Growth Through Inclusion in South Africa

Final Report Summary

It is painfully clear that South Africa is performing poorly, exacerbating problems such as inequality and exclusion. The economy's ability to create jobs is slowing, worsening South Africa's extreme levels of unemployment and inequality. South Africans are deeply disappointed with social progress and dislike the direction where the country seems to be heading. Despite its enviable productive capabilities, the national economy is losing international competitiveness. As the economy staggers, South Africa faces deteriorating social indicators and declining levels of public satisfaction with the *status quo*. After 15 years, attempts to stimulate the economy through fiscal policy and to address exclusion through social grants have failed to achieve their goals. Instead, they have sacrificed the country's investment grade, increasing the cost of capital to the whole economy, with little social progress to show for it. The underlying capabilities to achieve sustained growth by leveraging the full capability of its people, companies, assets, and knowhow remain underutilized. Three decades after the end of apartheid, the economy is defined by stagnation and exclusion, and current strategies are not achieving inclusion and empowerment in practice.

This report asks the question of why. Why is the economy growing far slower than any reasonable comparator countries? Why is exclusion so extraordinarily high, even after decades of various policies that have aimed to support socio-economic transformation? What would it take for South Africa to include more of its people, capabilities, assets, and ideas in the functioning of the economy, and why aren't such actions being undertaken already? The Growth Lab has completed a deep diagnostic of potential causes of South Africa's prolonged underperformance over a two-year research project. Building on the findings of nine papers and widespread collaboration with government, academics, business and NGOs, this report documents the project's central findings. Bluntly speaking, the report finds that South Africa is not accomplishing its goals of inclusion, empowerment and transformation, and new strategies and instruments will be needed to do so.

We found two broad classes of problems that undermine inclusive growth in the Rainbow Nation: collapsing state capacity and spatial exclusion. First, South Africa is facing the economic consequences of collapsing state capacity. This is the predominant driver of South Africa's weakening economic performance and is at the heart of intensifying macroeconomic stress. We find that current reform momentum is unlikely to reverse this collapse because reforms are encountering systemic, deep-seated, and underlying issues of political gridlock, ideology, patronage, and an over-burdening of state organizations with goals beyond their core missions and capabilities. South Africa needs a strategy to recover state capacity or else slowing growth and increasing exclusion will continue to worsen. Second, we find that South Africa faces a persistence of spatial exclusion, which has enormous consequences for the potential of its economy. Structures of spatial exclusion in both urban and rural areas, have a long history in South Africa, but we find that these have been inadvertently entrenched through well-intentioned post-apartheid housing policies. These have undermined the development of denser and more inclusive cities, leaving too many South Africans forced to choose between formal housing far from opportunity and informal housing closer to opportunity. Effective inclusion of the marginalized black majority will require direct responses to spatial exclusion through urban and housing policies that will allow for more inclusive cities as well new strategies to bridge knowhow between the productive economy and rural areas of former homelands, which remain largely excluded.

In the presence of these supply-side problems, demand-side instruments of fiscal policy have not and cannot improve outcomes. Attempts to address a slowing economy through fiscal stimulus have been ineffective and have weakened the macroeconomic position of the country. We find that the impact of fiscal stimuli on growth have been on balance negative. Recently, the poor performance of SOEs has led to bailouts, which have had a significant impact on national debt accumulation and offset fiscal consolidation efforts. Total contingent liabilities coming from guarantees to public enterprises have increased at an annualized rate of 12.1% since 2005. This debt accumulation puts increasing pressure on the budget, leading to an increase in the cost of borrowing and a deterioration in the country's creditworthiness. South Africa's gross debt rose from 23.6% of GDP in 2008 to 71.1% in 2022, an increase of 47.5 percentage points in 15 years, leading to several downgrades of the credit rating to BB- in 2020, below investment grade. In 2022, interest payments represented 4.8% of GDP and 17% of total revenues, limiting the capacity of the government to use its revenues to address other needs. Looking ahead, South Africa needs to regain its investment grade if it wants to be competitive in the kinds of growth opportunities that we see on the horizon.

