC also does not indicate the country's need for support under Articles 11 to 12 of the Paris Agreement (i.e. capacity building, education training and awareness).

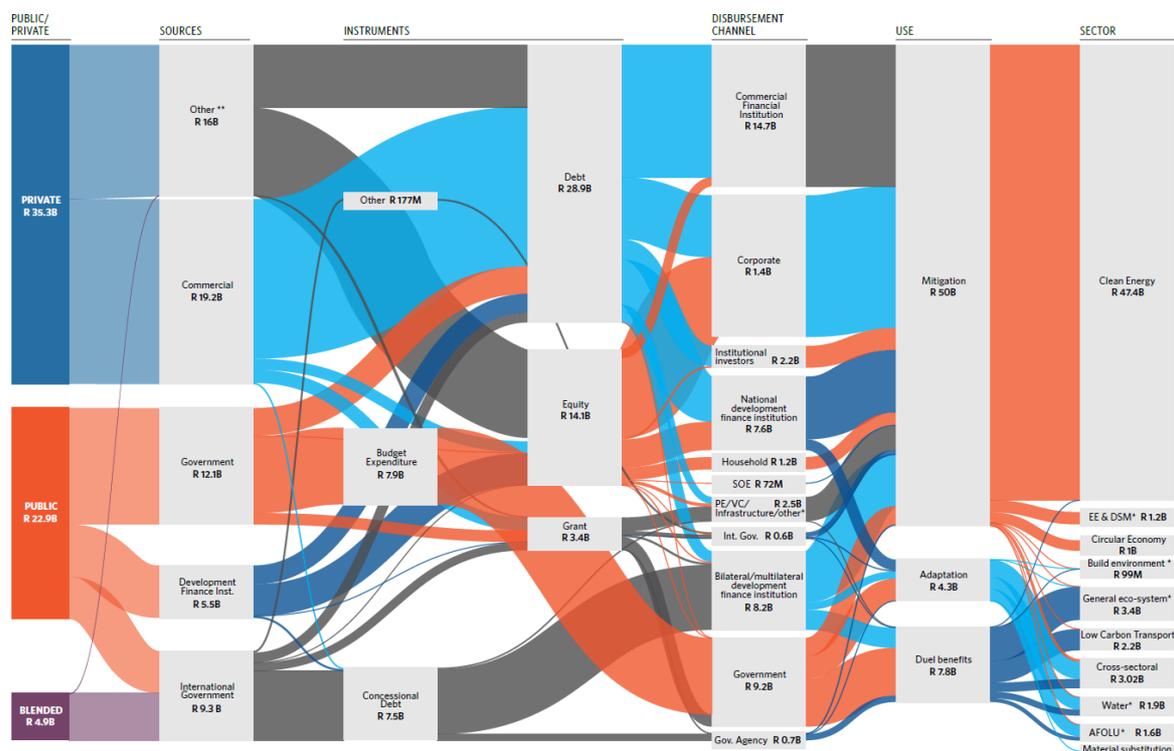
In the COP16 Accord, developed countries committed to jointly mobilise USD 100 billion per annum by 2020 to address the climate response needs of developing countries. In terms of Article 9 of the Paris Agreement, this commitment was reaffirmed where developed countries agreed to provide financial resources to assist developing countries meet their mitigation and adaptation obligations in terms of the agreement. The intention was that climate finance would be mobilised from a wide variety of public and private sources, instruments and channels, recognising that public funds were the most important source, and that there would be progression on previous efforts. Despite not yet achieving the climate finance targets, the recent G7 meeting reaffirmed the commitment to "jointly mobilise

\$100 billion per year from public and private sources, through to 2025".

Climate finance, predominantly from domestic sources, has started to flow into mitigation and adaptation projects. The Climate Policy Initiative (CPI) methodology for mapping climate finance flows includes local and international climate finance from public, private and alternative sources. Applying the methodology to South Africa, an estimated total of R62.2 billion in climate finance for 2017 and 2018 was tracked from sources through to intermediaries, instruments, disbursement channels and final uses (Cassim et al, 2021). Of this, public finance actors contributed R22 billion per annum, making up 25% of the total, of which the South African government accounted for R12 billion or 55%. The bulk of the funds (R35.3 billion) came from private actors, mostly commercial investors, while donors, NGOs and households accounted for the remainder.

Despite the progress made in financing climate projects in South Africa, these flows are not yet at a scale to support the accelerated investment required for the climate transition. Given South Africa's well-developed capital markets, international concessional finance can be creatively used to leverage and de-risk domestic funding currently available through public and private institutions.

