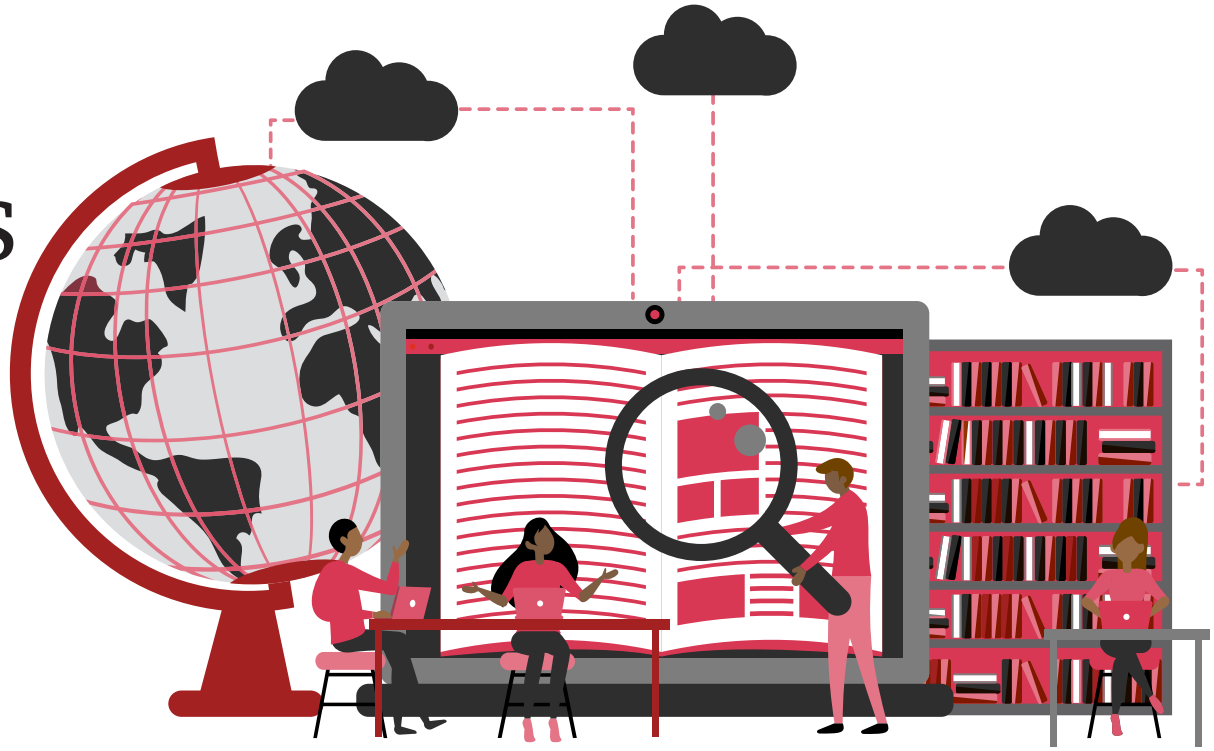
strategy&

What a ‘just transition’ means for jobs in South Africa

Considering employment in a lower-carbon economy



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Introduction

A transition to a lower carbon economy is occurring rapidly around the world.

With the return of the United States, 190 countries are now Parties to the Paris Climate Agreement, binding themselves to the goal of limiting greenhouse gas (GHG) emissions to well below 2°C (preferably to 1.5°C), compared to pre-industrial levels.[1] National action plans are in implementation. Market shifts, too, are reflecting the urgency of redirecting priorities as financial flows and consumer preferences shift towards low-carbon and climate-resilient products and investments.

The transition is being driven both by a realisation of the urgency required to save our environment and by economic reasons.

Climate change is already responsible for an increase in natural disasters, permanent loss of flora and fauna, destruction of agriculture and enormous immediate costs to society. As the threat to human survival and well-being has become more evident, attitudes have shifted and climate action is moving up on the priority list.

In parallel, the cost curves of cleaner energy and transport are diminishing. Combined with new technologies and business models, solar and wind power generation, and electric vehicles, for example, are rapidly replacing the industries for petroleum, coal and traditional combustion engine vehicles.

A transition to a lower-carbon economy is particularly urgent for South Africa.

The country is highly vulnerable to both the physical and transition risks of climate change and this has consequences for employment. Physical risks include, for example, more-intense storms, floods and droughts, soil erosion and runoff, and water scarcity. Such changes affect South Africa's agriculture and industries.

Transition risks generally refer to the costs associated with climate response measures. In South Africa, the focus is on the costs of moving away from the largest GHG emitters, especially coal. However, there are also costs and vulnerabilities that are incurred as South Africa's export partners transition to lower carbon economies.

The transition comes with both positive and negative impacts on employment.

Impacts on employment include both the number of jobs and the quality of jobs created or transformed. The concept of a just transition aims to mitigate the negative impacts of climate change policy and transitioning to a lower-carbon economy on workers and affected communities.

The South African government has adopted its own vision of a 'just transition'.

Given the country's context and circumstances, this has a distinctive meaning and unique focus. In this article we discuss what a 'just transition' means in the South African context:

- In section 1, we lay out the context within which South Africa's 'just transition' is set. This is a context of widespread poverty, inequality, unemployment and an urgent need for economic recovery. It is also a context of a high-emissions economic structure.

- Section 2 covers transition risk arising from South Africa's own domestic policies as it moves to implement its internationally binding targets for reducing GHG emissions. One of the cornerstones of this transition is to shift away from coal-fired power. We estimate the current jobs and economic activity associated with the coal industry that could be lost in a transition to renewable energy. We also examine potential employment gains in alternative energy, particularly wind and solar photovoltaics. Finally, we discuss the economic costs of a delayed transition through, for example, continued load-shedding and high electricity prices.

[1] "Paris Agreement - Status of Ratification" UNFCCC. Accessed 31 March 2021. https://unfccc.int/process/the-paris-agreement/status-of-ratification.

- Section 3 deals with South Africa's transition risk arising from other countries' transitions to lower-carbon economies. This refers to the country's trade vulnerability as its trading partners are evolving.
- The article concludes with the opinion that the more swiftly we move from dying industries and establishing South Africa among the frontrunners in growing industries, the better the chances of maintaining and creating sustainable jobs in the future. This, however, needs to be accompanied by training and reskilling programmes as well as a major increase in domestic and international investment in climate action, both by the public and private sector.

Section 1: South Africa's current context of high poverty, inequality, unemployment and emissions

Defining the just transition in South Africa

The term 'just transition' was first developed by North American trade unions in the 1990s to support workers who lost their jobs due to environmental protection policies. It has since become a framework inserted into international agreements including the United Nations Framework Convention on Climate Change (UNFCCC) to describe a transition towards a climate-resilient and low-carbon economy that aims to achieve the benefits of climate action while minimising hardships for workers and their communities.[2]

In South Africa too, a consensus has formed around the need for a 'just transition'. The country's long-term National Development Plan (NDP) sets a vision towards a 'low-carbon, resilient economy and just society', with a reduced dependency on high-carbon energy sources and non-renewable natural resources. It lays out the need to balance climate change goals with wider socio-economic development goals of employment creation and reduction of poverty and inequality.

A distinctive factor in the use of the term 'just transition' in South Africa is the strong emphasis placed on addressing poverty, inequality, and unemployment. It is also often framed as a transition to a lower-carbon economy that does not impose excessive losses on workers and fossil fuel dependent communities, but creates opportunities for them. In the words of President Cyril Ramaphosa:

"As part of ensuring a just transition, we will need to put measures in place that plan for workforce reskilling and job absorption, social protection and livelihood creation, incentivising new green sectors, diversifying coal dependent regional economies, and developing labour and social plans as and when ageing coal-fired power plants are decommissioned.[3]"

– President Cyril Ramaphosa

[2] Smith, Samantha. Just Transition Centre, 2017. https://www.oecd.org/environment/cc/g20-climate/collapsecontents/Just-Transition-Centre-report-just-transition.pdf.