With unemployment and poverty high, there have been large pressures for social transfers and public employment. These transfers sharply increased with the onset of COVID-19 through the Social Relief of Distress Grant, but transfers to households were already on an upward trend prior to the pandemic. These grants are more palliative than curative. They are about redistribution more than inclusion. They merely compensate people and companies for their exclusion, rather than include them in the productive economy. They do not create the basis to increase sustainable employment in South Africa. These responses are a distant second best to policies that focus on bolstering the supply side by empowering more South Africans with the ability to participate in the productive process. We call this strategy *growth through inclusion*.

When looking at potential growth drivers for the future one set of opportunities looms especially large – South Africa's "green growth" potential. This report includes a chapter on green growth opportunities in South Africa because of their special importance to recovering and rebuilding South Africa's comparative advantage, which was historically dependent on cheap and reliable electricity based on coal. This advantage was squandered because of collapsing state capacity, making electricity neither cheap nor reliable and causing major damage to the industries whose competitiveness depended on them. But looking forward, South Africa can now leverage its ample solar and wind resources to benefit from shifts in global demand in a world that is trying to decarbonize. Achieving green growth in South Africa is *not* a challenge of how rapidly the country can reduce its greenhouse gas emissions, which make up a very small share of global emissions and which have fallen as the nation's electricity system has collapsed. Rather, we find that South Africa has immense potential to supply the goods, services, and knowhow that a world that wants to decarbonize will need. We discuss three strategies through which South Africa is well-positioned to capture global demand by: (1) making the enablers of global decarbonization; (2) making green versions of grey products for the global market; and (3) exporting green knowhow. Achieving this potential requires addressing the issues of collapsing state capacity and spatial exclusion along with targeted strategies in each of these three dimensions.

South Africa's path to growth through inclusion must include a recovery of state capacity and empower all members of society with the ability to contribute and exercise choice. For the economy to function and leverage all the human capabilities, productive knowledge, physical assets, and natural endowments that South Africa has, government needs to work. The collapse of state capacity has led to increasing exclusion, including through breakdowns in connecting infrastructure across the country. Increasing unemployment and inequality has been felt most by South Africa's black population. South Africa needs a more effective form of statism that does not overburden state organizations with additional goals that undermine their core mission, including the kind of (fragmented) preferential procurement rules that municipal and SOE managers find most disruptive. At the same time, South Africa needs to develop new and better mechanisms for black economic inclusion that connect much more of society to opportunities. Central to this challenge is spatial inclusion, which is ultimately about giving people the ability to choose housing in places where labor markets are accessible, where entrepreneurship is feasible, and where access to markets, technology and finance are facilitated.

Collapsing State Capacity

The consequences of collapsing state capacity have been felt across network industries (including electricity, rail, ports, and water) as well as in the provision of security and the functioning of municipal governments. In particular, the collapse of the electricity system has squandered the country's comparative advantage in generating cheap and reliable electricity by exploiting its coal resources. This advantage underpinned the country's historic competitiveness in energy-intensive industries, including mineral processing among others. The loss of this advantage in cheap and reliable electricity has had outsized impacts on productivity, competitiveness, and output and has become the binding constraint to growth. SARB estimates that the electricity crisis is currently reducing growth by 2 percentage points, but we find that the electricity collapse became binding years before load-shedding became as severe as it has been lately, especially for the manufacturing sector. South Africa's current electricity crisis is just one case of state collapse among many failing state functions. When President Ramaphosa announced an official state of disaster in electricity in early 2023, it was a striking recognition of a crisis that was as acute as a national disaster, but which was caused by state dysfunction. We identify four strongly interacting causes underlying such systematic collapse: gridlock in the ruling coalition that prevents action; an ideology that justifies excluding society from participating in state-reserved activities, over-burdening of public entities with goals beyond their core missions and capabilities, and political patronage that has corrupted both the state and the ruling coalition.

