TOWARDS A JUST TRANSITION

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A REVIEW OF LOCAL AND INTERNATIONAL POLICY DEBATES

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PRESIDENTIAL
CLIMATE COMMISSION
TOWARDS A JUST TRANSITION

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This review has been commissioned by South Africa's Presidential Climate Commission (PCC) as an input to the process of planning for a just transition. Specifically, this review forms part of a series of papers that will provide an evidence-based foundation for a new Framework for a Just Transition – a practical guide to ensure that South Africa's transition to a low-emissions economy is well managed, just, and equitable. The Framework will also build on existing just transition debates in the country, the vision set out by the National Planning Commission, and a new series of thematic and social-partner consultations that will gather a diverse range of views on what it means to achieve a just transition.

The views expressed in this review represent those of its authors, and do not necessarily reflect the views of the PCC or its commissioners.

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ABOUT THE PRESIDENTIAL CLIMATE COMMISSION

The PCC is a multistakeholder body established by the President of the Republic of South Africa to advise on the country's climate change response and pathways to a low-carbon, climate-resilient economy and society. In building this society, we need to ensure decent work for all, social inclusion, and the eradication of poverty. We also 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. The PCC facilitates dialogue between social partners on these issues – and in particular, defining the type of society we want to achieve, and detailed pathways for how to get there.

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EXECUTIVE SUMMARY

This review presents a situational analysis of the key issues that will inform the development of South Africa's Just Transition Framework – the practical guide that will ensure that the country's transition to a low-emissions economy is well managed, just, and equitable.

Situating itself within the literature, existing debates, and international experience, this review considers the different approaches to understanding and defining a just transition for South Africa. The review also considers the range of policy tools available to facilitate a just transition, which will be most effective when applied in combination, and with appropriate governance systems and funding.

The review ultimately recommends that the just transition vision adopted for South Africa is one that builds on existing (and extensive) consultation processes, particularly those established by the National Planning Commission and for the Climate Change Bill, but with a greater emphasis on social justice and a clearly defined endpoint: net-zero carbon dioxide emissions by 2050.

As South Africa continues its journey towards a just and equitable transition, the Presidential Climate Commission has a crucial role to play in reconciling the views expressed by various stakeholders on what it will take to achieve a just transition, and providing recommendations to the government that will effect evidence-based policy change.

1 BACKGROUND TO THE JUST TRANSITION

GLOBAL EMERGENCE

At its core, the just transition attempts to elevate concerns about social justice in the global transition to sustainable economies and societies. The concept of a just transition emanates from the labour movement in North America in the late 1970s, where a dual prioritisation of the environment and workers was spearheaded as a policy imperative (Galgóczi, 2020; OECD, 2017; Schröder, 2020; TUED, 2018). In setting this concept, there was a strong focus on support for workers that were disproportionately impacted by environmental policies, such as toxic clean-up policies. These workers had faced limited support measures and social security and were thus affected by these policies. Initially, the response was reactive, and aimed to mitigate job losses in certain sectors, such as coal mining.

In the past decade, various authors and groups have broadened the just transition concept in terms of stance, sectoral application, and stakeholder focus. The narrow focus on reacting to labour market impacts has been expanded into a proactive stance that aims to ensure that developing a national economy, which is able to reduce emissions and manage climate change, also generates benefits for most citizens. In this context, the initial and strong focus on workers has been broadened to consider impacts on workers, their surrounding communities, and small businesses that are directly or indirectly linked to sectors facing impacts. This discussion has become particularly relevant in mining regions, and specifically coal mining regions, whose economies rely heavily on mining activities relative to the rest of the formal economy.

A key development in advancing the just transition approach has been the interactions between the global labour movement and global climate change champions, such as the United Nations bodies (e.g., United Nations Framework Convention on Climate Change). Stemming from efforts by global labour union bodies such as the International Trade Union Confederation (ITUC), the just transition agenda was brought to the negotiating and discussion tables at global forums developing the Sustainable Development Goals (SDGs) and the 2015 Paris Agreement (OECD, 2017). The just transition was placed at the forefront of the climate agenda through its inclusion in the preamble of the Paris Agreement (2015) through the elevation and spearheading of the just transition thinking by the labour movement. Thereafter, at COP24 in 2018, heads of state and governments in the global community reaffirmed the commitment to a just transition on the back of the 2015 Paris Agreement and the 2015 ILO Guidelines for a Just Transition (COP24, 2018).

ORIGIN IN SOUTH AFRICA

The discussions and pertinence of a just transition in South Africa dates back more than a decade, with the just transition holding prime importance within discussions among trade unions and social justice researchers. For example, at the 2009 10th Congress of South African Trade Unions (Cosatu) National Congress, the just transition features among the resolutions calling for the role of a just transition in “protecting the most vulnerable from the effects of climate change” (Cosatu, 2009). In 2011, the just transition received further motivation through Cosatu’s policy paper on climate change, which draws on the elevation of the just transition by the ITUC. The Cosatu paper calls for a just transition to a low-carbon economy, where the “just transition” concept relates to mitigating transition impacts on working-class groups, including workers, communities and small businesses (Cosatu, 2011). In the same year, South Africa’s National Climate Change Response White Paper included the just transition to a low-carbon economy as a policy imperative, as part of the climate change response. It drew on the principles

set out in the Constitution, the Bill of Rights, the National Environmental Management Act, the Millennium Declaration and the UNFCCC (DEFF, 2011).

In 2010, the government set up the National Planning Commission (NPC) to produce a National Development Plan (NDP) for South Africa, which was adopted in 2012 after an extensive consultation process. Chapter 5 of the NDP concerns environmental sustainability and chartering an equitable transition to a low-carbon economy. The NPC engaged in social dialogues between 2017 and 2019 on the just transition in all provinces and among a variety of stakeholders, including the youth and energy-intensive users. The NPC aimed to place poverty and inequality as central to the just transition process. From the dialogue process, Mpumalanga was identified as being heavily impacted by air pollution where respiratory health affected workers' ability to get employment. Water and soil pollution were also identified as key issues.

Since that time, the just transition has entered the national policy domain, principally in the energy sectors of the economy, among several stakeholders groups. The views, ambitions, and plans of various stakeholders are explored in greater detail in Section 4.

2
DEFINITIONS AND VISIONS OF A JUST TRANSITION

Understood most broadly, the just transition aims to ensure that groups with limited resources – workers, their communities and small business, in particular – can take advantage of opportunities brought by the transition to a more sustainable economy. This objective can, however, be understood at a variety of different levels – from the overall economy to an industry or region – and be achieved through different strategic approaches. The discussion around the desired end state and the nature of policies to get there has often taken the form of a debate around how to define the concept, however, rather than laying out the nature of the problem and proposals for solutions. Unfortunately, this methodology makes it harder to test the usefulness of the different strategic approaches to the just transition against South African realities.

Table 1 summarises underlying approaches to the just transition based on the level at which they are applied; the problems addressed explicitly or implicitly; and the implications for strategies in South Africa. Critically, the specifics of the just transition depend, in turn, on the nature of the economic and energy transition, which defines the impacts on citizens, communities, and businesses, and effectively sets the timeframes for change. A challenge in South Africa is that the dimensions, strategies, and timing of the transition, and especially the reduction in emissions through 2050, remain poorly defined and contested.

Table 1. Dimensions of the just transition at different levels

	Industry	Regional	National
Immediate problem	• An industry must downsize if pollution and emissions costs are fully internalised, and workers bear the cost through job losses	• A community depends on an industry that is no longer sustainable	• Transition to new, sustainable economy, especially energy systems, will only be viable if ultimately it benefits the majority
Broader aims	• Voice for working people in transition process; decent alternative livelihoods; greater equality for vulnerable groups	• More diversified and resilient economy; local people have voice in transition; more equitable incomes and wealth with continued growth	• Disruption of the transition ultimately lays the basis for a more equitable, inclusive, and dynamic economy

Table 1. Dimensions of the just transition at different levels (continued)

Some debates	• What institutional structure can ensure a just transition • Extent of social protection for affected workers • Usefulness of retraining • How to fund programmes and at what level	• What institutional structure can drive economic diversification? • How to identify viable clusters and value chains for diversification • Role of small/emerging vs large/established businesses • Role of different spheres of the state • How to resource	• Should the focus be on the energy transition alone; on reducing emissions in other industries (agriculture, cement, etc.); on building resilience to impacts of climate change (droughts, flooding, etc.); or on measures that build a more inclusive economy even if they do not link to climate change (e.g. land reform, BIG, etc.)? • What governance systems can drive the transition more effectively while securing a real participatory democracy?
Political economy	• Organised workers can often block change if they will end up bearing the cost without support	• How to prioritise affected regions if they are not among the poorest in the country? • Managing the risks of industrial policy	• Managing risks and costs of disruptive change • Maintaining a coalition for change

Source: TIPS

The International Labour Organisation (ILO) has developed a vision of the just transition that aligns with its Decent Work Agenda. Its vision involves the equal prioritisation of decent work, poverty eradication and environmental sustainability (ILO, 2015). The transition, if planned in a just manner, is envisioned to present opportunities to attend to social objectives and be a net generator of decent and green jobs that substantially attend to poverty eradication and social inclusion. The ILO's approach is guided through strong social consensus; the promotion of rights at work; gender-inclusive policies and programmes; coherent policies across the economic, environmental, social, education/training and labour domains; a just transition framework to promote the creation of more decent jobs; being country-specific; and fostering international cooperation.

The ITUC defines the just transition as an economy-wide process that produces the plans, policies, and investments that lead to a future where all jobs are green and decent, greenhouse gas emissions are at net-zero, poverty is eradicated, and communities are thriving and resilient. The ITUC presents this action as informed by social dialogue between workers and their unions, employers, and often governments.