Figure 7: The South African Climate Finance Landscape (2017 – 2018)



Source: Cassim et al., 2021

A higher level of ambition, as set out in the mitigation section, provides a sound basis for signalling the country's need for large-scale finance to initiate the country's transformation process, and secure additional resources for adaptation. The terms and conditions of any international climate finance packages should recognise South Africa's specific socio-

economic and fiscal challenges, and not unduly impact the country's ability to meet other development priorities. In particular, the concessionality and structuring of international finance must be in line with sustainable sovereign debt levels and not unduly impact the country's balance sheet.

4.1 Adaptation is insufficiently funded and costs poorly understood

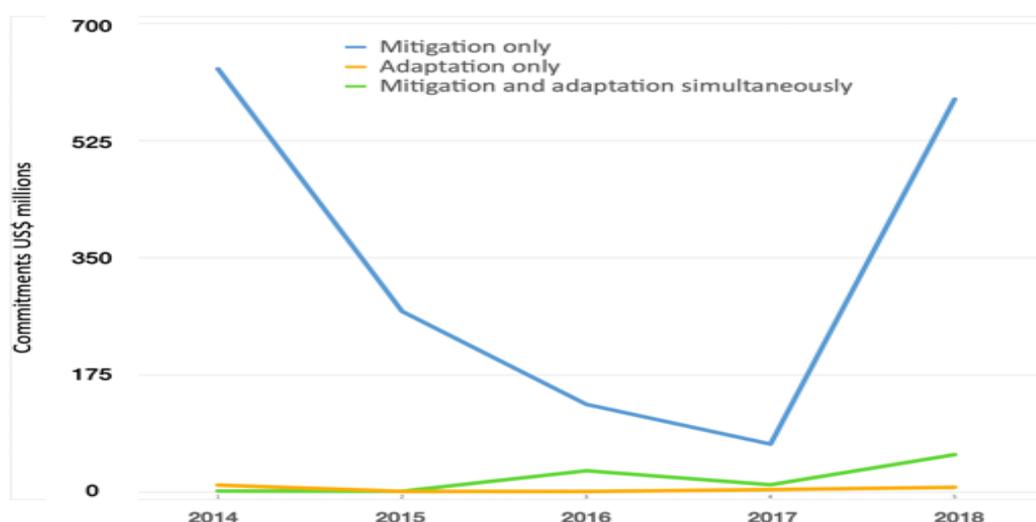
Article 9 of the Paris Agreement indicates that there should be a balance between adaptation and mitigation priorities, taking account of each country's own development strategies and the needs of developing countries that are particularly vulnerable to climate change.

The draft updated NDC indicates that USD 3.1 billion has been spent on national government adaptation programmes over the period 2015 – 2020, while USD 2.9 billion has been spent on provincial government



programmes over the period 2017 – 2020. The CPI mapping of SA climate finance revealed that adaptation activities received only 7% of climate finance, while dual benefit activities received a further 13%. Approximately 90% of funding for adaptation activities came from the public sector, with the remainder from blended finance. There were no private sector investments tracked in adaptation sectors, indicating that resilience to climate impacts is poorly prioritised. Similarly, over period 2014 to 2018, a forthcoming paper by UCT researchers shows relatively low commitments towards adaptation (Winkler et al, forthcoming).

Figure 8: Climate finance commitments to South Africa from 2014 to 2018



Source: Winkler et al., forthcoming

The adaptation costs in the NDC are estimated using a multi-model ensemble with a range covering uncertainties between the 10th and 90th percentiles. Assuming a low mitigation scenario, the adaptation costs are estimated to be between USD 16 – USD 267 billion up to 2030. If climate impacts decrease GDP by 4%, the costs rise to USD 375 billion by 2030. The NDC further assumes a cost for the implementation of the National Climate Change Adaptation Strategy of USD 3 - 4 billion up to 2030. These figures are limited to five priority sectors, and exclude social insurance costs and social safety nets, as well as provisions for uninsured household losses. The costs are therefore likely to be underestimated. Further work is required to accurately cost the adaptation response, and within that to quantify the level of scaled up support that is required.

To support the country strategy the draft NDC should send a strong signal regarding the need for higher levels of adaptation investment. In doing so, emphasis should be placed on the needs of marginalised, rural and local communities and adaptation interventions within the energy, health, food and water security nexus.

MoS1. The NDC should indicate that South Africa requires significantly scaled-up resources for its adaptation programme, and that further work is underway to accurately quantify the costs.