[3] "Statement by H.E. President Cyril Ramaphosa of South Africa to the United Nations Secretary-General's Climate Summit, 23 September 2019," Department of International Relations and Cooperation - South Africa, last modified 25 September 2019, https://www.dirco.gov.za/docs/speeches/2019/cram0923.htm.

The president again echoed his intention in the February 2021 State of the Nation Address (SONA) of ensuring that "no African child is left behind in the transition to a low-carbon, climate resilient and sustainable society".[4]

To understand what this means, it is important to understand the baseline: where South Africa currently stands in terms of its socio-economic context.

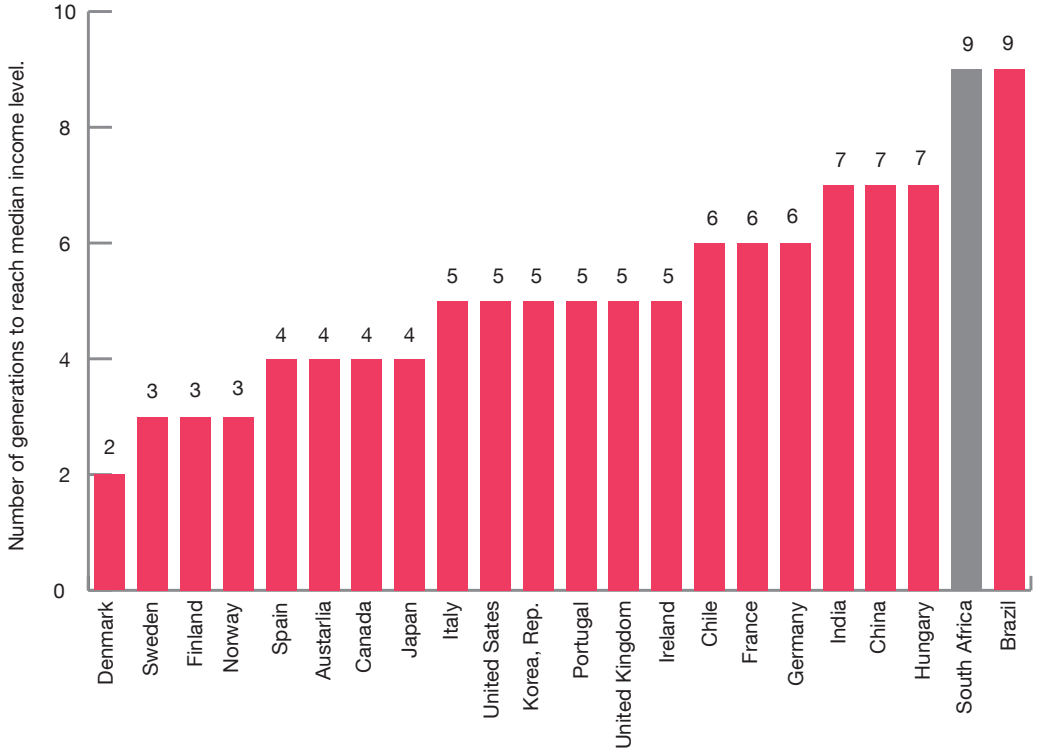
Poverty and inequality

South Africa continues to struggle with poverty and inequality.

More than 25 years since South Africa's first democratic election, inequality has increased rather than decreased.[5] According to World Bank estimates, the country's consumption expenditure Gini coefficient of 0.63 in the latest assessment is higher than the most recent coefficients for any other country.[6] The Gini coefficient is one of the most common measures of economic inequality with values between 0 to 1, where 0 indicates a perfectly equal distribution.

As shown in figure 1 below, social mobility is so constrained that, assuming constant social mobility levels, it would take nine generations for people in South Africa to reach the median income level. By comparison, this number is seven in China and India; six in Germany and France, five in the UK, and only two or three in Scandinavian countries.[7]

Figure 1. Income mobility across generations



Source: WEF, Global Social Mobility report

[4] "State of the Nation Address 2021," South African Government , accessed March 29, 2021, https://www.gov.za/SONA2021#3

[5] "Overcoming Poverty and Inequality in South Africa: An Assessment of Drivers, Constraints and Opportunities," The World Bank, 2019, International Bank for Reconstruction and Development / The World Bank. Overcoming Poverty and Inequality in South Africa: An Assessment of Drivers, Constraints and Opportunities. 2018. https://documents1.worldbank.org/curated/en/530481521735906534/pdf/124521-REV-OUO-South-Africa-Poverty-and-Inequality-Assessment-Report-2018-FINAL-WEB.pdf.

[6] "Gini Index (World Bank Estimate) - South Africa." World Bank. Accessed 31 March 2021. https://data.worldbank.org/indicator/SI.POV.GINI?locations=ZA.

[7] "The Global Social Mobility Report 2020 Equality, Opportunity and a New Economic Imperative." The World Economic Forum, 2020. https://www3.weforum.org/docs/Global_Social_Mobility_Report.pdf.

While there have been improvements in welfare and basic services coverage since 1994, poverty levels remain high. Statistics South Africa's most recent Living Conditions Survey was conducted in 2014/2015.[8] According to this, approximately half (49.2%) of the adult population were living below the upper-bound poverty line (UBPL).[9]

Persistent inequality and prevalent and extreme levels of poverty have been exacerbated by COVID-19 and the associated economic decline.

Economic growth

South Africa's economy has experienced a prolonged period of slow growth since 2009.

Business confidence, as measured by the BER Business Confidence Index, has consistently declined since 2006. With the effects of the COVID-19 pandemic, business confidence, as measured by the RMB/BER Business Confidence Index, has consistently been in negative territory since 2014. With the effects of the COVID-19 pandemic, the South African economy contracted by 7.0% in 2020, and will grow by 3.5% in 2021. However, we estimate that it will take approximately

four to five years for the economy to return to 2019 levels..

Unemployment

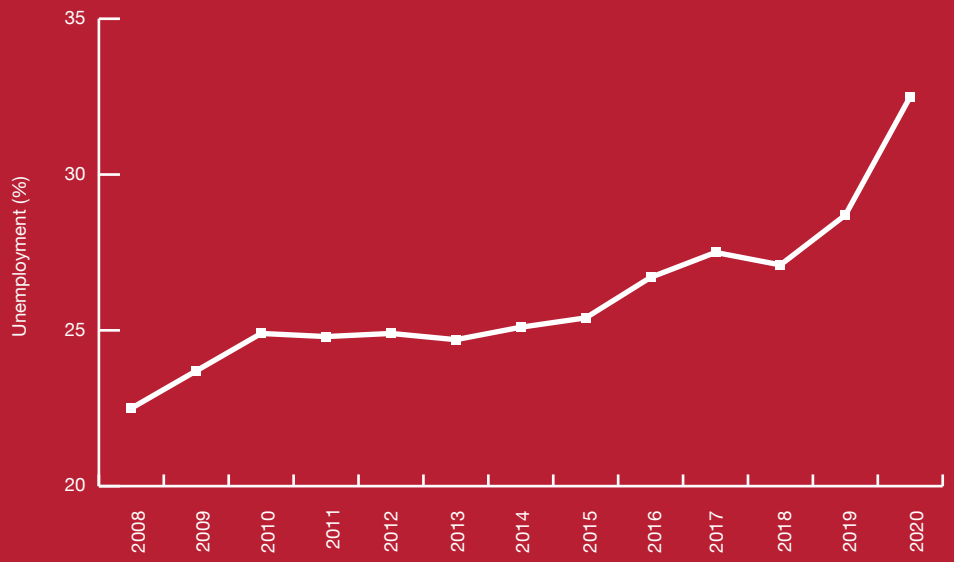
The country is experiencing an unemployment crisis.

The official unemployment rate had already risen to a historical high of 30.1% by the first quarter of 2020, prior to COVID-19 lockdown restrictions, with youth unemployment (ages 15–24) reaching approximately 50%.