Box 1. Understanding the dimensions of justice in a just transition

The just transition agenda aims to bridge and address three dimensions of transitional justice, i.e. procedural justice, distributive justice, and restorative justice, with a transformative agenda that overall integrates social, environmental and economic justice (Cahill and Allen, 2020; Just Transition Research Collaborative, 2018; McCauley and Heffron, 2018):

- Procedural justice focuses on the form of the process and aims to facilitate an inclusive and fair process. This acknowledges vulnerable and/or marginalised groups through their inclusion in decision-making processes at various levels. It also requires enabling and empowering all stakeholders to take part meaningfully, without assuming capability and capacity. Due to the top-down nature of most decision-making processes, this type of justice is biased towards fostering complementary bottom-up dynamic
- Distributive justice deals with the fair allocation of resources in a society. Specifically, this focuses on addressing the direct impacts resulting from the transition process. It aims to address a "double inequality" around responsibilities (who bears the costs?) and impacts (who should benefit, and in what manner?)
- Restorative justice considers past, present, and future damages that have occurred against individuals, communities and the environment and provides a framework to rectify or ameliorate the situations of harmed or disenfranchised communities. Here offenders and the offended are brought together in a neutral setting to discuss the negative impact and negotiate on the remedy for the impact

Source: Montmasson-Clair, 2021

The academic literature also offers views on what the just transition concept encapsulates. Newell and Mulvaney (2012) describe the just transition as achieving zero-carbon while paying attention to issues of equity and justice, considering the pursuit of "climate justice" for current and future generations, while simultaneously managing conflicts that arise from pursuing energy and climate justice at the same time.

Stevis and Felli (2015) highlight that among global labour unions three principal approaches to the just transition have surfaced – shared solution, differentiated responsibility and social ecological approaches.

The shared solution approach envisions the transition to a low-carbon economy as a beneficial process for all stakeholders, where the existing balance of power is maintained. The vision prioritises dialogue, mutual understanding, and shared solutions. This approach focuses on opportunity and job creation, absent transformative changes to the existing political economy. Thus, policies are presented solutions to social problems, without the need for dramatic changes to how society and nature interact.

This approach aims to create green and decent jobs, where the transition to a green economy produces benefits for the economy, society and the environment. This approach is typical of global bodies such as UNEP and ILO, as well as the UNFCCC processes.

The differentiated responsibility approach is typical of sectors already facing a decline due to environmental regulations and climate policy, such as chemicals, mining, and parts of manufacturing. This approach places greater focus on the losers of the transition and intensively focuses on workers in negatively impacted sectors. In these sectors, the state and private sector have greater responsibility towards workers at risk during the transition. This approach emphasises sustainable job transition for affected workers, and in some cases advocates for the preservation of existing industries through technologies such as clean coal. There is also a strong emphasis here on retraining and financial assistance for education, temporary income, and wage subsidies, where workers earn less in "new industries" than those affected by the just transition. The approach also highlights the need for social protection, unemployment benefits, and early retirement arrangements.

The social ecological approach is the most ambitious and radical as it targets altering the balance of power in society, generally, and in the just transition, specifically. The approach calls for embracing democratic planning, public ownership models and the socialisation of technology production and development. Other approaches that call for a strong private sector lead are seen as futile as they do not address the existing balance of power in society. Social ecological approaches call for the strengthening of state approaches to fund and control technologies, with open-source intellectual property rights and "public-public" cooperation to deliver climate-friendly and green technologies.

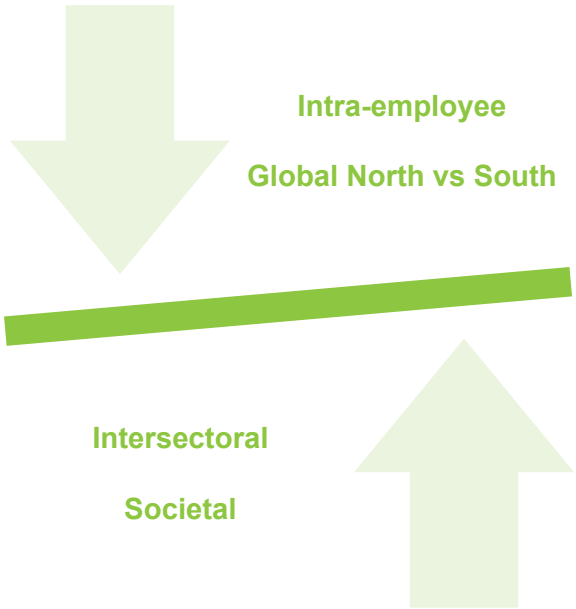
The views on a just transition can also be viewed in terms of narrow and broader interpretations (Galgóczi, 2020).

A narrow view of the just transition seeks the management of a transition to a low-carbon society in a balanced and just manner, housed within a given socioeconomic context. In practice, this relates to two dimensions of the transition – the outcome, and the process to move to that outcome. The outcome relates to the envisioned social and employment landscape in a low-carbon economy, while incorporating the concepts of decent work, with quality jobs. Here, there is a clear focus on workers impacted by the transition as the vulnerable group. The process element places a strong emphasis on social dialogue to inform solutions to challenges related to the "distributional impacts" and managing employment transitions. Distributional impacts refer to how climate policies affect different demographics (e.g. income groups) and whether this is proportionate. Managing employment transitions refer to using tools such as active regional economic diversification and industrial policy to reach the outcome. The narrow view was initially positioned as a mitigation measure to prevent additional socioeconomic inequality from environmental policies and to prevent the stalling of such processes due to political economy tensions.

A broader approach focuses more on the global goal of a low-carbon world, with low inequality and quality jobs. While retaining the thinking behind the process and outcome elements of the narrow view, the broader view moves beyond a given socioeconomic context, and places emphasis on attending to existing inequalities in societies across the world, while incorporating the relationship between developed and developing nations (Galgóczi, 2020; Rosemberg, 2017). This view also expands the boundaries of vulnerable groups beyond workers to include other vulnerable groups in societies.

What is clear in the conception of a just transition is that economies with long-standing and entrenched inequality can face barriers to a successful transition strategy. While decarbonisation is a common objective when it comes to just transition strategies, and among groups, such strategies must be crafted to account for inequalities that arise in several circumstances (see Figure 1), if unintended blockages to the process are to be mitigated. The result is that there is no single approach to a just transition strategy for an economy.

Figure 1. Dimensions of inequalities that affect just transition approaches and strategies



Source: TIPS, based on Galgóczi, 2020

Turning to the articulations of the just transition in South Africa, there have been several key elaborations of what a just transition represents in the country.

The first articulation can be drawn from the NPC, which expresses the vision for 2050 as:

"Through putting people, especially those living in poverty and the vulnerable at the forefront, South Africa will have achieved a zero-carbon [net-zero carbon] economy by 2050. We have built the resilience of our economy and our people through affordable, decentralised, diversely owned renewable energy systems; conservation of our natural resources; equitable access of our water resources; and sustainable, equitable and inclusive land-use for all, especially for the most vulnerable. The high value we place on healthy ecosystems, land, water and air underpins our future, and ensures a better life for all who live in South Africa." (NPC, 2019)

This vision is expressed as an economy-wide approach towards a low-carbon future that moves beyond the dynamics of the energy sector, and invokes the policy tools of governance, active labour market policies, economic diversification, and inclusivity. This vision aligns with socio-ecological and broader views of the just transition – in that the just transition is viewed as applicable to all vulnerable stakeholders beyond impacted workers in specific sectors of the economy. A key point of divergence among stakeholders in the NPC process was the dispute over what the end goal by 2050 should be in terms of carbon emissions. Given the divergence among stakeholders, both zero-carbon[1] and net-zero[2] goals were retained in the vision. It is important to define the end state upfront, because the two end state goals have strong implications for how the just transition process unfolds and the technology pathways that the country embarks on. A zero-carbon end state implies a dramatic and complete revision of industrial activity and differs markedly from a net-zero end state, the latter which involves transitioning existing industrial

1 *"Zero carbon" is defined by the NPC as a no-carbon future, with no carbon emissions released into the atmosphere through human activities (anthropogenic actiities), such as energy generation, land use, transport, industrial processes, etc. Since there are no emissions, there are no carbon needs to be removed, captured, or offset.*

2 *"Net-zero" (also referred to as carbon neutral) is defined by the NPC as a future where carbon emissions are balanced with carbon removal and/or carbon offsetting.*

processes through progressive staging of mitigation and adaptation technologies, where technologically feasible. The NPC view also identifies decentralised renewable energy technologies and social ownership models within the vision as specific goals and identifies access to land and water as an imperative.

An alternate view of the transition is sourced from the NEDLAC process related to the Climate Change Bill. Out of the NEDLAC process, the definition of the just transition is expressed as:

"Just transition" means a shift towards low carbon, climate resilient and ecologically sustainable economies and societies which contributes to the creation goals of decent work for all, social inclusion, and the eradication of poverty."

The NEDLAC definition is less prescriptive than the NPC vision and does not define the end state as net-zero or zero carbon. However, constituencies did agree that a low carbon end state was the appropriate objective of the act.

Beyond the disparity between the end-state goal of zero carbon versus net-zero, the conception of the NPC and Climate Change Bill's views of a just transition appear aligned in that both aim for a low-carbon future, where the mitigation of costs on vulnerable groups is paramount, with a view that moves beyond the energy sector. The NPC vision specifies energy, water and land use as specific sectors worthy of interventions, while the Climate Change Bill definition does not specifically identify sectors.