4.2 Mobilise climate finance to support decarbonisation

Applying the CPI methodology, climate finance for mitigation activities has averaged R50 billion per year, accounting for 81% of climate finance flows (Cassim et al, 2021). Of this, clean energy generation accounted for 95%, while 3% went to energy efficiency and demand-side management.

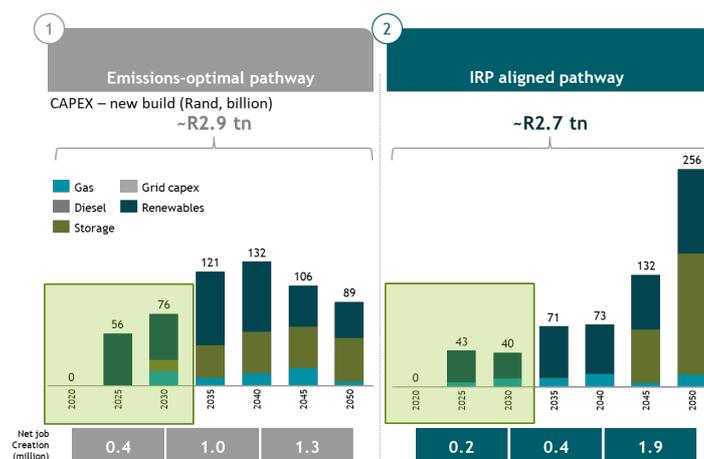
The estimates of climate finance required for mitigation in the draft updated NDC are based on the IRP 2019, including new electricity generation, distribution and transmission costs, amounting to between R860 billion and R920 billion over the next decade. The implementation of renewable energy policies can lower the cost of implementing the existing IRP (2019). The modelling by ESGR estimated the costs of full IRP implementation with EE to range between ZAR 807 billion (with reference growth) and ZAR 885 billion (with high growth). As indicated earlier, this investment would take emissions to between 370 and 390 Mt CO₂ eq. by 2030.

However the mitigation costs of the climate transition are likely to be higher than these estimates. The draft updated NDC excludes other mitigation sectors (e.g. transport and AFOLU). The climate finance targets in the draft NDC are based on existing policies, and do not provide for more rapid decarbonisation. The modelling work undertaken by ESGR indicates that for every additional 50 Mt CO₂-eq abated by 2030 relative to the IRP baseline, approximately R200 billion of additional investment is required (ESGR 2021).⁸ To achieve the 350 MtCO₂ eq target would require between ZAR 900 and 1180 billion (to be more precise, between ZAR 887 and 976 billion in the reference growth scenario and ZAR 1147 and 1173 billion in the high growth scenario). The range will vary according to different growth rates and policy configurations to optimise the IRP, most importantly the extent of energy efficiency implementation, and the extent to which more expensive coal and imported hydro power is included in the mix. in the IRP (this is more expensive).

The NBI just transition Pathways work, focused on the long term pathway to net-zero, drew similar conclusions regarding the need for an accelerated renewable energy roll-out. The NBI estimated aggregate new capex costs of an IRP aligned pathway to be approximately ZAR 2.7 trillion up to 2050 vs. an emissions optimal pathway of ZAR 2.9 trillion by 2050 (NBI, 2021).

⁸ This corresponds with figures in the draft updated NDC, which indicate the Renewable Energy Independent Power Producer Procurement Programme has attracted investments of ZAR 209.7 billion (of which 80% was domestic and 20% foreign investment) and resulted in emission reductions of 47.7 Mt CO₂.

Figure 9: Investment requirements for emissions-optimal and IRP aligned pathways



Source: NBI 2021

Importantly the emissions optimal pathway entails a much smoother and more achievable capex spend, with significant investment over the medium term up to 2030 (approximately R56 billion per annum by 2025 and R76 billion per annum by 2030), with associated growth and employment benefits. The modelling work provides important insights, but more detailed work is required on the investment costs of an accelerated process of decarbonisation, particular with reference to the energy sector.

The mitigation investment costs do not account for measures to enable a just transition. One study estimates the costs of a just transition in the coal mining sector (i.e. retraining, relocations, pensions, and adjustment support for affected communities) at ZAR 6 billion over 20 years (Cruywagen et al., 2019). The Commission is aware of the work being done to quantify and structure financial support to enable Eskom to ramp up its just energy transition strategies. Initial estimates from Eskom of its coal plant decommissioning and just transition process range from ZAR 8 billion to ZAR 10 billion over the next three years. Government should support such work by securing firm commitments for critical programmes by 2022. It is important that the NDC indicates the need to fund just transition costs and the potential beneficiaries of such support, including affected communities in Mpumalanga. Further work is required to clarify these estimates more precisely, including investment in economic diversification in coal regions. More broadly, an enabling policy environment should allow for a broad range of measures to support just energy transitions.