[8] Moodley, Nishendra, Ian Palmer, and Sue Parnell. "Building a Capable State: Service Delivery in Post-Apartheid South Africa." 2017.

[9] "Living Conditions of Households in South Africa: An analysis of household expenditure and income data using the LCS." Statistics South Africa. 2014/2015 https://www.statssa.gov.za/?page_id=1854&PPN=P0310.

Figure 2. South Africa's climbing unemployment rate



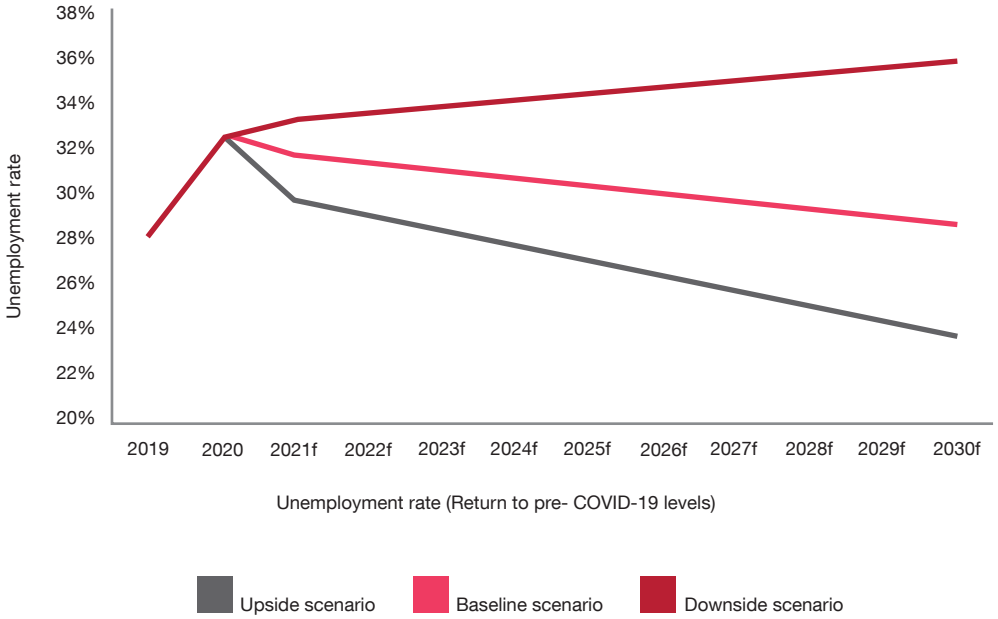
Note: 2020 figure does not take into account Q2 figures where lockdown restrictions limited the ability to actively search for formal employment, thus skewing survey findings.

Source: Stats SA Quarterly Labour Force Surveys (QLFS)

The COVID-19 crisis has pushed significantly more people out of jobs. An additional 2.2m people were without work during the April–June period. PwC estimates that only 900,000 of them returned to a job by year-end — a net loss of 1.3m jobs.

The prediction for 2021 is that fewer than half a million jobs will be recovered. Following this scenario, we estimate it will take up to nine years for the country to return to pre-COVID-19 unemployment rate levels.

Figure 3. Predicted unemployment rate (return to pre-COVID-19 levels)



Source: PwC analysis based on SARB, Stats SA

PwC's employment scenarios for 2021 are based on different perspectives on a third wave of COVID-19 infections.[11] Despite the rollout of a vaccine programme, medical experts agree that the pace of vaccinations will not enable us to avoid a third wave. The severity of this mid-year wave, and the accompanying strictness of associated lockdowns, will directly determine the nature of the economic recovery.

Under our baseline scenario, South Africa's economy will grow by 3.5% this year, and add 420,000 jobs. We expect total employment to return to 2019 levels (i.e. pre pandemic) by 2025. However, by then, a large number of new workers will have been added to the labour force. As such, PwC expects the narrowly defined unemployment rate to decline only slowly, and it could take nearly a decade for the unemployment rate to return to the pre-pandemic level.[12]

[11] South Africa's economic outlook

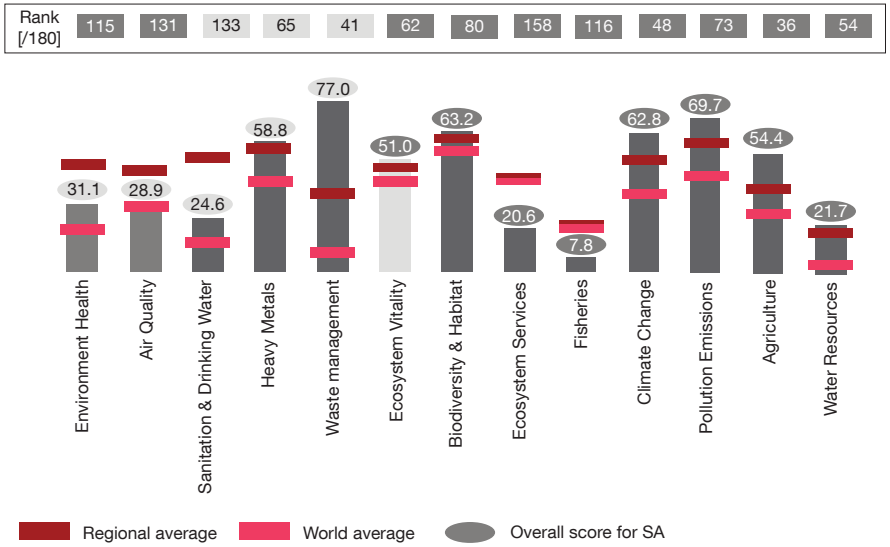
[12] South Africa's economic outlook

Environment

South Africa's development path has not only been one of prevalent poverty, inequality and unemployment, but also one of high carbon emissions. The country is one of the top 15 CO_2 emitters in the world and the largest in Africa.[13] It's GHG emissions comprise 1.1% of global emissions, despite its GDP being only 0.6% of global GDP.

South Africa ranks only 95th out of 180 economies on the 2020 Environmental Performance Index, which measures indicators such as air quality, ecosystem vitality and pollution emissions, among others.[14]

Figure 4. South Africa's score and ranking on the Environmental Performance Index



Source: Environment performance index 2020

The global goal is to limit global warming to well below 2°C, preferably to 1.5°C, compared to preindustrial levels. To achieve this, Parties to the Paris Agreement have committed to reaching peak GHG emissions as soon as possible. As part of its Nationally Determined Contribution (NDC), South Africa has committed to peaking GHG emissions in 2020–2025, plateauing for the next ten years and then declining in absolute terms thereafter.

For South Africa to comply with its commitment to the Paris Agreement, it would need to phase out coal from the power and liquid fuels sectors by 2040.[15] South Africa's progress to date is rated 'highly insufficient' by the Climate Action Tracker. NDCs with this rating fall outside of a country's 'fair share' range and are not at all consistent with holding warming to below 2°C.[16] Continuing with business as usual will put South Africa on a 'critically insufficient' pathway over the next couple of decades.

A just transition must meet multiple priorities of economic recovery, including job creation and inclusive growth, while phasing out coal

Accelerating economic recovery while creating jobs and ensuring inclusive growth are two of the four government priorities emphasised in President Ramaphosa's 2021 SONA.[17] A transition to a low-carbon and climate-resilient economy will need to take place within this challenging context, alongside the priorities of employment creation and inclusive growth.

Shifting from historically high emissions and exclusive development to low emissions, inclusive development will need to be done in a context of very high political sensitivity to potential employment losses.

[13] "These Countries Have the Largest Carbon Footprints," World Economic Forum. Last modified 2019. https://www.weforum.org/agenda/2019/01/chart-of-the-day-these-countries-have-the-largest-carbon-footprints/. World Bank. "CO2 Emissions (kt)." World Bank Open Data | Data. Last modified 2016. https://data.worldbank.org/indicator/EN.ATM.CO2E.KT..