Reversing the collapse of state capabilities requires new strategies and actions to address the proximate causes of collapsing public systems along with actions on the deeper causes that have made state collapse so widespread. The report provides a deep dive on the case of electricity and emphasizes the need to end a 17-year tradition of treating the electricity system as an emergency management problem. We find that ending load-shedding is not a sufficient goal; rather, South Africa needs to restore its previous comparative advantage in low-cost and reliable electricity. Until recently, government maintained Draconian restrictions on private electricity provision. Even now, the main way for the private sector to provide electricity is through power purchase agreements with ESKOM or self-generation, rather than through a well-designed market. Generation is being constrained by lack of capacity in transmission and storage, but little is being done to promote investments in these areas. Provinces, metros, and municipalities have been restricted from buying power other than from ESKOM. Also, until August 2022, private investment in renewable energy was severely restricted. Even today, there is no viable way for society to invest in transmission or storage. Regulatory reform has been slow in coming, and legislative action to establish a market has not been pursued as rapidly as the crisis requires. The report puts forward principles for electricity market design, and several other recommended actions to help expand generation, storage, and transmission capacity more rapidly without locking into high long-term costs. These recommendations are not original, however. In fact, they align substantially with the direction of a 1998 white paper by the Department of Minerals and Energy. We find that gridlock and ideology have repeatedly undermined these actions. Thus, leaders must overcome these deeper causes of the electricity system failure.

While numerous state functions, like electricity provision, have collapsed over the last two decades, we find that many local municipal governments were never set up to succeed to begin with. The report also includes a deep dive into the widespread distress of local municipalities across the country. We find that decentralization at the turn of the century loaded numerous responsibilities on municipalities without a path to gaining the needed local capabilities to deliver. This problem of "premature load bearing" was especially pronounced in local expenditure responsibilities and the unusual responsibility of municipalities in the provision of electricity and water distribution and fee collection. This system was never set up for success for most smaller municipalities and problems have mounted in recent years. Public capacity at the local level is further challenged by preferential procurement systems which further over-burdened local governments. The South African Local Government Association (SALGA) finds that municipality governments, and rural municipalities in particular, are perhaps most undermined by current procurement rules and systems.[1] The collapsing electricity system has further damaged already weak local fee collection and has created a chain of debts from households to municipalities to Eskom and the need for national bailouts. One result of this system of decentralization is that places that were left behind from the modern South African economy two decades ago lacked the effective delivery of public inputs and networks that would allow them to connect and participate in the economy.

In electricity and many other government functions, preferential procurement rules have been an especially important problem undermining effective public investment and service delivery. Preferential procurement in South Africa traces to a constitutional requirement and is structured according to the Preferential Procurement Policy Framework of 2000. The purpose of resulting preferential procurement rules is to enable socio-economic transformation by giving preference to previously disadvantaged groups, SMMEs, and local production. However, these systems appear to not only be falling short of this goal but also undermining it in important ways. For example, when procurement constraints lead to the failure of rural infrastructure, it excludes and disempowers the very people and businesses the framework is intended to benefit. As is the case with electricity market reforms, this is not a novel finding. Many critical issues were documented in a Public Sector Supply Chain Management Review by the National Treasury in 2015, which outlined paths forward based on system and process improvements to address severe fragmentation of rules together with the concept of "strategic sourcing" to better navigate the realities of procuring important goods and services and the complexity of the supply market. Yet, those changes were not implemented through a proposed bill to replace the existing framework, neither at the time of the study or when later introduced. In 2023, the IMF published an issue paper on the topic and noted that improved procurement practices as proposed by the Treasury's review could amount to up to "20 percent of the cost of goods and services procured (3 percent of GDP or 12.7 billion US dollars)".[2] By distorting the market for inputs, the system has increased costs, worsened the effectiveness of public spending, and expanded space for systems of patronage. Procurement rules have enabled the well-documented rise of the "tenderpreneur" economy, which has benefited an exceedingly narrow few at the expense of the rest of society. In our investigations into the drivers of state collapse in the electricity system and at the municipal government level, we find that preferential procurement systems are a critical component of state collapse and thus deserve serious attention.

Rebuilding state capacity is both a technical and political challenge. It is made increasingly difficult over time due to a vicious cycle where talent becomes harder and harder to attract and retain when state entities are seen to be in a state of collapse. Given the toll that collapsing state capacity is having, government leaders will have to exercise bolder leadership to overcome the four-fold causes of state collapse. Current leaders are presiding over a

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[1] See SALGA's 2020 "Policy Review Study: Public Procurement in the Local Government Context in South Africa over the Last 25 Years"

[2] See IMF's Selected Issues Paper "Public Procurement in South Africa: Issues and Reform Options"

collapsing state and will need to overcome the underlying issues of gridlock, ideology, overburdening of public entities, and patronage that prevent proximate solutions from moving forward. The report makes specific recommendations regarding problems in electricity and municipal governments and recommendations to address deeper solutions to recover more general state capacity. Deeper solutions can be grouped into actions to unburden capacity, to build up and protect capacity, and to leverage existing capacity. Although South Africa currently faces widespread issues of collapsing state capacity, there also exist recent examples of turnaround and recovery. This is the case with the South African Revenue Service (SARS), which has recuperated the state's capacity to collect tax revenues by addressing a mix of deeper causes discussed in this report.