To move forward towards a framework and basket of policies around the just transition, establishing a uniting definition and vision is a starting point. The Climate Change Bill provides an apt definition of the just transition in that it encapsulates the need for a transition to a lower carbon economy and acknowledges the need for social justice in this process. Further, this definition has already been refined through extensive stakeholder input at NEDLAC. Thus, the Climate Change Bill definition is adequate and articulated in the following manner:

"The NPC vision establishes a strong progression towards a united vision that has been supported by extensive stakeholder vetting and consultation. To move forward, two elements of refining have been added. The first is to emphasise the need for social justice in the vision. The NPC vision does not specifically identify social justice as an imperative and a sentence on the need for simultaneous co-prioritisation of climate change and social justice is added. The second refinement is added to ambiguity around the end state or goal."

Achieving net-zero CO_2 emissions by 2050 has surfaced as a guiding goal that pervades several policy planning processes and a goal to which stakeholders largely agree. The IPCC Special Report on Global Warming of 1.5°C identifies the goal of net-zero CO_2 emissions by 2050 as attainable with non-CO_2 emissions[3] reaching net-zero at a later date (IPCC, 2018). South Africa has committed to the global goal towards net-zero CO_2 emissions by 2050 through the Paris Agreement, aligned with other countries. South Africa's Low Emission Development Pathway published

[3] *Non-CO_2 emissions include methane, black carbon and nitrous oxide.*

in February 2020, for example, clearly identifies a net-zero CO_2 emissions goal by 2050 as the appropriate goal. Initiatives by other stakeholders, such as the NBI, also aim for the transformation of industry as aligned towards net-zero CO_2 emissions by 2050. Incorporating these elements into the NPC vision for a just transition culminates in the following guiding vision:

Through putting people, especially those living in poverty and the vulnerable at the forefront, South Africa will have completed a just transition to a net-zero CO_2 economy and society by 2050. In a just transition, we emphasise urgent action on climate change and social justice. We have built the resilience of our economy and our people through affordable, decentralised, diversely owned renewable energy systems; conservation of our natural resources; equitable access to our water resources and sustainable, equitable and inclusive land use for all, especially for the most vulnerable, including women. The high value we place on healthy ecosystems, land, water, and air, underpins our future, and ensures a better and healthier life for all who live in South Africa, and contributes to the creation goals of decent work for all, social inclusion, and the eradication of poverty.

Source: Amalgamated guiding vision for a just transition in South Africa

3
JUST TRANSITION POLICY TOOLS

This section considers the policy tools available to policymakers in the consideration of a just transition. How these tools are employed depends heavily on the availability of resources but also the timing of the transition. The main impacts of efforts to reduce emissions are likely to be felt in South Africa in five to 10 years,[4] which gives time to develop a framework on how best to use and resource the various policy instruments available.

Four key strategies are available to assist vulnerable workers and groups to deal with the impacts of climate change and climate change policies:

- Promoting technological adjustments to minimise climate-related impacts on vulnerable groups, including carbon mitigation and adaptation technologies
- Developing new economic opportunities in affected local economies
- Active labour market policies that assist individual workers to find new livelihoods
- Social protection to improve resilience and give time to communities and workers to find new opportunities

Technological adjustments aim to mitigate employment impacts through three main channels. These include the modification of existing production processes to limit penalties[5] such as carbon taxes; adapting production processes to deal with the unavoidable climate change impacts due to historic and current emissions; and the upgrading of infrastructure to promote better resource usage through cleaner energy use and water management, for example. Efforts to minimise climate-related impacts on production and employment can be analysed in terms of the standard phases of technological innovation. From this standpoint, research and development is necessary but not sufficient for technologies to succeed. The critical step is diffusion of the innovation among public and private producers. That, in turn, lays the basis for further adaptation and technological advances.

A second tool relates to economic diversification of impacted economies. These policies seek to incentivise new economic opportunities in regions facing economic decline due to the decline of key value chains in those regions. Small, rural communities that depend on a single industry – typically agriculture, mining or tourism – are particularly vulnerable to climate-change-related impacts. Further, towns in the historic labour-sending areas are likely to see impacts on gardening, which could affect food security, as well as a decline in mining jobs as climate change progresses. From an economic theory perspective, when an industry declines, workers and businesses move into alternative economic activities. In practice, however, this transition can take years, or even decades. Critical constraints on this substitution include limited information about viable options and the need to establish new support systems for new production. Often, existing enterprises are not able to find markets for their products or access affordable inputs, training, finance, and infrastructure. Moreover, regulatory frameworks often lag behind the development of new kinds of production. Here, the state can help accelerate diversification by scoping realistic opportunities and fast-tracking support systems, as has been done in other countries. To succeed, the process must secure stakeholder support (typically through an inclusive process) and in many cases, it also must establish dedicated agencies that can mobilise and align the array of state services. This brings to the fore the role and

[4] *This could, however, change and is dependent on the climate policy space. For example, the recent raising of the exemption for self-generation from 1MW to 100MW in August 2021 may accelerate decarbonisation in the electricity system sooner.*

[5] *These penalties seek to internalise environmental impacts of production.*

capacity of local governments in transitions. Small rural towns that are most vulnerable to climate-change-related impacts face constrained resources and capacity. In this context, local governments are expected to formulate local economic development plans, but they have little influence on economic policies and on decisions about bulk infrastructure.

Active labour market policies constitute a complementary just transition tool that aims to assist affected workers and small businesses to adapt to changing economic conditions through targeted tools that give more people access to the labour force and quality jobs or transition them out of the labour force. These policies include the following basket of targeted tools:

- Job and training placement schemes, which include placement and training centres, and job matching services
- Retraining towards future growth jobs, which include infrastructure to provide workers with training and skills for new economic opportunities
- Temporary income support during transition, which can take the form of unemployment insurance, grants, or severance packages
- Support for small businesses, through incubators, finance, and identifying business opportunities
- Transitioning out of the labour force, which includes early retirement and voluntary retrenchment packages

Finally, social protection measures also form the bedrock of just transition policies. Long-term income support for displaced workers and self-employed people enable them to transition to emerging opportunities, in some cases after training. Social protection measures that currently exist in South Africa include the Unemployment Insurance Fund (UIF), social grants, and public works schemes. These programmes, however, have not been designed to support able-bodied workers who faced a prolonged transition period between jobs. The UIF provides limited support for a year; social grants target people who are physically unable to work; and public works schemes are aimed primarily at young, unskilled people and are mostly driven by government investment and service projects rather than needs arising from localised downturns. None of South Africa's social protection programmes are geared to assisting regions or industries facing a general downturn. The only long-term support come from social grants, which target people physically unable to work. The UIF and EPWP generally provide only three months' assistance, and together cover only around 15 percent of all unemployed people. The UIF, however, has substantial resources that could be utilised in assisting vulnerable groups deal with climate-change related impacts. The Community Work component of the EPWP also provides an effective framework for local mobilisation and collective action, which in turn could improve resilience in vulnerable communities.

These policy tools describe the mechanisms that can be used to affect changes in vulnerable groups' livelihoods and requires an overlay of governance and process mechanisms that must be instituted for the process to function efficiently. Governance mechanisms call for multilevel governance spanning national, regional, and local governments, and inclusive processes that draw in key stakeholders from impacted regions to co-create the mix of tools that can be applied to a given context.

4
STAKEHOLDER PERSPECTIVES ON A JUST TRANSITION IN SOUTH AFRICA

THE STATE AND STATE-LED ACTIVITIES

National Level: National Planning Commission

In 2012, South Africa adopted its first National Development Plan (NDP) to guide and frame all policy and planning for the country up to 2030. Chapter 5 of the NDP deals with the just transition and the climate crisis. In the chapter, the NPC drafted a guiding framework of what needed to be implemented immediately to achieve the end state described in the chapter but did not go so far as to describe a plan for a just transition.

As described in Section 2, the NPC adopted a broad approach to the just transition, including defending and protecting the rights of the most vulnerable in the country, including women, children, the aged, people with disabilities, those who are poor and the working class more broadly (NPC, 2019). The NPC also adopted an economy-wide approach and not an energy-specific approach. The NPC's view of climate change is presented as a deeply social, political, and economic issue – hence transitioning in support of climate change must be an issue of justice broadly defined. The NPC view regards all aspects of the just transition as seen through the lens of "what is just" in terms of inequality, poverty, and unemployment.

It stresses that the process followed towards arriving at a just transition must itself be just; and calls for the content, pathways, solutions, substance, and final outcome of the transition to all be socially just. In the second phase of its work, the NPC embarked on a two-year process engaging with stakeholders. The process began with a high-level social partner dialogue and progressed to workshops in all nine provinces, as well as engagements with various constituencies including local communities, the youth, labour, all three tiers of government and business. The process ended in 2020 and a concluding conference was to be held in May 2020 but was postponed due to Covid-19.

In September 2020, a synthesis document was published, highlighting points of agreement and disagreement that could be distilled from the process. Key points of agreement included the need to establish political will and root out corruption in relation to governance; equitable access to land; the need for mine rehabilitation and food security; equitable and efficient access to water; a diversified energy mix, decentralised energy generation and distribution, and community owned renewables; maximising job creation; embracing the circular economy; and the need for training and reskilling.

Key areas of divergent perspectives include a lack of agreement concerning state ownership of resources and privatisation; the need for a new economic system and structure; and whether the government or the market should be left to manage land use and distribution. In relation to energy, key areas of disagreement include whether low carbon, zero carbon or net-zero carbon targets should be included in a just transition pathway. There is also disagreement on either speeding up or cancelling the Renewable Energy Independent Power Producer Procurement Programme (REIPPP); unbundling or keeping Eskom intact; market or community ownership of future generating capacity; and, more fundamentally, the need for coal generation to remain in the energy mix versus getting out of coal completely (NPC 2020).