[14] "Welcome." Environmental Performance Index (EPI). Last modified 2020. https://epi.yale.edu/#:~:text=The%202020%20Environmental%20Performance%20Index,environmental%20health%20and%20ecosystem%20vitality.

[15] Socio-economic Considerations For a Paris Agreement-compatible Coal Transition In South Africa

[16] "South Africa." Climate Action Tracker. Accessed March 31, 2021. https://climateactiontracker.org/countries/south-africa/

[17] "President Cyril Ramaphosa: 2021 State of the Nation Address." Government of South Africa. Accessed 31 March 2021. https://www.gov.za/speeches/president-cyril-ramaphosa-2021-state-nation-address-11-feb-2021-0000#.

Section 2: South Africa's transition risk arising from domestic policy

Jobs and economic activity associated with high emissions industries

There is transition risk that arises from South Africa's strategy to mitigate climate change and reduce GHG emissions in line with its international commitments. This is because some of the most polluting industries are also significant players in South Africa's economy.

The environmental impact of the mining sector, for example, does not only entail high CO_2 emissions, but also includes waste dumps, water pollution, high electricity consumption and high water usage. Yet it is also a key contributor of economic and fiscal value to the South African economy. Mining revenue for platinum group metals (PGM), gold, iron ore, coal and 'other mining' was R 541bn in FY2020 (July 2019–June 2020).[18]

PwC further quantified mining's contribution to the economy through the production of mining products, expenses incurred through day-to-day operations, and the people directly employed.

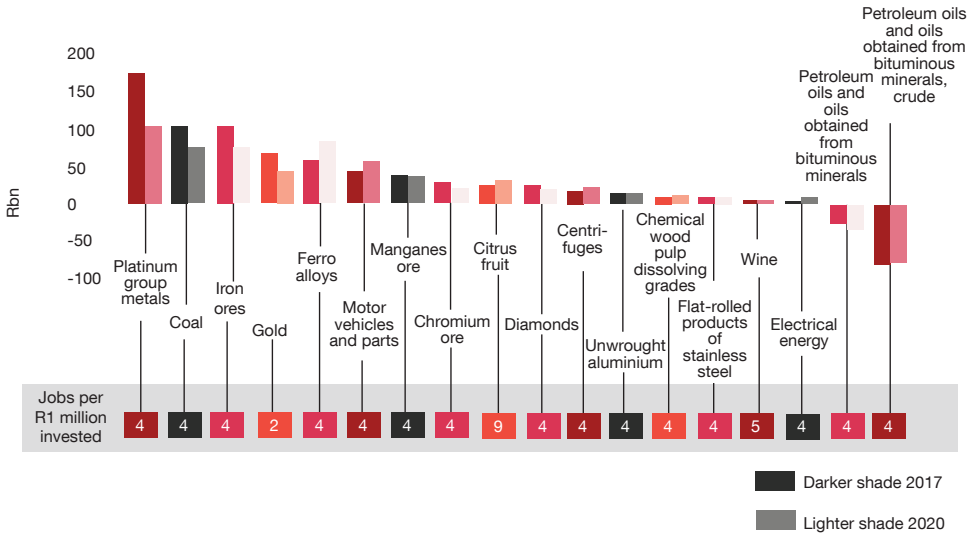
The mining sector added **R776.1bn** (about **6.4%** of South Africa's GDP) in FY2020.

It also added an estimated **R173.7bn** to total government revenue through the collection of direct and indirect taxes in FY2020.[19]

[18] "Mining: Production and sales (Preliminary)," Statistics South Africa, 2020. https://www.statssa.gov.za/publications/P2041/P2041December2020.pdf.

[19] "SA Mine 2020: Essential and Resilient," PwC, 2020. https://www.pwc.co.za/en/assets/pdf/sa-mine-2020.pdf.

Figure 5. South Africa's main net exports and associated jobs multipliers



Source: PwC analysis based on dtic online database

The sectors of PGM, gold, iron ore, motor vehicles and parts as well as coal were the most significant export earners in 2020 as shown in Figure 5.

The National Climate Change Response White Paper, the overarching vision and framework for the climate change response in South Africa, required the development of a National Employment Vulnerability Assessment.[20] This assessment identified the coal value chain, metals value chain, and petroleum-based transport value chain as some of the industries with the greatest transition risk.[21]

By far the greatest GHG emitter is the coal industry, responsible for more than 80% of emissions. This is also where climate mitigation measures can have the greatest impact in achieving South Africa's international emission[22] targets in its NDC.

South Africa's economy is highly dependent on coal for electricity, liquid fuels, industrial use, and foreign exchange via exports.[23] Coal-fired power accounts for approximately 90% of its electricity and[24] 25–30% of liquid fuels.[25] As shown above, it was responsible for R79m of net exports in 2020, exceeded only by PGMs in terms of net exports.

Many communities depend on the coal value chain for their livelihoods, including coal mining, coal power generation and downstream beneficiation.[26] South Africa's coal sector directly employs about 113,000,[27] making it the third-largest employer among domestic mining activities.[28] Decommissioning coal mines in order to reduce GHG emissions in line with the NDC goals may put these jobs at risk.

Table 1 shows the multiplier effect[29] of jobs, GDP and tax revenue associated with each R1m revenue generated by the coal industry. This includes the direct multipliers in the coal industry as well as the indirect and induced multipliers, through further knock-on effects in the economy.

The direct multiplier effect is the first round of spending effects, where increased demand for a good like coal leads to increased business activity and sectoral production. The indirect effect is the second-round effects that change the demand for factors of production and household income, explained by the linkages of other sectors like electricity, water, finance, etc. to coal in the economy. Finally, the induced effect arises through the first and second round of spending and the resultant knock-on effects.

Table 1. Multiplier effects of jobs, GDP and tax revenue associated with R1m revenue generated by the coal industry

	Direct effects	Indirect effects	Induced effects	total
GDP	R684m	R182m	R488m	R1.4bn
Jobs	1 job	1 job	2 jobs	4 jobs
Tax revenue	-	-	-	R331m

Source: PwC analysis, based on a Social Accounting Matrix (SAM) and input-output approach

[20] "National Climate Change Response: White Paper," South African Government. https://www.gov.za/sites/default/files/gcis_document/201409/nationalclimatechangeresponsewhitepaper0.pdf.

[21] "National Employment Vulnerability Assessment: Analysis of potential climate change related impacts and vulnerable groups. Trade & Industrial Policy Strategies, 2019. https://www.tips.org.za/images/National_Employment_Vulnerability_Assessment_Analysis_of_potential_climate-change_related_impacts_and_vulnerable_groups.pdf.

[22] Oak Ridge National Laboratory. "Fossil-Fuel CO2 Emissions from South Africa." Carbon Dioxide Information Analysis Center (CDIAC). Last modified September 26, 12.. https://cdiac.ess-dive.lbl.gov/trends/emis/tre_saf.html.

[23] Socio-economic Considerations For a Paris Agreement-compatible Coal Transition In South Africa

[24] "Supporting Just Transitions in South Africa," Climate Investment Funds. https://www.climateinvestmentfunds.org/sites/cif_enc/files/knowledge-documents/supporting_just_transitions_in_south_africa_summary.pdf.

[25] Richard Bridle and Anna Geddes. "Beyond Fossil Fuels: Fiscal Transition in BRICS." International Institute for Sustainable Development (IISD)2019. https://www.iisd.org/system/files/publications/beyond-fossil-fuels-south-africa.pdf?q=sites/default/files/publications/beyond-fossil-fuels-south-africa.pdf.

[25] Winkler, Harald, Samantha Keen, and Andrew Marquard. "Climate Finance to Transform Energy Infrastructure As Part of a Just Transition in South Africa." Research Report for SNAPFI Project." OpenUCT Home. Last modified August 2020. https://open.uct.ac.za/handle/11427/32176.