MoS2. The NDC should indicate that South Africa requires considerably higher levels of international financial support to achieve higher levels of ambition and manage the transition away from a coal-dependent energy system. This support should specifically express the need for measures to address social and economic impacts of the transition process. The terms and conditions of such support should take into account national fiscal and development goals.

4.4 Complementary national efforts are required to scale up climate finance

There are important national efforts underway to enable a robust climate finance system. The National Treasury has developed a sustainable finance framework and has recently published a Green Finance Taxonomy for public comment. This will enable better classification and tracking of climate finance. Local businesses, banks and DFIs are rapidly adopting climate-related ESG and disclosure policies, while civil society organisations and researchers have been focused on how finance flows can support a just and equitable transition process.

South Africa directly accesses climate finance from the UNFCCC's financial mechanisms such as the Green Climate Fund, and the Global Environment Facility through two national institutions i.e. the Development Bank of Southern Africa (DBSA) and the South African National Biodiversity Institute (SANBI). The country can also access climate finance through multi-lateral and bilateral development finance institutions, which offer technical assistance grants and project-level funding to public and private institutions. There is an imbalance in the instruments, use and application of climate finance domestically, and limited evaluation of the effectiveness and sustainability of the climate interventions being financed. A lack of project preparation support constrains the pipeline of bankable investment projects eligible for climate finance, although the NBI's recently launched Climate Finance Accelerator is contributing towards bridging this gap.⁹

Further work is required to finalise a common set of definitions, tag climate finance flows, and link climate finance to national climate goals. There needs to be a more enabling environment for scaling-up climate finance, giving greater clarity and consistency around regulation, particularly for smaller scale activities and underfinanced sectors. Measures are required to improve public-private coordination, and greater support should be provided for blended finance vehicles and innovative financial tools. Small-scale projects and household level investments should receive greater emphasis.

These measures should be set out in a long-term climate financing strategy, which aims to creatively combine national and international finance to support South Africa's NDC. Strong signals in the NDC are necessary to build confidence in South Africa's climate finance response. Such signals should elaborate the scale and depth of national efforts being undertaken to create a sustainable finance system that utilises climate finance effectively.

MoS3. The NDC should indicate the measures being undertaken to scale-up climate finance in South Africa, and the country's intention to develop a climate finance strategy which supports an accelerated climate transition.

⁹ The NBI Climate Finance Accelerator supports projects with a minimum size of \$10 million, so there remains a gap for smaller projects below that range.

5. Conclusion

The PCC has been established by the President in order to advise government and its social partners on the climate transition and viable pathways to a climate resilient net-zero economy and society. In doing so, the PCC is committed to an inclusive and transparent process that fosters a social consensus around the challenging decisions involved in the climate transition.

The PCC is grateful for the opportunity to submit recommendations on South Africa's NDC. Even though the PCC is comparatively young, it has been able to marshal a considerable range and depth of research from its various member organisations and social partners. This body of evidence is testament to the considerable capacity that exists – within NGOs, the science community, organised labour, business and government – that can be mobilised to navigate the difficult development and economic questions we face in addressing climate change.

The recommendations put forward in this submission are intended to support the country's need to accelerate its climate change response, by matching a higher level of evidence-based ambition with the imperative of social and economic justice. We should not underestimate the enormous challenges South Africa faces in meeting the targets set out in the NDC. It is the implementation of the measures to achieve these targets that matters, more so than the policies and plans themselves. All social partners in South Africa – government, business, labour, civil society and science based

organisations – will need to mobilise their collective abilities to manage the climate transition successfully. In focusing on implementation, the consideration of the NDC by Cabinet should be followed by the adoption of an action plan, which sets out the policy instruments, measures, activities, responsibilities and timeframes to meet the NDC targets. The PCC is willing to assist in independently monitoring and assessing progress in terms of such an action plan.

The PCC appreciates the effort that has gone into the preparation of the updated NDC, at the same time as noting areas that need more work in future. Specifically, the updated NDC does not sufficiently spell out the mitigation measures required for a higher level of ambition, nor does it adequately describe the adaptation priorities and support measures required for a just transition. The updated NDC does not provide an accurate assessment of just transition, adaptation and mitigation costs. In preparing for the next NDC submission in 2024, more detailed work is required on costing NDC implementation, and developing a portfolio of climate investments for low emission and climate resilient development. Essential to such implementation process, would be a long term strategy for accessing and mobilising national and international support.

The PCC remains committed to supporting government and social partners in planning for and managing an appropriate and just climate change response.

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