<table>
<tr><th colspan="2">Recommendations for Strengthening State Capacity</th></tr>
<tr><td rowspan="6">On the Electricity Crisis</td><td>Create a functioning market for electricity with the following principles: (1) Greater participation of society in generation, transmission, distribution, and storage; (2) Efficient distribution markets that are not too small to benefit from economies of scale (as many municipalities currently are); (3) Clear rules for all market participants that eliminate conflicts of interest and prevent discriminatory treatment; and (4) Final prices that reflect the marginal cost of production, including intra-day pricing.</td></tr>
<tr><td>Appoint a reform and unbundling sherpa/Czar to push implementation.</td></tr>
<tr><td>Remove all preferential procurement requirements for the REIPPP. Develop strategic procurement programs that strengthen industries with clear potential to eventually compete in global markets (and move toward this targeted approach instead of widespread, ineffective preferential procurement).</td></tr>
<tr><td>Use REIPPP design for investments in transmission and storage. Include transmission and storage (with geographical considerations) in the next REIPPP procurement window.</td></tr>
<tr><td>Rent existing power plants to other operators incorporating high incentives for efficiency.</td></tr>
<tr><td>Enable new comparative advantage in green electricity: (1) streamline approval of renewable generation, transmission, and storage projects; (2) promote private green industrial zones powered by renewable energy to attract energy-intensive industries that want to decarbonize quickly; (3) explore pumped storage hydropower with Lesotho to facilitate the absorption of more renewable projects.</td></tr>
<tr><td rowspan="2">On Municipal Governments</td><td>Reassign responsibility for electricity and water distribution to geographically efficient regulated monopolies. Such companies could then collect other fees on behalf of municipalities via their monthly bills.</td></tr>
<tr><td>Develop public "capability banks" and position national/regional entities as service providers to municipalities for activities where local governments cannot be expected to have local expertise nationwide.</td></tr>
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On State Capacity Overall	*Unburden Capacity* – Expand relaxation of preferential procurement requirements on all SOEs and other public entities.
	Build Up and Protect Capacity – Gradual civil service reform to replace the reliance on cadre deployment. Explore long-term system of civil service cadres that are recruited nationally but deployed across different municipalities and levels of government.
	Leverage Existing Capacity – Establish clear markets that allow for societal capabilities to help fill supply gaps in network industries.

On Spatial Exclusion

Even during stronger growth periods in South Africa, the limited growth that has occurred has been spatially concentrated. South African cities are plagued by large commute distances and very high transportation costs. Housing is dispersed in distant, low density residential areas, which are far from city centers and unattractive for local small business activity because of their low density. This undermines the dynamism of urban agglomerations by making formal labor expensive and self-employment and micro-businesses unattractive, which in turn limits the role that cities can play in creating jobs. Meanwhile, South Africa's exceptionally low employment rate of the working-age population is concentrated in rural former homelands, where 29% of South Africa's population lives, but where employment rates are roughly half of what they are in all other parts of the country (including urban areas of former homelands and rural areas outside former homelands). The persistence of this situation relates to failures to expand connecting infrastructure, technology, and – critically – knowhow to excluded places. The report explores the causes behind urban and rural forms of spatial exclusion. This investigation leads to a set of housing and urban development policies that would make cities more inclusive. Rural exclusion is a deeper challenge, in part because collapsing state capacity makes it harder to provide needed infrastructure. However, we find that gaps in technology and market access can be addressed through partnerships between companies and communities in rural homelands, in ways that are compatible with current communal property regimes that are typical in these areas. We identify opportunities to expand the market for such partnerships.