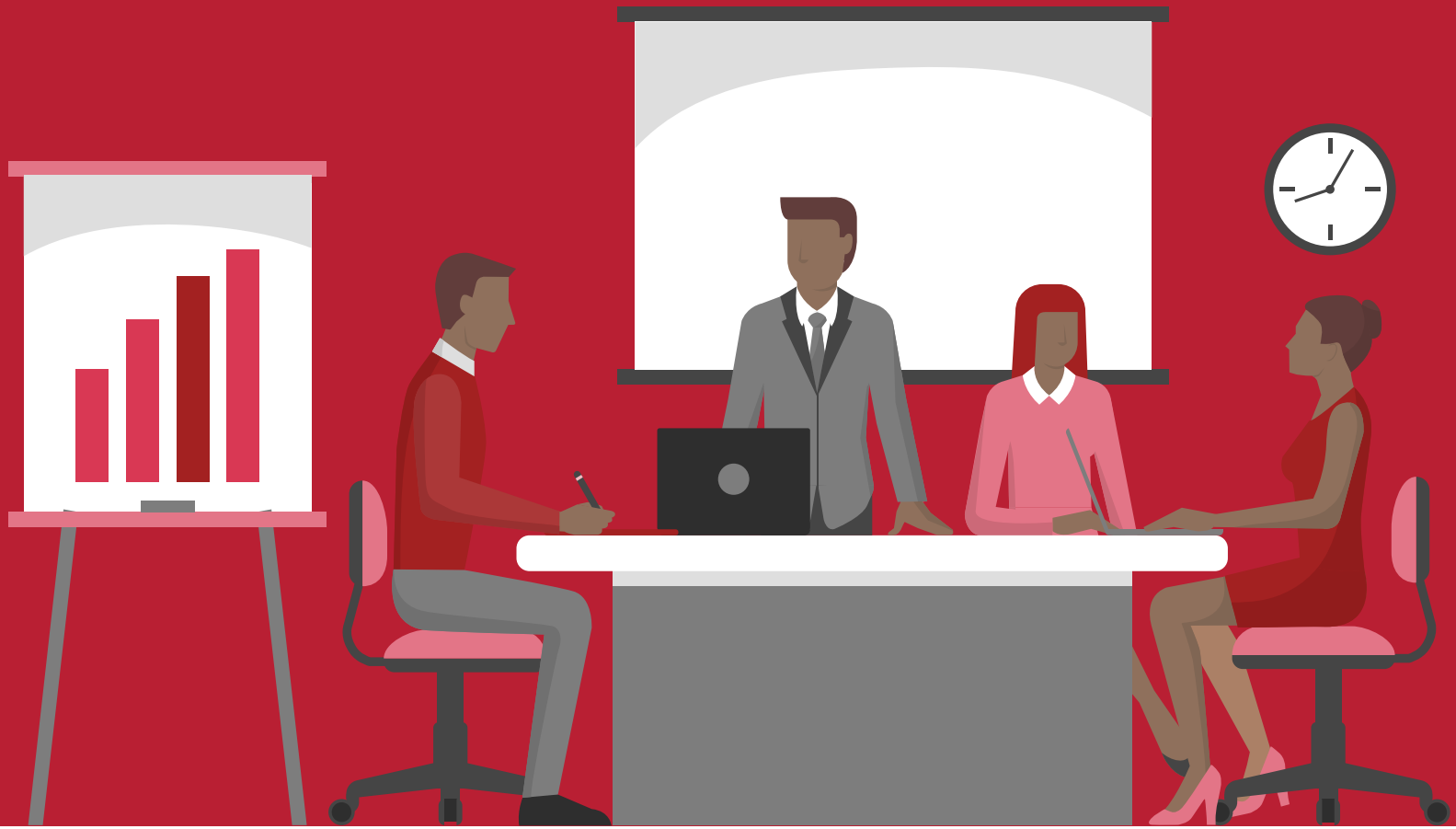
[27] "EasyData – In-depth & Timely South African Economic Data & Analysis." EasyData. Accessed March 31, 2021. https://www.easydata.co.za/service/rsa-standardised-regional-quantec-regional-service/.

[28] "A Just Energy Transition in South Africa: Socio-economic needs and the positive impacts of a future low-carbon economy." Res4Africa Foundation, CSIR, and ERM. 2018. https://www.res4africa.org/wp-content/uploads/2020/09/RES4Africa-Foundation-A-Just-Energy-Transition-in-South-Africa.pdf.

[29] The effect of an increase in income going through multiple rounds of spending, which causes the resulting total impact of the income to exceed the initial income spent

This means, beyond the 113,000 direct jobs in the coal industry, a similar number of indirect jobs are associated with the coal value chain, such as through providing finance or legal services to the coal industry. In addition to this, there are another 226,000 jobs that are induced through the knock-on effects of these activities in the economy. In total, as many as 452,000 jobs would be at risk if the coal industry were to be eradicated entirely.

It is to be noted that South Africa's strategy is not to eliminate coal entirely, but to see no new power plants built after 2030 and four-fifths of capacity closed by 2050. Nevertheless, such job losses particularly affect specific regions. Coal mining is the largest industry in Limpopo, Mpumalanga and KwaZulu-Natal, making it particularly urgent to create alternative jobs in these regions.



Gains and opportunities coming from a transition

A transition also comes with opportunities for employment in cleaner energy industries. The government's electricity plan — the 2019 Integrated Resource Plan (IRP) — sets a path to diversify electricity generation to include other sources, mostly renewable energy.[30] Around 50% of the new capacity is to come from wind and 20% from grid-connected solar photovoltaics (PV).[31]

In a study conducted on workforce transfer from coal regions to sectors that might deploy solar and wind, RES4Africa found a net gain in jobs.[32] It calculated the job numbers associated with a transition to wind and solar power between 2020 and 2030, as shown in Table 2, reaching a total of 862 thousand direct, indirect and induced jobs from wind and solar PV.

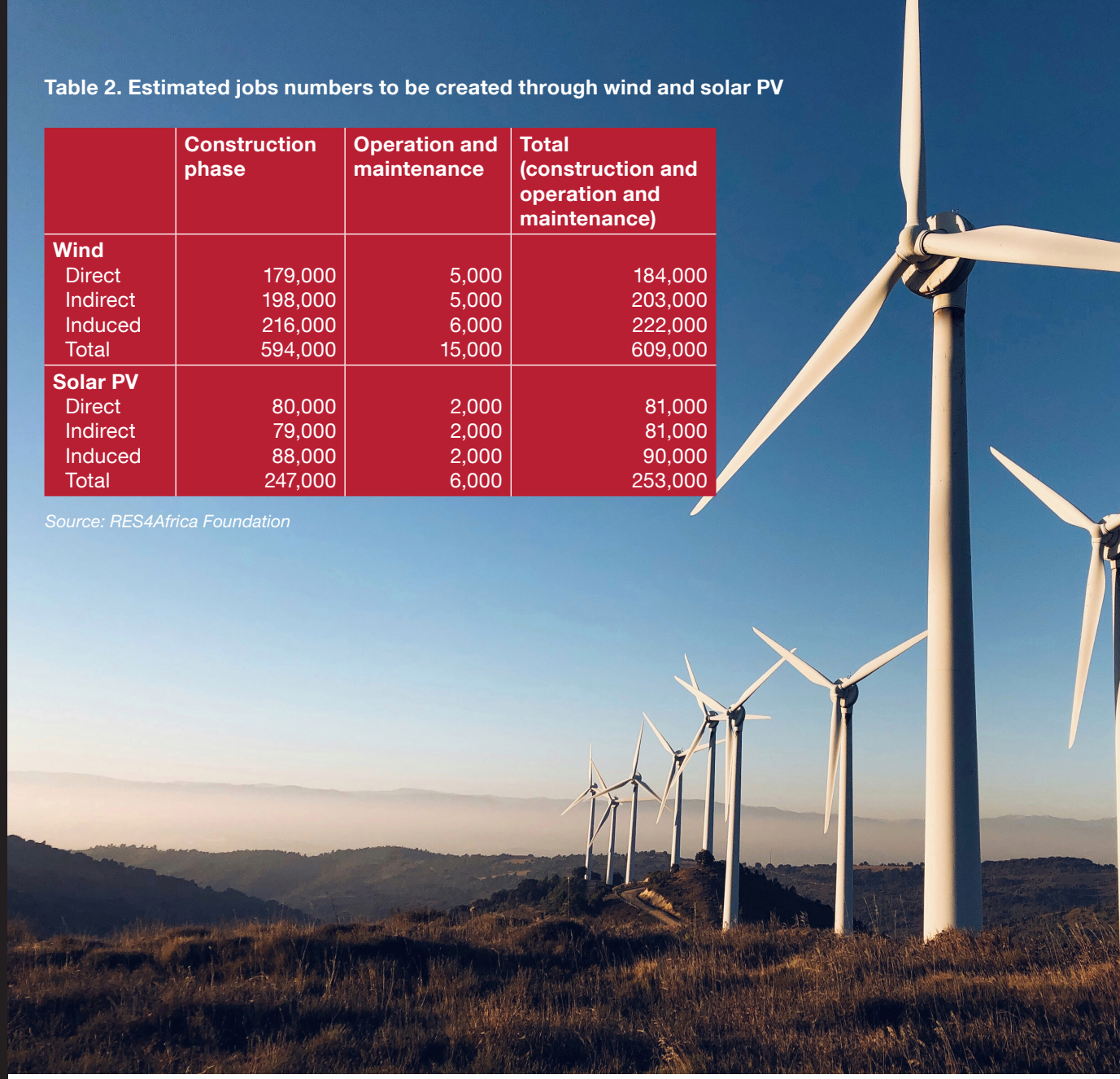
While the potential jobs in wind and solar outnumber the jobs at risk in coal, most of these are in the construction phase with fewer in the operation and maintenance phase. However, currently most of the components that are used for renewable energy are not produced domestically. Investing in skills and technology to manufacture these locally, for example wind turbines, may create sustainable jobs domestically and potentially provide further opportunities through the export market.