Some critics have argued that the NPC process did not adequately give voice to all stakeholders. As a result, they challenge the conclusions around areas of agreement and disagreement.

In addition to national planning at the NPC level, national departments have also engaged with the just transition, and are currently developing processes around the just transition that fit within their mandate. The newly named Department of Forestry, Fisheries and the Environment, and the previous Department of Economic Development were instrumental in the National Employment Vulnerability Assessment and Sector Jobs Resilience Plans, which engaged with just transition in a few key value chains including coal, platinum group metals (PGMs), metals and other mining, petroleum-based transport and tourism. The Department of Mineral Resources and Energy has engaged in scoping studies and is investigating setting up dedicated capacity for the just transition within the department.

Provincial Level: Mpumalanga Climate Change Strategy

While many provinces and large metros have embarked on climate change plans and strategies, the regional focus on Mpumalanga is particularly relevant to the just transition given the concentration of the coal value chain in that province. The Mpumalanga Climate Change Mitigation Strategy (MCCMS) is a provincial strategy under development, which is led by the Mpumalanga Provincial Government's Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA). The time horizon for the implementation of the strategy is from 2019/20 until 2024/25. The strategy sets forth a vision to lead in creating an innovative, low-carbon and sustainable province.

The draft strategy sets forth five goals for the province related to mitigation and adaptation efforts:

1. Green the provincial energy mix: consisting of small-scale embedded generation (SSEG) renewable energy, low-carbon cooking fuel, clean transport, and sectoral renewable energy initiatives in agriculture and tourism
2. Improve energy efficiency: through projects in public sector buildings and promoting energy efficiency in the residential, commercial and industrial sectors
3. Reduce greenhouse gas emissions from resource extraction and consumption: through diversion of waste from landfills and capturing fugitive industrial emissions
4. Protect and enhance carbon sequestration potential: through carbon sequestration projects, ecosystem restoration and mitigating emissions from agriculture
5. Build capacity for transitioning to a low carbon economy: through training across different levels of government (provincial and local); KPI-linkages, and awareness-raising initiatives.

The draft strategy hinges on collaboration between Mpumalanga DARDLEA, Department of Public Works, Roads and Transport (DPWRT), Department of Education and Training, COGTA and Treasury, among others. Donor funding support hinges on a mix of state, donor and private funding to realise the goals.

Provincial Level: Mpumalanga Green Economy Cluster

Mpumalanga has also engaged GreenCape to replicate the sector development agency/ cluster model from the Western Cape to move forward the sustainable and just transition in the province. GreenCape was initially created as an independent sector development agency. The model that is currently being adapted to Mpumalanga works through engagement at the intersection of government, business and academia – termed the triple helix nexus.

The network of stakeholders have been identified globally as a strong instrument for the green and high-tech transitions (GreenCape, n.d.).

Mpumalanga has historically aligned with GreenCape to understand how the cluster approach can be adapted successfully to the province. This has culminated in a formal memorandum of understanding to collaborate on using a cluster approach to build a green economy in Mpumalanga.

In the Western Cape, GreenCape has incorporated a triple-helix cluster approach where GreenCape operates as a sector development agency (LEDS Global Partnership, 2016). The initial focus was placed on the development of renewable energy capacity within the province and was scaled to other green economy issues in other sectors spanning water and waste, among others. GreenCape's successes in developing projects in the Western Cape have been driven by the following factors:

- Strong and continued financial and nonfinancial support from the provincial government and national departments (e.g. dtic)
- Strong alignment with national, provincial and local green economy policies and strategies, while remaining an entity separate from government
- Strong links to stakeholders across all sectors of the green economy, allowing rapid identification of effective points of leverage to remove barriers and initiate or accelerate economic development
- A diverse, multidisciplinary team being able to adapt strategies rapidly to changing circumstances
- Maintaining impartiality with state independence, and supported by technical competence, legal independence, and political neutrality

The approach is now being adapted to the Mpumalanga province to drive forward the just transition in that province.

Trade Unions

Just transition approaches hail from the global trade union movement and have entered the South African discourse through the labour movement. The just transition features in Cosatu's 2011 paper entitled "A Just Transition to a low carbon and climate resilient economy." Cosatu's view is that climate change constitutes part of a larger economic and ecological crisis that is a challenge for the working class and the trade union movement. The union in its 2011 Central Executive Committee supported the idea that South Africa needs to move towards sustainable energy, to migrate the economy from one based on coal to a low-carbon or possibly carbon-free economy. The Cosatu approach to climate change to date has been proactive and supportive, acknowledging the need to transition to a low-carbon economy and society, in a just and equitable manner. This framing includes a new low-carbon development path, which includes developing renewable energy, changing production methods in iron, steel, cement, and oil refineries, improving the public transport system, building and adapting homes and commercial building to be more energy efficient, eco agriculture, protecting natural vegetation, soil and biodiversity, recycling, and other green industries (Cosatu 2011). From a political economy perspective, the Cosatu position seeks to limit the impact of capitalism on vulnerable groups through a redistribution of power and resources. Capitalist accumulation is seen as the underlying cause of global warming and climate change. The ecological crisis is regarded as an opportunity to address the unemployment crisis in South Africa and to demand the redistribution of power and resources, challenging the conventional understanding of economic growth.

Naledi (the economic research arm of Cosatu) is of the view that in recent years the notion of a just transition in South Africa has become more diverse – both in terms of depth (who are the participants) and in

terms of breadth (broadening the debate beyond moving to a low-carbon, resilient economy). While Naledi supports an economy- and society-wide just transition as articulated in the NPC works, Naledi's focus is worker-centric, and channelled chiefly on transitional risks and responses related to workers and the communities that workers come from. Naledi has focused initially on the energy transition as this is where impacts are likely to immediately manifest; however, it does wish to contribute to the broader process of an economy-side just transition. Naledi believes that a successful just energy transition in South Africa can act as a benchmark not only for all other sectors in the national economy, but possibly for other countries as well.

More recently, other union bodies have also identified the just transition as an imperative for South Africa. In 2018, SAFTU convened a Working Class Summit of unions and civil society organisations. As part of the summit, distinct "commissions" were identified to deal with specific thematic issues. "Climate and the environment" was a distinct commission identified, where the debate identified the need for the working class to actively pursue its interests and shape the transition to overcome the impacts of excessive greenhouse gas emissions produced because of capitalist accumulation.

State-owned Companies

Eskom Just Transition Power Station Decommissioning

Given the decommissioning schedule in the Integrated Resource Plan (IRP) 2019, in January 2020, Eskom embarked on an ongoing process to investigate the repurposing of power stations after they have been decommissioned in line with the just transition. Based on the IRP (2019), 10 500MW of electricity from coal will be decommissioned by Eskom. This includes the Komati, Hendrina and Grootvlei power stations (Table 2). The study has been designed with five stages of progress. The first stage establishes a baseline of the current socioeconomic context in the areas around the power stations. This is followed by an impact assessment relating to the impact of power station closure on local, regional, and national economies. The third stage relates to assessing the risks and implications on people, the economy, and the environment. This is followed by developing mitigation options to prevent risks and impacts on the identified groups. The final stage identifies implementation measures and allocates responsibilities to various stakeholders.

The data has thus far been collected from power stations, community surveys, business and social surveys, employee household surveys, and from interviews with CSOs, NGOs and local government.

Table 2. Provisional Eskom findings on power station decommissioning

Power station	Impacts of decommissioning	Community services provided by the power station	Opportunities
Komati	• Reduced production and employment in the region • Potential exodus of skilled people from the local area • Negative effect on the health of communities and reduction of standard of living	• Komati station supplies water to Komati Village and Koornfontein mine. The power station also own properties in Komati Village	• Local stakeholder optimism for development • Environmentally friendly and sustainable economic activities on site (linked to available water, serviced industrial land, and moderate solar resource potential) • Collaboration and partnership to exploit medium and high potential arable land owned by mining houses and Eskom
Grootvlei	• Financial and economic impacts in Mpumalanga and Gauteng • Impacts on social and cultural capital as well as human capital • Lower standard of living and decline in community health	• Grootvlei station supplies water to Grootvlei community and mine. • Grootvlei owns 17 properties, mainly in Balfour	• New economic activities: air quality is expected to improve over time, while decrease in water consumption and availability of a serviced industrial site will create opportunities • Exploration of mineral resources (although it often coincides with the high-potential land creating a conflict)
Hendrina	• Reduced production locally and at regional level • Increase in unemployment • Impact on household wealth and built environment affecting standard of living of households • Potential exodus of households from Pullens Hope could impact property values in the town, reducing their investment attractiveness and creating a potential risk of vandalism and illegal occupation	• Hendrina station supplies water to Pullen's Hope and Optimum mine • Hendrina station supplies electricity to Pullens Hope • Hendrina station treats wastewater in Pullens Hope • Hendrina station owns 204 properties that are rented out to employees and contractors	• Local community eager for a positive change • Improved air quality, reduced water consumption, increase in supply of serviced industrial land, and good solar potential • Diversification of local activities: available mine-owned land, moderate solar resource potential and high-potential arable land

Source: TIPS, based on information supplied by Eskom.

The Business Community

The labour movement and social justice advocates in South Africa have been speaking about the just transition for more than a decade. It is only in the last two years that the concept has expanded to include both government and the private sectors, which are tentatively entering the discourse on the meaning and implications of a just transition.