Specific urban planning practices and housing policies must change to reverse the recurring patterns of spatial exclusion in South Africa's major and secondary cities. South African cities show uniquely extreme patterns of low density and fragmented city structures, which result in extremely high transport costs that undermine inclusion and growth. These patterns date back to explicit efforts to keep populations divided, but they also continue to emerge in growing cities today, both inside and outside of former homelands. We find that post-apartheid housing policies have inadvertently caused these patterns to continue as South Africa's efforts to provide quality housing through public programs have led to housing being located far from economic centers. RDP and other publicly subsidized housing have often been built in dispersed areas where land and construction costs are cheap rather than in denser and smaller housing that households value more. Whenever possible, people vote with their feet to live in smaller housing units closer to job opportunities, including sometimes dangerous living conditions. We find that the regulatory environment of cities limits the construction of the types of high density but low-cost urban housing that many South Africans desire. Without such options, people too often expose themselves to unregulated and unsafe living conditions. Generating more inclusive and safer cities is possible through a relaxation of overly restrictive building and zoning regulations that greatly limit the development of denser housing. Zoning and building regulations are locally determined, but South Africa's national and provincial policies can incentivize a revolution in urban regulations that would allow city centers to "build up" and become centers of safe, accessible housing. Addressing restrictions in floor-area-ratios, parking requirements, building codes, and permitting may seem technically mundane, but the impacts of overhauls could have transformative impacts in the form of inclusive cites and generating a housing construction boom.

Regulatory reform must be coupled with changes in government spending to support more compact and inclusive cities. Regulatory changes alone will not necessarily lead to an immediate uptick in low-cost, higher-density housing. But government spending, especially via the Department of Human Settlements budget, can be better utilized to accelerate a change in urban housing and help individuals to access housing. Currently, large block grants for housing-related spending are made to municipalities and spent at local discretion. We recommend restructuring this spending for substantially more of this spending to take the form of demand-side subsidies to individuals to buy or rent housing of their choosing rather than as government-supplied housing programs. We also recommend linking more of housing-related spending to municipalities meeting new standards in relaxed housing regulations and/or to places with the most uptake of demand-side housing subsidies. Finally, the report discusses the importance of putting underutilized urban land to use in housing and mixed-use projects and increasing attention on transportation systems that are viable at the current density of cities.

While more compact and inclusive cities will enable South Africa to "bring more people to jobs," additional tools can help "bring more jobs to people." Since apartheid ended, former homelands have become more connected through infrastructure, but very long physical distances remain. In some cases, paved roads and other basic infrastructure are still glaringly lacking. Despite overall infrastructure improvements and improved living conditions, the economies of rural areas of former homelands remain outliers in their extremely low employment levels. As a consequence, workers from former homelands have been migrating out in search of work and – tellingly – landing jobs on par with others. This indicates that the problem is fundamentally with the places and not the people, their skills, or their education levels. A place-based approach for the former homelands would make it more attractive for businesses to move in rather than for workers to move out, and this can be informed by the experience of economies within former homelands that have achieved relatively more success in job creation. Such places are relatively more connected to markets and production networks and have managed to better interact with the surrounding market and partner with nearby businesses. Even more disconnected areas have in some cases found ways to integrate into the modern economy through different types of commercial partnerships, especially in agriculture. What has worked in these cases echoes organizational structures in franchising, which is a very mature business sector and an important source of jobs in South Africa.

To include more residents of rural homelands in the modern economy, two responses are needed. The first is to better connect the most rural population centers through paved roads and other basic infrastructure. These network expansions remain incomplete and greatly reduce the development pathways for large parts of the country. But lack of physical connectivity is only one part of the problem. Even those areas that have much greater physical connectivity often lag far behind the surrounding areas in economic activity. The solution to this problem is an approach that we refer to as "bridging knowhow". Productive knowhow needs to be bridged between competitive businesses and industries outside of homeland areas and communities within former homelands, and this takes place most directly through business partnerships. South Africa has reached a point where the benefits of such business models are proven, and several types of entities have emerged as connectors and enablers of partnerships, namely: partnership advisors, local NGOs, and community trusts. South African universities within the former homelands and university networks appear to be underleveraged toward enabling commercial partnerships. There are important challenges that must be overcome for partnerships to work – including developing trust and technology transfer – and issues of communal land and governance systems can be hurdles. However, a deeper and more dynamic market for such partnerships is possible, which would better connect businesses in need of land and labor with communities with complementary resources. As more areas of former homelands gain physical connectivity, these opportunities will expand further. We find evidence that these two strategies are more important for inclusion of rural former homelands than wholesale land reform. After all, places that have seen land reform still need transfer of knowhow, often through partnerships, to put land to more productive uses in the face of a variety of other constraints, and places without land reform have achieved growth in both rural and peri-urban settings in South Africa.