To be sure, a job created in renewable energy does not automatically mean a job for an individual who was previously working in a coal plant. A just energy transition thus needs to involve a reskilling plan to ensure that there is training for these new opportunities.[33]

Table 2. Estimated jobs numbers to be created through wind and solar PV

	Construction phase	Operation and maintenance	Total (construction and operation and maintenance)
Wind			
Direct	179,000	5,000	184,000
Indirect	198,000	5,000	203,000
Induced	216,000	6,000	222,000
Total	594,000	15,000	609,000
Solar PV			
Direct	80,000	2,000	81,000
Indirect	79,000	2,000	81,000
Induced	88,000	2,000	90,000
Total	247,000	6,000	253,000

Source: RES4Africa Foundation



[30] "Integrated Resource Plan. South Africa, 2019." Department of Energy. 2019 https://www.dmr.gov.za/Portals/0/Resources/INTEGRATED%20RESOURCE%20PLAN%202019/DoE%20IRP%202019__October%202019.pdf?ver=2019-10-18-170552-007.

[31] Climate Finance to Transform Energy Infrastructure

[32] Socio-economic needs and the positive impacts

[33] Socio-economic needs and the positive impacts

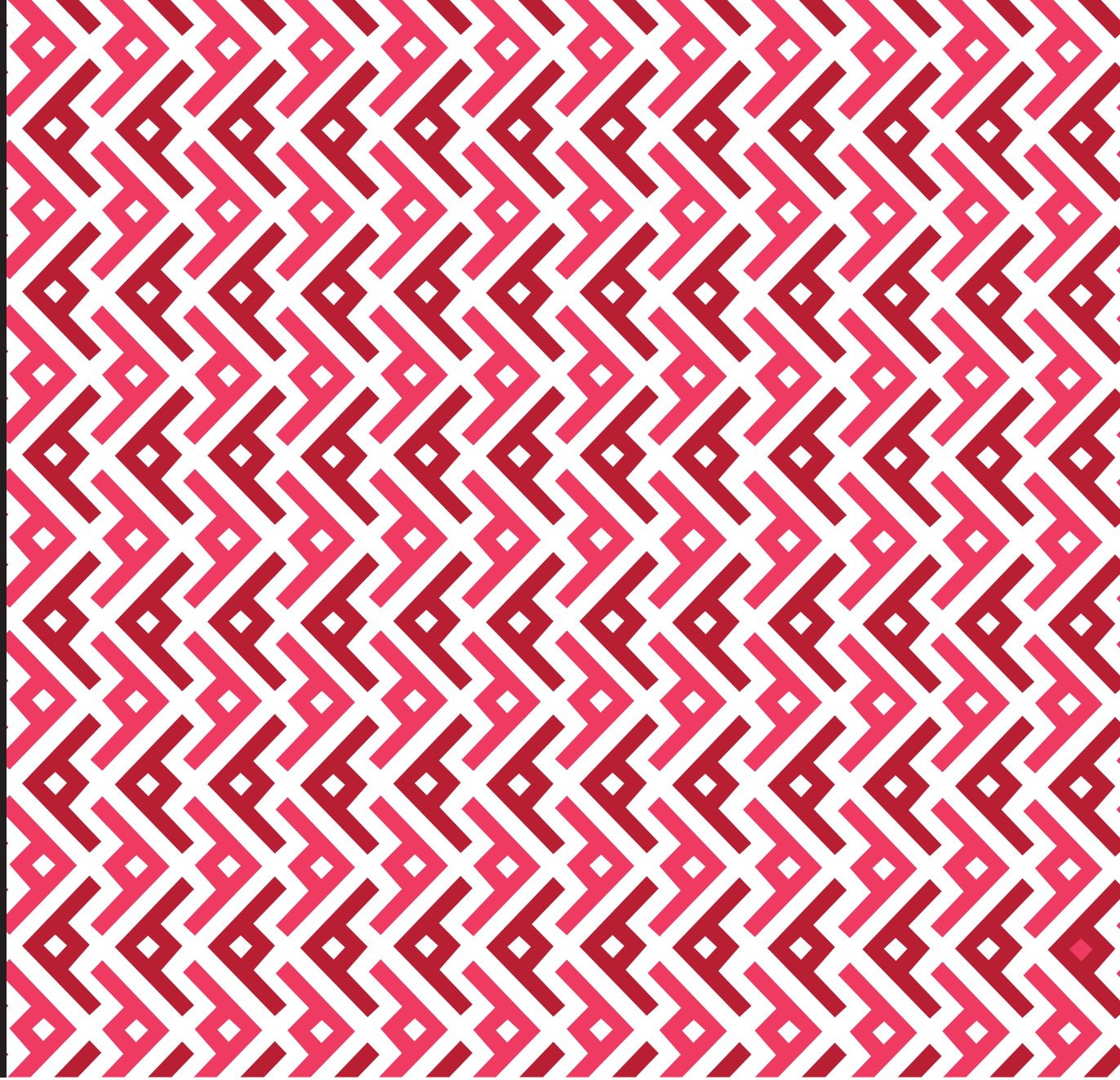
The economic costs of business as usual

While opportunities in wind and solar have the potential to recover and add to jobs lost in coal, a business-as-usual scenario, at least in the short term, would have further potential costs to the economy. Below we highlight a few of these.