The South African business community does not yet have an official view of a just transition. In July 2020, the National Business Initiative (NBI), Business Unity South Africa (BUSA) and Boston Consulting Group (BCG) launched the Just Transition Pathways programme based on a view that it is essential for South Africa that the business community take a leading role in directing how to transition the South African economy towards a low carbon but competitive economy by 2050. The project has two initial aims: first, to expedite a green stimulus strategy as part of the country's Covid-19 response; and second, to develop an ambitious, fact-based and unified business view ahead of COP26 on what a just transition could look like in South Africa. The project aims to unlock and channel both local and international support towards high-impact areas while mobilising coordinated cross-industry collaboration. The first phase of the project will generate a high-level pathways blueprint, including detailed design of the pathways.

In addition to the Pathways Programme, organised business has a long track record of deep engagement with the government as exemplified by NBI's collaboration with the National Treasury, the Carbon Trust, and the International Finance Corporation to develop a green taxonomy for South Africa. In December 2020, the NBI, in partnership with the newly named Department of Fisheries, Forestry and the Environment (DFFE), hosted an interactive session between business and the Department to discuss the National Employment Vulnerability Assessment (NEVA) and Sector Jobs Resilience Plans (SJRP) with an eye to identifying viable and effective programmes that could be implemented to contribute to a just transition for South Africa. Core to the session is the collaborative engagement on how business can best enable and realise the opportunities presented by the transition to a low-carbon and resilient economy in an inclusive manner, and to respond to the economic risks of climate change as a key stakeholder in South Africa's climate response.

Despite examples of just transition research, collaboration and engagement with the government, labour, and civil society (bilaterally and through organisations such as NEDLAC), there are many scholars and activists who believe that organised business in South Africa is paying lip service to the just transition in general, and the just energy transition in particular. Critics suggest that business stakeholders continue lobbying behind the scenes to undermine policy shifts and regulatory developments that support both a transition to a low-carbon economy and the idea of a just transition, while seeking to perpetuate vested interests and power imbalances. Some go further and allege that business is weaponising the just transition and using it as a mechanism to impede change altogether. Senior representatives of organised business stress the need for organised business to make a conscious and committed choice to do things differently in the future. These thought leaders warn that business could approach a just transition in a manner similar to its approach to broad-based

black economic empowerment (B-BBEE), which saw the initiative fail to fundamentally transform diversity and participation in the mainstream South African economy but simply become a compliance box to tick. There is consensus that to avoid a repeat of the B-BBEE experience and the reduction of a just transition to a levy that must be paid by corporates who then continue their business practices unchanged, there needs to be trust, goodwill, and increased certainty among all stakeholders in South African society. Most agree that such values are not in evidence at present.

Civil Society

The civil society space in South Africa is active and diverse with numerous organisations, each with its unique perspectives and focuses. It would be impossible to cover all these organisations, so only the chief organisations and umbrella organisations are covered. In the just energy transition space there are numerous well-resourced, well-capacitated civil society organisations (CSOs) that are active in the just transition discourse and that have made substantial contributions to research and community participation. Initiatives here include Project 90 by 2030's Remaking our Energy Future (2019), and Groundwork's Down to Zero: The Politics of a Just Transition (2019). Academics and activists in the social justice space also contribute to the narrative. For example, Cock (2019) reports that a two-year programme of exchange workshops with existing community organisations in poor, coal-dependent areas demonstrated that there was little to no grassroots understanding of the basic ideas of climate change, the coal economy or a just transition.[6] Cock (2019) conducted stakeholder engagements where participants highlighted their own personal experiences, which collectively informed a picture of immediate local issues. Identified issues included demands for compensation from coal mining companies for damage to houses during blasting; compensation for losing potential job opportunities because of failed health screenings due to respiratory issues caused by localised pollution, and compensation for loss of agricultural production due to land and water pollution. Further work by Cock aims to demonstrate that substantial effort needs to be made to capacitate the most directly affected communities to meaningfully engage, and that appropriate methods of engagement must be sought.

Beyond individual organisations, there are several umbrella bodies that house members with common focal areas around the just transition and climate justice. The Climate Justice Coalition (CJC) is an example, which pools South African trade unions, grassroots community-based and non-profit organisations. The CJC aims to advance a transformative climate justice agenda, while tackling inequality, poverty, and unemployment. Key to the transformation is simultaneously advancing environmental, energy, gender, racial, immigrant, climate, and economic justice. CJC members include GroundWork, Project 90 by 2030, and WWF, among other notable organisations. The South African Climate Action Network (SACAN) is another organisation that is part of a global network of climate justice organisations. SACAN is part of the Climate Action Network (CAN), which is a worldwide network of over 1 300 NGOs in more than 130 countries to promote government and individual action to limit human-induced climate change to ecologically sustainable levels. The Climate Charter, published in August 2020, represents another multi-stakeholder collaboration that calls for a "deep just transition" with an emphasis on a social ecological approach. The Charter aims to advance awareness of coexisting

[6] *On this basis, Cock (2019) questions the efforts of the NPC's process to engage labour or penetrate deeply into mining-affected communities.*

on one planet, ceasing unsustainable practices, respecting that we share the environment with other animals, fostering cooperation, overcoming business-as-usual, and strengthening democracy. Finally, Energy Governance South Africa (EGSA) is a network of civil society organisations and individuals dedicated to promoting transparent, inclusive, and accountable decision-making within the energy sector. EGSA comprises justice-oriented organisations and individuals focused on energy policy, planning and governance, incorporating frequent working sessions with key energy planners and stakeholders.

From the above it is clear that there is little clarity in South Africa regarding the need for a transition or the aims of a just transition in that context. Without consensus on the parameters of the concept it is hard to imagine how progress across a diverse spectrum of stakeholders will be achieved. While the level of discourse and debate is notable, much of the discussion continues to take place between a small number of parties that have already bought into some version of the need for a just transition. This has led to what has been termed an “echo chamber” where likeminded people are interacting. There is acknowledgement that the discourse around a just transition needs to be mainstreamed to a larger population of stakeholders and decision-makers. There is also consensus that the energy transition has begun and that while a just transition is an economy-wide concept, it behoves South African stakeholders to focus initially on the achievement of a just energy transition. It is hoped that the manner and outcome of such a process can act as a benchmark for future sectoral transitions, both locally and abroad.

5
INTERNATIONAL JUST TRANSITION EXPERIENCES

This section draws on two cases where just transition thinking has been applied from international literature[7]. We chose to focus on Germany and Spain, given their advanced thinking and historical application of just transition processes and policies. Further, as is common throughout the world, both cases involve transitions in the coal value chain, which is the most concerning and likely to have an immediate impact in South Africa. The long-term nature of the processes in these two cases also allows for the examination of long-term learnings and initial policies that were later changed or modified.

Germany and the Ruhr region

Germany's Ruhr region provides a case of just transition strategy that has moved a previous coal-heavy region into a new economic landscape. Declines in coal demand and activity from the 1950s in the Ruhr region were driven mainly by international competition (through cheaper coal and oil imports) and, more recently, climate legislation (Oei et al., 2020). The result of Germany's coal phase-out policies saw employment in coal mining decline from around 470 000 jobs in 1955 to around 3 000 jobs in 2018 (WRI, 2021a). Between the 1950s and 1980s, a top-down coal phase-out approach was adopted that focused on increasing the competitiveness of the coal and steel industries in the region, with additional investments into infrastructure through road and public transport expansions, along with investments into new higher education institutions. Infrastructure investments also created strong transport nodes between coal regions and other urban centres to increase access to other regions and to make coal regions more attractive for businesses. Early retirements and training were also offered to former miners. As a result, former miners were absorbed into adjacent metal operations, while others took early retirement or were retrained by specialised agencies. Due to the lack of effective stakeholder consultation in the top-down approach, despite these efforts, there was resistance from coal mining companies and local politicians, which led to the lock-in of existing production and prevented new industries from growing[8] (WRI, 2021a).

Since the 1980s, a bottom-up, inclusive approach was adopted that drew in different levels of government (including local government) with the aim of reducing blockages to transition that were previously experienced. Further, emphasis was placed on economic diversification where lead projects were identified based on the skills availability and existing orientation of businesses in the region. As a result of the inclusive bottom-up approach, in the 2010s, cities in the region created their own development strategies, with some creating technical expertise in certain industries, like centres of microsystem technology with R&D companies (Oei et al., 2020). To avoid duplication of economic activities, initiatives to create regional industries were spearheaded, and culminated in the creation of a growing regional health sector and universities.