Recommendations for Achieving Spatial Inclusion	
On Urban Planning and Building Regulations	Three main areas of regulatory change: • Relax National Building Regulations (overly restrictive materials and accessibility restrictions). • Relax Local Building Regulations (FAR, BCR, parking and elevator requirements to allow for higher density). • Change zoning regulations to allow for greater density and mixed-use multi-family housing.

	On urban planning and development: • Incorporate underutilized urban land for housing and development. • Ensure that development impact fees are evenly applied in the city core and periphery.
	Process rules: Move towards regional and provincial zoning standards to limit highly localized NIMBY vetoes to housing.
	Develop and incentivize active public-private problem-solving task forces for housing expansion.
On Budget Reorientation	Revise the human settlements budget to increase demand-side housing subsidies as opposed to direct supply programs that dictate where housing is built. Partner with the financial sector to expand mortgages/lending to those with limited credit histories.
	Link conditional grant funding for housing and related infrastructure to where local building and zoning regulations meet minimum standards for increasing density or where demand-side subsidies are mobilized.
	Reorient budget towards more experimental, innovative mixed-use urban projects, especially on well-located government-owned land.
On Public transportation	Prioritize the revival of passenger rail, especially by devolving key functioning routes to more capable metros.
	Additional pilots and scaling of efforts to formalize and expand the minibus taxi system in a way that can support public transport systems.
On Bridging Knowhow	Create and expand markets for business partnerships through supporting investments in hard infrastructure (i.e., roads) and soft infrastructure and services (information systems for matching, partnership advising).
	Leverage agents to enable partnerships through matching third-party trust: Partnership advisors, local NGOs, traditional governments (incl. trusts), possible new roles for universities.

Green Growth Potential

South Africa has a role to play in a decarbonizing world. South Africa's comparative advantage in electricity was lost because of a collapsing state capacity, with enormous implications for the country's competitiveness in key export industries such as mining and mineral processing. South Africa must restore its comparative advantage in cheap and reliable electricity, but changing global demand and technological advancements in renewables assure that this will not be recovered through coal alone. Thankfully, South Africa has many opportunities to benefit economically from global decarbonization. These opportunities could be transformational drivers of future growth. South Africa has advantages for participating in the supply of critical minerals, provide the world with many of the enablers of clean technology such as vanadium redox flow batteries (for grid-level storage), platinum-metal-group-based fuel cells, and electric vehicles – among other goods and services that the world will need to decarbonize. Moreover, South Africa could harness its ample resources of sun and wind to make products in a green way. This obviously cannot happen at full scale without a well-functioning electricity system, but the development of green industrial parks run on clean energy will be able to attract energy-intensive industries that want to decarbonize their footprint. Finally, South Africa could develop frontier knowledge and export its knowhow on green technologies and innovations to the rest of the world, though maximizing these opportunities requires more targeted industrial and R&D policies and more flexible immigration and entry of high-skill individuals into the country to complement the specialized knowhow of South Africans.

South Africa needs an active strategy for pursuing green growth opportunities that would allow the country to build new comparative advantages. The report discusses in detail how this strategy could be based on three pillars: (1) making the enablers of global decarbonization; (2) making green versions of grey products for the global market; and (3) exporting green knowhow. In addition to solving cross-cutting economic issues, this strategy requires industry-specific policies that target each of the areas of opportunity that have potential in South Africa. Rather than relying on import substitution and localization, which have become central to South Africa's industrial policy in practice as the economy has stagnated, the strategies explored here would be far more targeted and focused on capturing expanding demand in global markets in areas where South Africa has clear possibilities to grow. This has obvious advantages versus reliance on government's procurement power in a highly constrained fiscal environment with weakening domestic market.