Load-shedding

Eskom's technical performance has been declining with South Africa experiencing repeated load-shedding since 2008. Load-shedding causes disruption to businesses and is a major deterrent to investment. It has been estimated to have caused approximately R59bn's damage to the South African economy in 2019.[34]

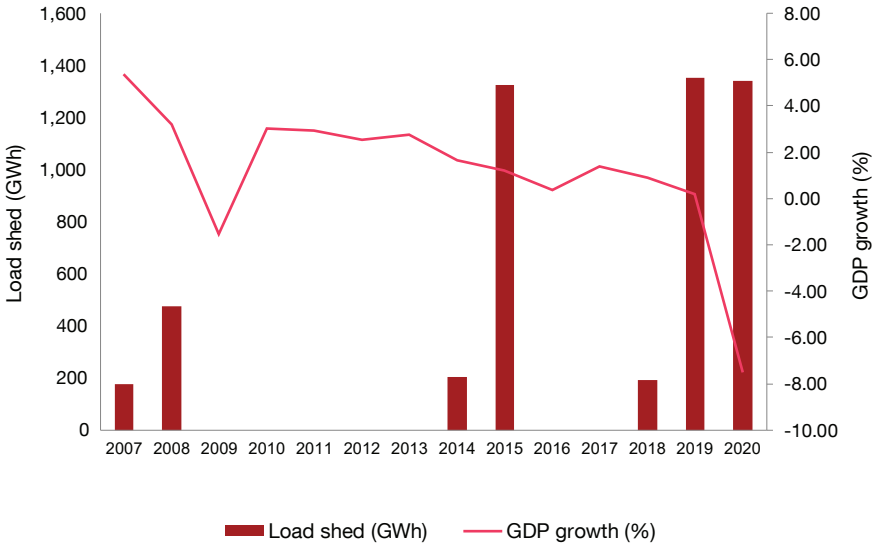
Load-shedding increased in 2020 and has persisted into 2021.[35] The continued economic damage caused by the country's dependence on Eskom's unreliable coal-fired electricity supply has a negative impact on jobs.



[34] Wright, Jarrad, and Joanne Calitz. "Setting up for the 2020s: Addressing South Africa's electricity crises and getting ready for the next decade." Department of Energy. October 2020. https://www.dmr.gov.za/Portals/0/Resources/INTEGRATED%20RESOURCE%20PLAN%202019/DoE%20IRP%202019__October%202019.pdf?ver=2019-10-18-170552-007.

[35] Muller, Rudolph. "Eskom Load-shedding from 2000 to 2020." MyBroadband. Last modified January 9, 2021. https://mybroadband.co.za/news/energy/381706-eskom-load-shedding-from-2000-to-2020.html.

Figure 6. Load-shedding is associated with significant damage to the economy



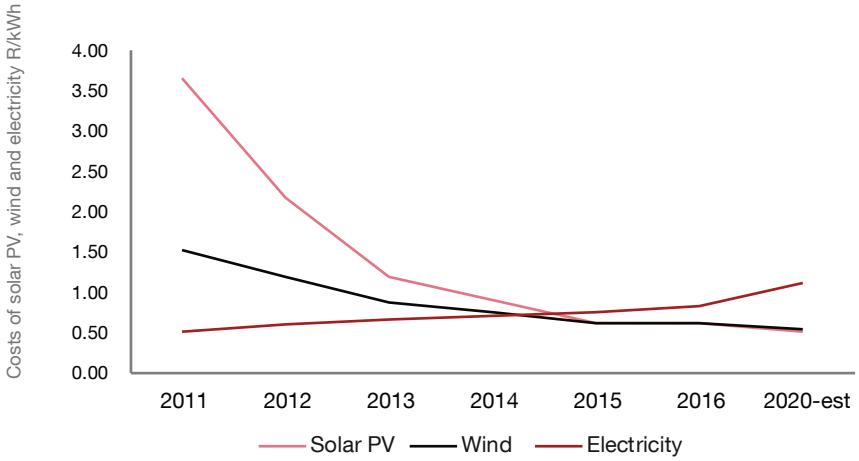
Source: PwC analysis based on data from CSIR; MyBroadband

High electricity prices

The cost of coal-fired power has risen dramatically as cheap, easily accessible coal reserves are reaching the end of their lifetimes.[36] The cost of coal-fired power to Eskom has risen by 300% over the last two decades.[37] In addition, the coal fleet is ageing and there is a backlog of maintenance requirements and repairs with significant price tags attached. This has contributed to significantly increasing the cost of electricity for households and businesses, negatively affecting the economy. Figure 7 tracks the real price of electricity in South Africa between 2011 and 2020.

Meanwhile, the costs of renewable energy, particularly wind and solar PV, have fallen dramatically in the past ten years. In South Africa's electricity sector, wind and solar PV are now the least-cost options for new power plants as shown in Figure 7.

Figure 7. The cost of renewables has declined below the cost of electricity



Source: JKNV Energy, 2020 and the South African Wind Energy Association, 2019.

Rising debt for the public to repay

The above-mentioned issues are also contributing to Eskom's debt problem. Given government guarantees and regular bailouts, these debts are having to be repaid with the public's money. The increased debt levels and debt service costs crowd out spending on other growth and equality-enhancing expenditure items such as social grants and much-needed capital investment. Eskom's debt has also contributed to rating agencies cutting South Africa's sovereign rating below investment grade with associated capital outflows, again hurting the economy.

Costs to health and provision of healthcare

Coal-fired plants are estimated to cause more than 2,000 deaths from air pollution each year.[38] Associated air pollution also has effects on cardiovascular and respiratory illness. The total quantified health impact from the coal-fired power plants in South Africa has been estimated at around R33bn annually.[39]

[36] Climate Finance to Transform Energy Infrastructure

[37] "Supporting Just Transitions in South Africa." Climate Investment Funds. https://www.climateinvestmentfunds.org/sites/cif_enc/files/knowledge-documents/supporting_just_transitions_in_south_africa_summary.pdf.

[38] Supporting Just Transitions in South Africa

[39] Holland, Mike. "Health impacts of coal fired power plants in South Africa." South Africa, 2017. https://cer.org.za/wp-content/uploads/2017/04/Annexure-Health-impacts-of-coal-fired-generation-in-South-Africa-310317.pdf.

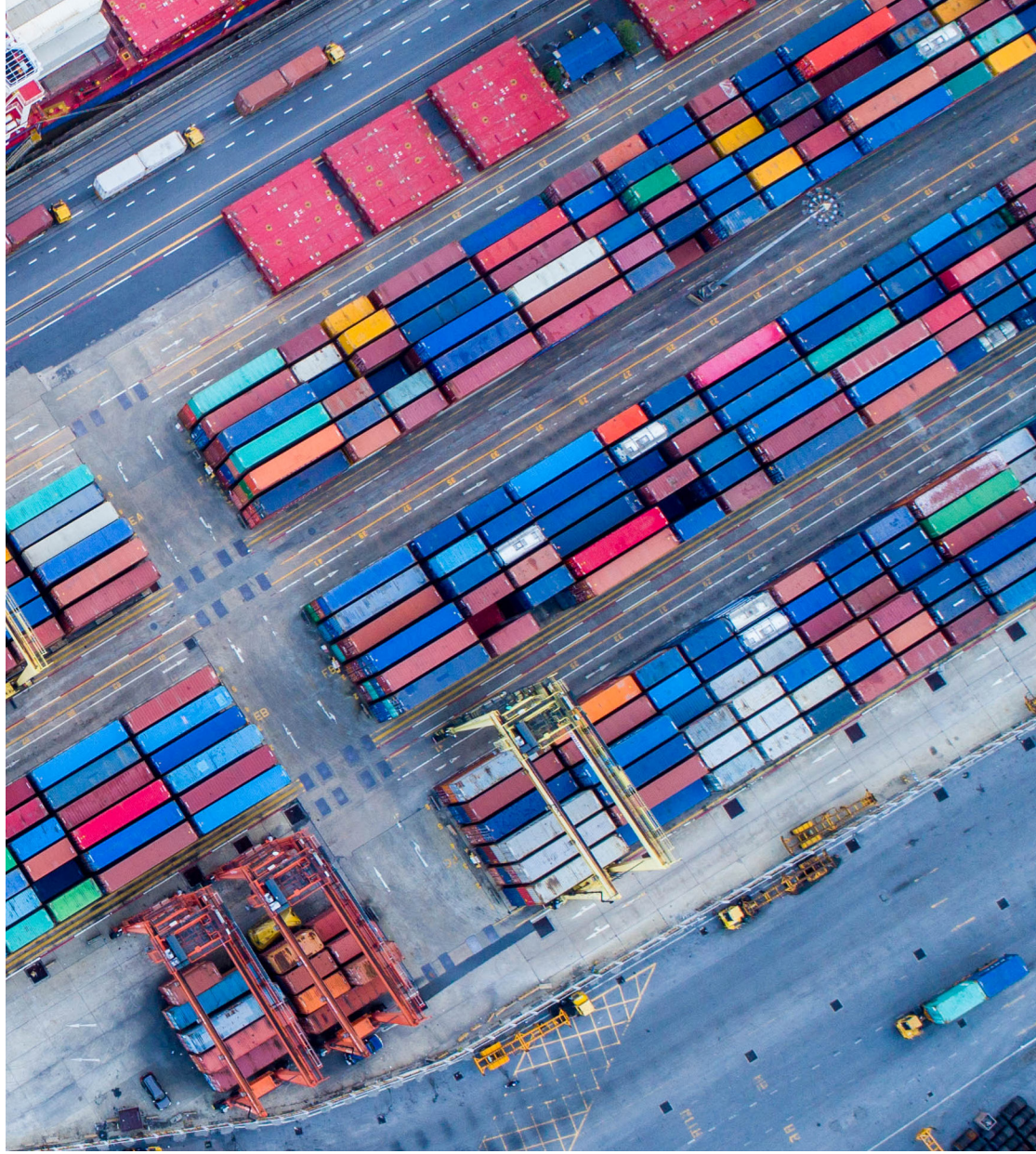
Section 3: Transition risk arising from South Africa's trading partners