In summary, the success of the German approach rests on several key interventions:

- Early investments into basic infrastructure to link coal cities to urban metropolitan centres to increase the mobility of citizens of coal regions attracted businesses to coal regions and created new logistics industries
- Active and passive labour market policies, applied in advance, assisted to

[7] *Lessons could also be learnt from countries such as India, Australia and the UK. A full international scoping would be able to synthesize these lessons into convergent and divergent points of success, learnings and shortfalls*

[8] *For example, mining companies refused to sell land for alternate economic activities. Alternate industries like automotive manufacturing were blocked from initiating activities due to a lack of land. See Oei et al. (2020)*

transition workers to new employment and protect the livelihoods of older workers. Retraining and reskilling in the 1950s kept miners and other workers in labour markets and provided signals to future workers about career choices. Since 2007, employment protection was offered to workers older than 42. Coal miners and other workers were retained after mine closure to assist with decommissioning for three years, and were provided with five years of bridge funding until retirement

- Investment in educational institutions such as universities in regions where no tertiary education has been available, guided workers towards new economic activities and skills, prevented migration and enhanced the areas' appeal
- Moving from a top-down to a bottom-up governance approach reduced the impact of political economy blockages by local politicians and incumbent coal businesses through inclusive stakeholder engagement
- The establishment of a single institution with sufficient capacities that represented the entire Ruhr region helped to coordinate national funding and direct funding to appropriate activities
- The establishment of new industries in coal regions depended on the specific location, timing and availability of trained workers and available space
- The use of soft location factors, such as cultural investments through repurposing old mining and industrial sites to create a new identity for the region through the creation of landmarks and cultural sites. Local stakeholders were involved in the planning process to change perceptions of the region and increase acceptance of future transitions

Spain – Just Transition Strategy and Agreements

Since the late 1990s, Spain's coal industry faced declines driven by external economic factors, domestic policy, and European Union mandates. Since 2010, EU legislation (Decision 2010/787/EU) was a key driver of coal mine closures in Spain. This decision mandated Member States to eliminate financial support to uncompetitive coal mines, and close them by 31 December 2018. Between 1995 and 2020, coal mine employment declined from 45 000 to 1 700 (WRI, 2021b). In Spain, like in South Africa, mining activity is highly concentrated in just a few towns and regions. As part of the country's decarbonisation policy, the Ministry of Ecological Transition and Demographic Challenge (Ministerio para la Transición Ecológica y el Reto Demográfico/MITECO) developed a Just Transition Strategy[9] in 2019.

Since most of the labour force in coal activities had already been shed by the time the strategy was developed, the Spanish experience provides an indication of the impact of no action being taken to ensure a just transition. The Spanish experience is regarded as reactive, since the country is addressing the losses of historic mine closures and the future of coal communities, as opposed to planning for future decline. The lack of action has resulted in mining towns facing a decline, with depopulation rates reaching 40 percent in some regions (WRI, 2021b). In addition, the regions' rural nature and lack of skills are a barrier to the development of new economic activities. Due to the lack of support, the closure of mines has been blocked by local coalitions consisting of mine workers, unions, municipal governments and businesses that were reliant on the coal industry.

[9] *The strategy is part of the Strategic Energy and Climate Framework, which has three key pillars. Beyond the Just Transition Strategy pillar are the Draft Bill on Climate Change and Energy Transition pillar, and the Spanish National Integrated Energy and Climate Plan pillar. See (MITECO, 2020)*

With the deadline for coal mine closure at the end of 2018 by the EU Decision, the Spanish government and trade unions concluded a €250-million deal, with the funds dedicated to mining regions up until 2030.

The Strategy includes a commitment by MITECO (MITECO, 2020) to:

- Guarantee the appropriate social schemes for workers who lose their jobs in companies covered under the scheme
- Implement just transition agreements in regions affected by the closure of power plants with a view to managing the potential impacts of the closures on jobs and population at the end of the process
- Include power plant closures that may occur in the years to come
- Generate a tool that could be used in a similar way for subsequent closures of other types of technology, such as nuclear
- Further develop the instruments put forward in the just transition agreements
- Generate a tripartite dialogue framework to follow up this agreement

Crucial to the strategy is the formation of agreements between key stakeholders in affected mining regions. The aim of the agreements is to preserve existing activities and create new activities and employment in the impacted regions, through supporting sectors and groups at risk, securing the population in rural areas, and furthering diversification and specialisation. The agreements are mandated by a monitoring committee that oversees compliance to agreements. The committee is composed of members from the state, private business, and trade unions.

Agreements are designed to include the following factors:

- An inclusive participation process to prepare the just transition agreement
- An analysis of the impacted area, including economic activities, infrastructure and socioeconomic features, followed by an evaluation of prior or existing initiatives or plans
- Identification of potential investments, actions, and projects to aid recovery in the affected areas and decision-making on their feasibility and potential plan of action

The strategy also allocates roles to stakeholders as indicated in Table 3.

Table 3. Stakeholder roles in Spain's Just Transition Strategy

Stakeholder	Responsibility
Government ministries	• Expedite funding to be channelled towards grants to companies and research projects, venture capital instruments, and loan guarantees for businesses • The Minister for Ecological Transition and Demographic Challenge may regulate procedures and establish requirements for new generating facilities based on renewable energy sources • Water use licenses for closing plants may initiatives and projects in the geographical area where the plant is located • Search for investors with any investment projects located in the affected areas • Formulate energy policy instruments to implement energy-based business initiatives in the affected areas • Channel existing funding streams to affected regions • Provide technical support to projects • Collaborate with other state departments to offer comprehensive support to displaced workers to provide them with vocational training and employment services

Table 3. Stakeholder roles in Spain's Just Transition Strategy (continued)

Stakeholder	Responsibility
Coal mine/ plant owners	• Generate new investment proposals in the same territories regarding business opportunities involving electricity generation using renewable energies or other feasible lines of business • Formulate plans to relocate their own personnel, preferably and where possible, in jobs related to the new activities and to plant decommissioning and restoration • Give priority to the workers of ancillary companies in jobs related to the new activities and to plant decommissioning and restoration. To this end, the qualified companies that are awarded the tenders for these activities shall be encouraged to employ ancillary company workers in the local area identified by the SISPE • Support a proactive search for other investors and participation in the preparation of the Transition Agreements, leveraging the knowledge of local businesses to build new initiatives with a rapid transition between the closure of old facilities and the potential opening of new ones. Tasks involving any reskilling needs will also be coordinated with these companies • Specific action to permit cooperation in the vocational training and employability support plan to guarantee an improvement in workers' jobs in the new activities
Trade unions	• To participate in all the processes and committees established at all levels, including state, autonomous region and local on the following issues: training, occupational health and safety, reindustrialisation and outreach, and any other that can contribute to the attainment of the goals set out in the agreement • To facilitate compliance with and monitoring of all the commitments entered in the agreement

Source: TIPS, based on MITECO (2020)

Other tools that are used in the Spanish approach include:

- Setting up a Just Transition Institute to provide technical support in drafting and implementing transition agreements
- Setting up social dialogue roundtables that include administrations, unions, business, and other related social partners
- Guaranteeing adequate compensation for workers in the form of early retirement or severance pay
- Short-term maintenance of employment for mining districts through mine restoration and renewable energy development, as well as other plans to be developed with mining municipalities
- Setting up job banks for redundant workers from thermal power plants and coal mining. The job banks enable access to employment opportunities in dismantling existing facilities and in new business initiatives

Since the process is ongoing, once the public participation process has concluded, projects will be assessed. Through the information gathered, an evaluation of the proposals will be carried to identify project activities, their level of maturity and what their needs are, with the aim of starting to support them by suggesting lines of assistance that fit their profile or reflecting on new support instruments to work on in the future. Once project analysis is complete, seminars will be organised for each impacted region, where information will be returned to all the stakeholders to move projects forward.

What Can South Africa Learn From These Two Cases?

Given the cases and experiences in Germany and Spain, some useful learnings can be incorporated when thinking about the process of a just transition in South Africa.

Inclusive decision-making must be incorporated from inception, throughout the process and in planning for the futures of impacted stakeholders and regions. A lack of inclusivity at any stage of the process increases the risk of failed decision-making, projects, and resources. Further, a lack of inclusivity increases the risk of political economy hurdles through some form of rebellion against the process. This, in turn, can cause projects to fail or for projects to secure the buy-in of key stakeholders.

Bottom-up processes must be a feature of the just transition. Here reference is made to working with stakeholders that are proximal to regions undergoing transition. Top-down processes where national departments and stakeholders in economic centres of countries determine the processes and solutions neglect the needs of stakeholders that stand to be impacted and increase the chances of such processes and solutions failing, as well as the backlash experienced by impacted stakeholders. Germany, prior to the 1980s, for example, employed top-down planning, which led to regional stakeholders rebelling against local diversification attempts.

The just transition process is a long-term process that can span several decades and will involve trialling solutions and then then modifying them where appropriate and necessary. While planning in advance and engaging in a democratic manner will reduce the likelihood of blockages, the unfolding of the process and solutions may not always go as planned. As such, planning authorities must be dynamic and flexible, scaling initiatives where they work and modifying them where they do not.

Finally, a central authority to manage the process is an asset and can play a role in uniting various stakeholders on a common vision and ensure that the pace of progression is maintained. The authority should be vested with the appropriate mandate and has a valuable role to play in managing the complex process, as well as responding to national and international dynamics in impacted value chains and value chains likely to face impacts in the future.

6
AREAS OF EMERGING DEBATE IN THE SOUTH AFRICAN LANDSCAPE

A natural outcome of unequal societies is that stakeholders do not agree on what the goal of a just transition should be and how the process should unfold. Here, the NPC process has already begun to uncover where the areas of agreement and disagreement lie. This section first draws on the findings of the NPC process and delves deeper into selected areas of debate as they relate to the South African context.

Through the NPC process, points of consensus and disagreement between stakeholders were uncovered in key thematic areas affecting the transition. These points provide insight into political economy tensions in the consideration of a just transition. This section reproduces the areas of consensus and divergence ascertained in the process, which are segmented into governance, energy, water, land use and economic development issues.

With respect to governance issues, stakeholders coalesced around a national-level, state-coordinated approach to progressing the just transition. Further, there was general agreement around the need to build trust between social partners, and to mitigate corruption (NPC, 2019). At the local government level, stakeholders agreed that local government had a greater role to play in the just transition. There was also agreement on the need for an inclusive decision-making process which brings together all stakeholders. Stakeholders disagreed, however, on the ownership of projects and solutions. There was a general distrust of the private sector, with stakeholders voicing disapproval for private projects and questioning the leverage that the private sector had over the state.