Within Strategy 1 (making the enablers of global decarbonization), two main areas of opportunity are in taking advantage of the global mining boom and promoting the development of industries that are both likely to see rapid global demand growth and are consistent with South Africa's knowledge base. South Africa needs active industrial policies to solve the coordination failures and knowledge gaps that are particularly present in new markets. In the first case, the regulatory obstacles that have hampered mining activity need to be addressed lest the country repeat the lost mining decade of the last commodity super-cycle. Critical minerals production require innovation in separation and refining technologies. In the case of other green supply chains, active targeted industrial policies can play an outsized role. The global move from internal combustion engines to electric vehicles implies the need for change in South Africa's current automotive policy. Other opportunities in membrane technologies for fuel cells and electrolyzers and grid-scale batteries require R&D investment, demand guarantees and other public goods that could spearhead new globally competitive industries. Pursuing one-size-fits-all solutions such as localization requirements or procurement rules without considering the industries' specificity would be less effective than defining industry-specific policies. The analysis included in the report provides a starting point for understanding emerging opportunities, and this information could be leveraged withing emerging strategies and “masterplans” in development in South Africa today.

For Strategy 2 (making green versions of grey products), the electricity crisis is by far the most fundamental constraint, but green industrial parks would provide initial growth and positive spillovers. South Africa needs a boom in renewables to make green versions of grey products, and a boom in renewable generation also requires a rapid expansion of transmission and storage. South Africa has advantageous natural conditions for renewable energy generation but faces major disadvantages in electricity market design and the cost of capital for project development. Therefore, South African policymakers should focus on establishing the long-term market for electricity and lowering capital costs by reducing sovereign and other industry-specific risks. These improvements will take time, but South Africa also has high potential to kickstart this strategy through the development of green industrial parks. These parks would crowd in electricity-intensive manufacturing for exports and would become net exporters of electricity to the rest of the grid. Green industrial parks should not be a public investment but rather a private sector opportunity that is enabled by government policy, including expedited permitting, and supporting infrastructure. The operators of parks would then find tenants, which may include such industries as mineral processing, green steel, ammonia-based fertilizers, as well as highly electricity-intensive services like data centers. Also, SASOL's mastery of the Fischer-Tropsch process can be leveraged in the direction of making green hydrocarbons including sustainable aviation fuel (SAF).

Strategy 3 (exporting green knowhow) presents South Africa with the opportunity to employ its top-tier technological resources to address global and regional challenges. South Africa has several examples of companies and research organizations that have developed solutions that are much needed in a decarbonizing world. This includes Sasol and its unique knowhow in chemical processing, a wide range of private innovators in the green economy, and advantages in the research capacity of its university system. Building on these assets requires bringing capabilities of the private sector and academia together and mixing South African talent with global talent. But, for businesses that cannot bring in the complementary human resources that they need into South Africa, the natural response is to move their businesses out of South Africa. Thus, more open high-skill immigration is vital for success. Finally, South Africa should be well positioned to expand its position in engineering, procurement, and construction globally, and especially across Africa. But this too could be constrained by slow and passive participation in African integration and the African Continental Free Trade Area (AfCFTA).

On Green Growth Potential	
On Green Growth	Targeted industrial policy for opportunities that are growing in global demand and where South Africa can develop comparative advantage: • Pillar 1: Make the enablers of global decarbonization – mining strategies for critical minerals, targeted support actions for pioneers in emerging green supply chains and policies to transition the automotive industry towards electric vehicles. • Pillar 2: Make green versions of grey products for the global market – promote privately-operated Green Industrial Parks (w/ dedicated renewable power). Leverage SASOL's technological strengths to develop green fuels. • Pillar 3: Export green knowhow – Develop capabilities to export knowledge-intensive services in engineering, procurement, and construction (EPC) of green projects, develop new mastery over green technologies (e.g., Fischer-Tropsch for green products, Vanadium Redox Flow battery technology for grid-scale storage, membrane technology for fuel cells and electrolyzers). Strengthen R&D support policies for green technologies. Deepen international partnerships and allow for easy entry of talent through more open high-skill immigration and business travel.
	Return South Africa to investment grade to lower the cost of capital of new investments in the electricity system and other green growth opportunities and develop a world-class electricity market to lower industry-specific risks.
	Prioritize actions to reduce development costs for investment in renewable generation, transmission, and storage infrastructure (e.g., easy permitting; grid interconnection, government-facilitated land).
On Trade Policy	Redirect industrial policy away from import substitution for a limited and stagnant domestic market and instead target industries that can leverage the domestic market but that have the potential to grow by supplying the global market.
	Move from laggard to leader in the African Continental Free Trade Area to increase market access and opportunities for South African companies.
On Knowhow Access	Make South Africa a competitive destination for global talent.
	Continue to reduce administrative delays and costs of business visas.