South Africa is vulnerable to transition risk through its exports.

Apart from transition risk arising from the country's own domestic policies to transition, what is often overlooked is transition risk arising from South Africa's trading partners as they transition to lower-carbon economies. The Climate Policy Initiative estimated South Africa's transition risk, arising from international trends alone, to be around US$84bn over the next few decades.

China, India, the EU and the US, for example, are implementing green policies to replace coal. While supply shortages linked to COVID-19 lockdowns have temporarily caused price increases, benefiting South African exports, it is expected that volumes and prices of internationally traded coal will fall in the medium term, negatively impacting South Africa's miners and export-oriented infrastructure and services.

A further example is the motor vehicles, parts and accessories sector, another of South Africa's key export sectors with more than R200bn worth of exports in 2019, three-quarters of which heads to the European Union.[40] The shift to electric vehicles (EVs) in Europe and the US is expected to occur very rapidly as electric vehicles, compared to internal combustion vehicles, are already approximately ten times cheaper to charge per kilometre and cheaper to maintain with few moving parts to fix or replace (approximately 18 versus 2000). EVs also have a lifetime that is approximately 2.5 times longer than conventional vehicles. It is projected that by 2030, almost every new vehicle will be an EV.[41]



[40] "Gradual monthly recovery in new vehicle volumes continues" Naamsa, 1 February2021.

[41] Arbib, James, and Tony Seba. "Rethinking Transportation 2020-2030: The Disruption of Transportation and the Collapse of the Internal-Combustion Vehicle and Oil Industries." Government of Canada. 2017. https://www.rncan.gc.ca/sites/www.nrcan.gc.ca/files/energy/energy-resources/Rethinking_Transportation_2020-2030.pdf.

South Africa's motor vehicle, parts and accessories sector directly employed approximately 107,000 people in 2019.[42] We estimate that it is further responsible for creating or retaining an additional 320,000 indirect and induced jobs through the knock-on effects of the industry in the wider economy. The Climate Policy Initiative sees particular risk to South Africa's platinum market as demand for diesel vehicles reduces.[43]

Table 3. Jobs in the motor vehicle, parts and accessories sector

	Direct	Indirect and induced	Total
Jobs	107,000	320,000	427,000

Source: Quantec, based on Stats SA

As South Africa's trading partners replace internal combustion vehicles with EVs, it is essential that South Africa's automotive industry prepares and adapts for a potentially swift shift in demand during the next decade. Like the energy sector, this requires investment in innovative technologies and reskilling the workforce to ensure that the effects of climate transitions do not lead to further unemployment.

[42] "EasyData – In-depth & Timely South African Economic Data & Analysis: Employment (formal and informal) for Motor vehicles, parts and accessories, data for 2019." EasyData, Accessed 31 March 2021. https://www.easydata.co.za/service/rsa-standardised-regional-quantec-regional-service/.

[43] Huxham, Matthew, Muhammed Anwar, and David Nelson. "Understanding the Impact of a Low Carbon Transition on South Africa." Climate Policy Initiative (CPI). Last modified 26 March 2019. https://www.climatepolicyinitiative.org/publication/understanding-the-impact-of-a-low-carbon-transition-on-south-africa/.

Conclusion: A role for business

As one of the top 15 emitters of GHG, South Africa's strategy to mitigate climate change requires transitioning away from some of the high GHG-emitting industries. Yet these industries have also been the basis of its economy over the last decades, with many communities reliant on the jobs they sustain.

For example, climate change policy includes the gradual decommissioning of coal-fired power plants, which are responsible not only for the vast majority of emissions, but also 113,000 thousand direct jobs and, according to our estimations, a further 339,000 indirect and induced jobs. Jobs in wind and solar PV are estimated to outnumber the jobs lost through decommissioning of coal yet it is not clear at the outset that all of these jobs will go to the same communities that currently rely on the coal industry.

The transition policies of South Africa's trading partners similarly create 'transition risk', with jobs to be lost as global demand shifts. For example, as European and US demand moves away from internal combustion engine vehicles to EVs, jobs in South Africa's motor vehicle parts and accessories sector, a key export industry, are likely to be significantly impacted.

In a context of high inequality, where unemployment is at historical highs and an economic recovery is critically urgent, the transition needs to be 'just', in the sense of balancing climate response with new, sustainable opportunities for work, particularly among communities currently reliant on high-emission industries for their livelihoods.

At PwC, we believe the business community has an important role to play in creating and responding to the changes necessary for climate-resilient development that goes hand in hand with job creation. If individual businesses plan for disruption, understand the coming change, and work out appropriate strategies, they will be able to build resilience to grow and create jobs.

It has also been shown repeatedly that businesses with a strategy that considers their impact on society, environment, people and culture — and links sustainability into their operating models, organisation, processes, and leadership practices —are in fact better able to secure long-term success[44].

Some important points to consider:

- What does 'just transition' mean for your business?
- How far can you make your production and resource use more sustainable and create new jobs or skills?
- What needs to be done to ensure your workforce is skilled and trained for the future?
- How far are your value chains sustainable, considering issues around emissions, resource use, waste and social impact?
- Where are the vulnerabilities and opportunities in your supply chain?
- What is your current (direct and indirect) impact on jobs and the environment? How will your impact change when you transition?
- Have you considered how your business supports the achievement of the sustainable development goals (SDGs) by 2030?

[44] See for example, Financial Times (2018), "Companies with strong ESG scores outperform, study finds" and Gunnar F., T. Busch, and A. Bassen (2015), "ESG and financial performance: aggregated evidence from more than 2000 empirical studies", Journal of Sustainable Finance & Investment, 5:4, 210-233

How we can help you

As part of our journey as a professional services firm, we are also committed to supporting our clients in their sustainability journey. We are specialists in fields such as:

- strategy development to integrate sustainability into your purpose, organisation, operating model, processes and leadership practices, including alignment to achieve net zero
- socio-economic impact and environmental impact assessments
- supply chain mapping and risk assessment and circular economy opportunities
- energy transition including renewable and green hydrogen
- climate change risk and resilience, science based targets and scenario planning
- environmental, social and governance (ESG) strategy, implementation and reporting
- carbon tax, carbon emissions assurance, and more
- aligning and embedding the SDGs into business strategy, targets and performance

At PwC, we are also playing our part in addressing climate change and have made a worldwide science-based commitment to reach net-zero greenhouse gas emissions by 2030.

https://www.pwc.com/gx/en/about/net-zero.html

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