When addressing energy-sector issues, stakeholders agreed on the need for a low-carbon future, with renewable energy as a feature of the energy mix (NPC, 2019). Stakeholders also agreed on the need for smaller and more decentralised generation and the need for new models of ownership to be tested, including community ownership models. Stakeholders differed on the role of coal in South Africa's energy future, where the timing of phase-out and the management of this process was debated, but did agree, in principle, that coal should be phased out. There were also disagreements about the pace of renewables roll-out and the risk of Eskom being privatised if unbundling were to occur. A key disagreement, which manifested in ambiguity in the overall vision, related to the end goal. Stakeholders could not agree on whether a net-zero or zero-carbon goal was an appropriate end point.

When discussing issues pertaining to water, stakeholders agreed on several key areas. There was consensus around equitable access to water, improved water management, water conservation with penalties, awareness raising around water conservation, rehabilitation of catchment areas and additional focus on wastewater treatment, improved data collection systems and rainwater harvesting (NPC, 2019). Stakeholders disagreed on municipal roles in accessing alternate water sources and funding, the ringfencing of water budgets, the conservation of wetlands, and the ceasing of oil exploration in the ocean.

In the consideration of land use, the NPC process saw stakeholders agree on the need for equitable access to land, the efficient use of land in densely populated areas, the localisation of food production, the adoption of sustainable agricultural practices, improving food security, and the role of mine rehabilitation to restore land and create jobs (NPC, 2019). Stakeholders diverged on whether mining companies and the state colluded on land use to the exclusion of other stakeholders, the state as responsible for funding mine rehabilitation,

and leaving market forces to manage land use, without any state role.

Finally, in terms economic development, stakeholders voiced broad approval for the transition towards a low-carbon future, with renewables development (NPC, 2019). This included policies to create jobs in sustainable sectors, localisation, training and skills development, and strong community interaction. Stakeholders disagreed on the extent of change, and whether a completely new economic system was needed. Further, there were disputes around the inclusion of the health impacts of coal energy activities in policies.

Since the NPC process concluded, there have been several debates that have started to form around the just transition and energy sector dynamics in South Africa. These areas of debate are discussed in turn.

Energy Technology Debates

Current just transition debates focus mainly on energy sector decarbonisation, with a lot of emphasis on energy sector issues, as briefly reviewed here. It is important to note, however, that the idiosyncrasies of each impacted sector will also contribute to the path of decarbonisation and thus inform the just transition as it relates to that sector. It is likely that each sector impacted by climate change directly or through policy formulation in the future will identify technology-specific debates that need to be incorporated into the just transition thinking and framing, particularly as they relate to solutions or interventions.

With the declining costs of renewable energy generation, specifically solar PV and wind, the greater penetration of these generation sources in South Africa's energy mix has been debated. Here, the debates centre around the concept of base load, which refers to large electricity supply through a single large generation facility, usually powered by coal or nuclear, to service the bulk of electricity demand, on a consistent basis. These plants operate inflexibly, and the argument that coal and nuclear lobbies advance for continued generation of the respective technologies is that electricity-supply industries require inflexible and consistently operation coal and nuclear generation to meet electricity demand throughout the day. This view is challenged in modern energy systems, however, and is regarded as antiquated, as there is no technical requirement in generation systems for large and inflexible plants to generate the bulk of supply (Matek and Gawell, 2015; Szima et al., 2021). The inflexible nature of base load plants implies that they cannot vary output easily in response to changing demand, and when they do, incur losses in efficiency and competitiveness (E3G, 2020). Modern electricity systems can utilise smaller gas and renewable generators to supply similar capacity to base load plants. To ensure stability in meeting demand, the system operator then manages supply to meet demand as it fluctuates according to the time of day and season.

Another criticism levelled at greater renewables penetration is that solar PV and wind plants depend on weather conditions to meet demand. This argument is used to cement the reliance on coal or nuclear base load capacity in the energy system. Modern energy systems, however, require a variety of flexible generation sources to meet supply under suboptimal weather conditions (E3G, 2020). With complementary generation sources, electricity demand can be met by other generation sources when renewables conditions are suboptimal. Alternate sources such as concentrating solar power, pumped storage or hydro, green hydrogen, batteries, geothermal, or demand side management tools, can be tailored to a given system and

avoid the necessity for coal and nuclear base load systems.

In the debates around the ideal mix of energy sources, the debate about the role of nuclear in South Africa's energy mix also impacts the energy transition. IRP 2019 accounts for preparations for a nuclear build programme of 2 500MW as a no-regret option in the long term.[10] Energy experts have criticised this view on nuclear, however, raising numerous concerns related to the technology. The concerns raised relate to high capital costs, long-term development, high cost and time overruns, the downsides of base load projects, a lack of the necessary domestic expertise, and public concerns around safety (Bosman, 2021; van Wyk, 2021; Yelland, 2021). There are, however, other voices affirming the role of nuclear energy in South Africa's energy mix, including for small modular reactors (SMRs). SMRs are 100MW generation plants that are modular, with small sub-assemblies that can be produced in factories and then integrated at the production site and avoid mega-projects (Kemm and Msebenzi, 2021; D Muller, 2021; D Muller, 2021). These SMR systems can also cater to flexible generation, which implies that capacity can be ramped as needed and can be adapted to the flexibility needs associated with renewables generation. Proponents of nuclear generation also cite the lack of domestic expertise as a challenge that can be overcome through skills development and upskilling of the existing engineer base.

Another debate among coal lobby groups in South Africa pertains to clean coal processes, and specifically the role of carbon, capture and storage (CCS) and/or carbon, capture and utilisation (CCU)[11]. While carbon capture technologies are touted as a promising technology to help large industries in curbing CO_2 emissions, international experience has identified barriers that accompany the technology. The primary barrier to implementation has been the extraordinary capital costs required to set up the full CCS system from capture to storage. Plants to capture CO_2 alone can reach billions of dollars, excluding the costs of transport and storage (Bennett and Page, 2017). Further, the risks associated with pipeline construction, identification of storage, and the monitoring of storage deter investment in CCS technologies (Bennett and Page, 2017). The risks associated with CCS technology render these projects highly risky from an investor perspective. For example, in the EU, a billion euro was allocated in 2009 to six projects throughout the Member States through the European Energy Programme for a recovery programme. By October 2013, three of the six projects had failed due to permitting, legislation and financing issues (EC, 2018). The development of CCS in South Africa is still in its early stages, with no commercially operational CCS activities in place along the full chain of CCS activities (World Bank, 2016). While certain elements of the CCS chain are already operational in South Africa through industrial CO_2 capture and small-scale CO_2 transport, fully operational CCS projects have not been implemented. While notable efforts and funding have been directed to CCS technology, with the lack of a global price on carbon, a general business case for CCS has yet to be proven globally and locally.

[10] *See "Decision 8" in (DMRE, 2019)*

[11] *Carbon capture refers to technologies which collect CO_2 emissions that would otherwise be released into the environment. Carbon capture and storage (CCS) specifically refers to collecting CO_2 and channelling these emissions to less environmentally harmful storage mediums (Bennett and Page, 2017). Carbon capture and utilisation (CCU) is complementary to CCS and includes technologies that allow captured CO_2 to be used as an input into industries that require CO_2 as a feedstock.*

Just Transition Conceptual Debates

Ambitions of a Just Transition

Stakeholder groups differ on the degree of ambition that should be pursued in a just transition. As indicated in Section 2, there are different definitions and visions of a just transition. The vision of a just transition dictates the ambition, and which areas of justice and vulnerable stakeholders, that other stakeholders focus on. The elements of distributive justice that are commonly understood in a just transition address how resources should be allocated. This ranges from mitigating losses to vulnerable stakeholders arising from the transition to generating gains and benefits for these stakeholders. Procedural justice considers the fairness of decisions and can also take different forms. At a basic level, addressing this justice can take the form of involving vulnerable stakeholders in decision-making processes. The concept can be extended to a view that also aims to empower and elevate stakeholders through the process. Here, inclusivity ensures that stakeholders have the means (financial, human, informational, etc.) to take part and exercise their agency. Restorative justice focuses on clear identification of harmful impacts and involves estimating the remedy to impacted stakeholders. The ambition here can take several forms, from financial or other compensation to people and communities for historical, current, and future damages, to the removal, correction, repair, and redress of historical harms, with the aim of restoring equity.

In some cases, however, stakeholders can mask retaining the status quo with an appeal to justice. Such approaches do not attend to elements of justice and ignore the risks and vulnerabilities and, at times, even use them as an avenue to justify the status quo. These views aim to protect incumbents and existing industries (such as fossil fuels) against change through focusing on opportunities associated with existing activities (e.g. clean coal in the energy sector). Employment, ownership, income and wealth tend to remain unchanged or essentially determined by market forces. Similarly, environmental externalities are largely ignored or addressed through market forces and possibly market-based instruments.

Given a review of the literature, three key variants of just transition can be identified. These vary in ambition, ranging from managerial reform and structural reform to transformation.

The least ambitious conception of a just transition agenda aims to achieve managerial reform (somewhat aligned with the shared solution and differentiated responsibility approaches in section 2), which seeks to foster greater equity and justice within the existing economic system and focuses on the impacts of the transition. This ambition does not envision changes to the existing economic model and the balance of power, and accepts that the existing system generates rising inequality, and that existing labour standards are ill-adapted to secure workers' health and wellbeing. Labour market vulnerabilities are attended to through existing levers such as improving working conditions and occupational health, and safety and environmental standards. This culminates in a worker-centric just transition that attends to distributive just issues at the firm level, incorporating interventions such as job retraining programmes, pension schemes and other forms of compensation for affected workers. The approach largely ignores other vulnerable stakeholders such as small businesses and low-income communities. Participatory justice elements are incorporated through social dialogue between unions and employers only. Restorative justice remains essentially ignored.

Structural reform attempts to secure both distributive and procedural justice

elements. Like with managerial reform, the structural inequalities and injustices that are produced by the system are acknowledged. The structural reform ambition aims to address the sources of problems rather than the manifestation of impacts (as in the managerial reform). Here the focus moves beyond market forces and techno-economic innovations to modified governance structures, as well as democratic participation, decision-making, and ownership. This promotes a bottom-up approach, driven by the agency of affected groups, from workers and citizens. Structural reform promotes measures, such as worker- and citizen-owned energy cooperatives, strong social safety nets and new forms of participatory governance.

The most ambitious and arguable radical ambition of the just transition targets transformation (aligned with the social ecological approach in section 2), addressing all three dimensions of justice. Transformative ambitions envision an overhaul of the existing economic, social, and political system, holding these systems accountable for economic, social, and environmental crises. This approach argues for a change in the rules and modes of governance and the promotion of alternative development pathways. No blueprint vision of the pathways needed to arrive at transformative just transition exist. The processes are regarded as context-specific and dependent upon the societal baseline from which it emerges. This just transition approach is rooted in bottom-up, grassroots democracy, social/public ownership, strong social protection and industrial policy, community-level resilience, and inter- and intragenerational solidarity.

Deciding on the level of ambition for a given country is important as it determines which sectors, vulnerable groups and mix of policies a state will adopt in its approach to a just transition and what its socio-economic goals are as a result of the process.

Prioritisation of Stakeholders

Conceptually, the just transition involves a value judgement on which stakeholders are identified for support, the amount of support they receive, and how this support flows over time. Narrow views prioritise workers in impacted sectors of the economy. However, there are other groups that are directly or indirectly impacted when sectors enter decline. This impact is particularly acute when discussing certain sectors of the economy which occur with high concentration in smaller regions. An example of this is the coal value chain that is concentrated in the towns of Mpumalanga. Such regions suffer the impact of declining demand through lower employment and economic activity, with small businesses and communities impacted in addition to workers.

Broader interpretations of the just transition also consider vulnerable stakeholders beyond workers; however, in practice, just transition policies have tended to focus on workers primarily. Krawchenko and Gordon (2021) reviewed national and regional initiatives, strategies, policies, and practices currently in place across 25 countries (advanced OECD economies) and 74 regions, plus European Union-level policies. One of the findings in the review pointed to a strong jobs and environment focus on just transition strategies, policies, and initiatives, with a gap around society-focused framing. While a societal framing appeared in policy documents, actual policy measures to incorporate the impacts of the transition of society did not feature substantially. Specifically, community and local economy policies do not feature in most of the policies reviewed.

Groups beyond workers must be considered, given that their livelihoods are typically also tied to fossil-intensive value chains and certain groups can mobilise resources to block or stall transition processes. Coal transporters, for example, have protested

in the past over the increase in renewables generation and the independent power producers. In 2017, coal truck drivers blocked a number of main roads into Pretoria and protested outside the Union Buildings in opposition to renewable independent power producers, over fears of job losses in the coal sector (eNCA, 2017).

Time Horizon of the Transition

South Africa's transition to net-zero CO_2 emissions will take place over the next three decades in line with its Integrated Resource Plan and the Nationally Determined Contributions, among others. These form part of the South African government commitment both to its citizens and as part of a global movement towards changing the source of energy generation for the country and reducing the impact of climate change on the planet. The timeframe to ensure that this transition is "just", however, requires immediate decisions to ensure the mechanisms are in place in the near term to support the transition. The processes, the geographic areas, institutions and the approach to be taken to working with companies, communities, workers and different spheres of government will be further developed in the framework and as part of the consultative processes to be undertaken.

As part of the development of the just transition framework for South Africa, it will be necessary to clarify these time horizons and the immediate decisions required. In contrast to responses to the Covid-19 pandemic (where decisions in March 2020 were required to be taken without full information on the nature of the disease and with limited consultation), the Presidential Climate Commission process and development of the framework for a just transition can be conducted in a manner that ensures that research and consultation inform the processes, decisions and planning for a just transition. An important lesson can be learned from the evolution of Covid-19 policy decisions, which evolved as knowledge of the disease increased and the structures and mechanisms for engagement developed. Feedback loops into the policy processes and decisions taken are relevant considerations for the framework.

7
QUESTIONS TO GUIDE THE DEVELOPMENT OF A FRAMEWORK

South Africa is arguably at the beginning of its just transition journey and much still needs to be formulated by way of policymaking. The main areas of policy decisions as they relate to the just transition are indicated in Table 4. The questions are intended to guide a framework for a just transition in the country.

Table 4. Gaps to inform a framework

Area of policy	Gaps to be addressed
Governance mechanisms	• How should provincial and local government structures be involved in a Just Transition Framework? • How will national departments (e.g. dtic, DFFE, DPE, DMRE) work in cohesion and what is the scope of responsibility for each department? • How will local stakeholders in impacted value chains (e.g. mining houses, Eskom, local small businesses) be involved in the process? • What will the frequency of the review process be in relation to consultation and project implementation? • What mix of state funding will be used and from which budget lines? • How will donor funding be leveraged? • How will existing initiatives across stakeholders (business, SOC, provincial and local governments) be integrated and aligned? • How will vulnerable stakeholders participate in decision-making – elected representative approach versus wide stakeholder engagement? • What mechanisms will be instituted to periodically monitor value chain trends and react to declines with just transition support? • How are impacts and successes measured? • How will adaptation and mitigation solutions intertwine with just transition thinking to co-prioritise sustainable development and the just transition?
Labour market policies	• How will workers be prioritised for support and what basket of tools will be used for impacted workers? • What age cut-off will be used for early retirement among workers? Will certain classes of workers (e.g., underground miners) be given premiums? • How long will temporary income support be provided for workers during the transition towards alternate employment? Will this also cover housing and replacement costs? • What will be the role of job placement and training centres and where will these be located? • What existing funding streams (e.g. UIF/social support/EPWP) will be leveraged to support this? • What time horizon will be adopted for value chains – faster transitions with added support or natural attrition over a longer period?
Economic development/ diversification	• How will industrial policy tools be leveraged to create new and sustainable value chains in affected regions (e.g. Emalahleni)? • How will basic infrastructure be rolled out in regions with poor infrastructure to incentivise new economic activities? • How will regions be revitalised to create a new cultural identity? • How will coordination between goals of the framework and existing initiatives be revitalised? • How will local business (including small businesses) be drawn in to suggest new economic opportunities/projects and value chains?
Social support	• How will social grants be leveraged to support communities? • What basket of existing social support mechanisms will be leveraged? • What new social support mechanisms need to be budgeted for?

8 CONCLUSION

This status quo analysis has attempted to contextualise the key debates and issues confronting the development of a framework for the just transition. The technologies, levels of ambitions, and different approaches to understanding the just transition have been discussed. International experiences and some important lessons from these experiences have been considered, as have the key stakeholders and gaps.

The Presidential Climate Commission has a remit of considering the just transition to net-zero CO_2 emissions. This paper has recognised that this remit could be broader as per the discussions in the NPC, and looked at the debates around that approach. It is, however, important to be clear on the mandate, what is achievable, and how to resolve core issues of land use and water that remain unresolved since the dawn of democracy.

Indeed, there has been a lot of development around composing and vetting definitions and visions for a just transition in South Africa. Extensive consultation has been carried out during the NPC process and, more recently, around the Climate Change Bill. In that respect, this report has identified the Climate Change Bill definition of a just transition as adequate and has put forward the NPC vision as an appropriate vision, with a greater emphasis on social justice and a clear goal towards net-zero CO_2 emissions.

Considering the policy options available, a review of the literature indicates a basket of policy tools related to the just transition. A combination of job and training placement schemes, retraining, temporary income support, small business support, and transitioning workers out of the labour force, is required. This is overlaid by the appropriate governance systems to manage the process towards the end goal. Certainly, while these tools are available, there is no "best practice" and South Africa will have to decide on the combination of these tools to be used, their management over time, and how they will be adapted to different regional and sectoral contexts. The deployment of policy tools will also be sensitive to the availability of resources such as funding.

South Africa is at the beginning of its just transition journey, with the recently formed Presidential Climate Commission tasked with the role of coordinating and overseeing the just transition process. Indeed, the coal value chain, and its concentrated economic activities within Mpumalanga, are going to provide a first test case for the management of the just transition. In effecting the process, the identification of solutions and implementation thereof will provide learnings for future just transition processes in other value chains and regions, where lessons can be adapted and scaled. There is extensive international experience to draw from, and this report has attempted to shed some light on the experience in other countries – specifically Germany and Spain.

The just transition narrative certainly pervades the national development discourse and a range of stakeholders have approached the issue of a just transition from their respective vantage points. These views, at times opposed, will have to be reconciled and navigated in a manner to prevent the stalling of an efficient process. Here, the Presidential Climate Commission has a fundamental role to play in ensuring evidence-based discourse as a guide to hold stakeholder claims to in navigating the way forward.

Establishing a clear definition and vision is indeed a progressive step that lays the foundation for moving the process forward. Establishing the just transition framework is the next appropriate policy step. Ideally, the framework will establish guiding principles for South Africa's approach to the just transition, tracking when intervention is required, and laying out how policy mechanisms should behave in response to impacted value chains and regions in the economy, among other factors. Given the analysis of international literature and the South African context, some initial probing questions to guide the development of the framework have been presented in this report.

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