Financing Investments in the Energy Sector

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Executive Summary

Around the world, pressure is building against coal-fired power. Pollution from coal-fired electricity generation contributes to the early deaths and ill-heath of thousands of people. Coal is also regarded as the single largest contributor to climate change. Despite these social and environmental risks, many international banks and institutional investors continue to provide financial support to coal-fired power. Campaign groups such as BankTrack argue that, by financing coal, these financial institutions are undermining the Paris Agreement's aim of limiting global temperature increase to below 1.5 degrees.

South Africa is heavily dependent on coal as a source of energy. However, a growing body of research and modelling shows that it is possible for South Africa to make a significant shift to renewable energy. But despite this, and despite its commitments under the Paris Agreement, South Africa continues to build new coal-fired power stations and to authorise major new coal mines.

This report considers trends and developments in the financing of coal-fired power in South Africa in the context of the South African government's policy framework for a transition to a low-carbon economy. The purpose of the report is to explore the investment trends around coal to improve understanding of the policy interventions that are required to assist South Africa transition to a low carbon economy.

The power sector in South Africa is dominated by state-owned power utility Eskom, which generates around 95% of South Africa's electricity. As a result, energy finance is inextricably linked to Eskom's financing. Shareholder equity and revenue are important contributors to Eskom's overall financial sustainability, but Eskom's R350bn capital expenditure programme is largely being funded through debt finance from local and international bondholders, development finance institutions (DFIs) and export credit agencies. While there has been a significant shift away from domestic and international bonds to funding from DFIs and financing from export credit agencies in recent years, institutional investors such as pension funds and insurance companies still hold significant positions in Eskom bonds.

With around 85% of its installed capacity derived from coal-fired power, Eskom also plays a very important role in the coal mining sector and in the development of new coal mines. Around 70% of Eskom's coal supply comes from mines on either long-term cost-plus contracts or fixed price contracts. Eskom provides both the initial capital and working capital for cost-plus mines, while fixed-price mines are multi-product mines that supply Eskom but export higher grade coal. The cost-plus and fixed-prices mines have historically been operated by large multinational mining houses, but this is starting to change as these companies divest from Eskom-tied mines due to challenges such as meeting Eskom's black

ownership requirements. The balance of Eskom's coal supply is provided by "junior" mines on medium term contracts. These junior mining companies have tended to rely on equity financing rather than debt. Investec and the IDC appear to be most active in terms of debt finance provision for coal mining.

In addition to Eskom, South Africa has seen the introduction of several independent power producer (IPP) programmes since a 2004 cabinet decision that IPPs should provide 30% of new electricity generation. The renewable energy independent power producer procurement programme (REIPPPP) is well known, but other IPP programmes include the Gas Peaker programme, the Coal Baseload IPP programme, and the Gas IPP programme.

The REIPPPP has resulted in 92 projects totalling R193bn in investment and over 6,300MW of capacity being selected over four auction rounds.[1] 86% of the 92 selected bidders have used a combination of project finance, which involves external lending to a special purpose vehicle, and equity to fund their projects. Over 20 different lenders have provided debt finance for REIPPPP projects. The five largest banks (Standard Bank, Nedbank, Absa, Rand Merchant Bank (RMB), and Investec) have provided 68% of debt finance, while the DBSA and IDC are responsible for a further 13%.[2]

While these banks frequently highlight their support for renewable energy projects, the majority have also been named as potential investors in Thabametsi and Khanyisa, the preferred bidders in the first bid window of the Coal Baseload IPP programme. Khanyisa's proposed lenders are ABSA, Nedbank, Standard Bank, and the Industrial and Commercial Bank of China, while Thabametsi's are ABSA, Nedbank, Standard Bank, Rand Merchant Bank, and the DBSA.

In some cases, investment in coal-fired power appears to be contrary to these banks' positions on climate change. Nedbank's Fair Share 2030 strategy, for example, proposes the decarbonising of the bank's lending book in line with the carbon budget trajectory. FirstRand, which is RMB's parent company, commits it support to the Paris Agreement and in assisting in the transition to a low-carbon economy. It is unclear how investing in new coal-fired power is compatible with this approach.

In general, South African banks are behind the curve when it comes to addressing climate change issues. Internationally, there is growing pressure on capital markets to address climate change. In addition to keeping the global average temperature increase to well below 2^{o}C above pre-industrial levels, the Paris Agreement aims to make "finance flows consistent with a pathway toward low greenhouse gas emissions and climate-resilient development".[3] However, no South African bank has yet publicly released a policy position on financing fossil fuels, and only a minority have a publicly available position on climate change.

This is expected to change. The G20's Financial Stability Board's Taskforce on Climate-related Financial Disclosures (TCFD) has boosted awareness that the banking sector, with lending portfolios and assets extending across all sectors and markets, is not an industry with a low exposure to climate change. The TCFD report, which was released in June 2017, argues that “disclosures by the financial sector could foster an early assessment of climate-related risks and opportunities, improve pricing of climate-related risks, and lead to more informed capital allocation decisions”.[4]

As a member of the G20, which was instrumental in the formation of the Financial Stability Board, South Africa will be encouraged to implement the recommendations of the TCFD. According to a Treasury official, the regulatory framework is already under review to “determine how best to enhance climate related disclosures, reporting and monitoring necessary to support decisions taken at a policy level”.[5]

However, to address the challenges posed by ongoing financing of fossil fuels, far more concerted action is needed. Private sector action is increasingly important given the urgency of the issue and contradictions in government policies. While the South African government has released numerous policy documents that provide guidance on the transition to a low-carbon economy, there is there no single vision of what such a transition should look like. There are also numerous inconsistencies between policies that reflect the tensions between different departmental mandates.

Rather than blindly following government policies, such as the requirement for new coal-fired power in the Integrated Resource Plan, banks should take greater initiative in addressing climate change issues. This should include rigorous climate impact risk assessments in their own lending practices. Civil society should maintain pressure on both government and financial institutions to tackle climate change, including the financing of fossil fuels. While the ultimate goal might be fossil fuel divestment, civil society should also develop effective engagement strategies to maintain pressure on key actors including regulators, policymakers, investors and financial institutions to ensure that climate change is treated with urgency and adequate measures are implemented.

Glossary

BBBEE/BEE – Broad-based Black Economic Empowerment

CDP – Carbon Disclosure Project

DBSA – Development Bank of Southern Africa

DEA – Department of Environmental Affairs

DFI – Development Finance Institution

ECA – Export Credit Agency

EIA – Environmental Impact Assessment

EMS – Environmental Management System

FPIC – Free, Prior and Informed Consent

Green economy - The United Nations Environment Programme (UNEP) defines the green economy as one that results in "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities."

$GtCO_2e$ - gigatonnes of carbon dioxide equivalent with the six main greenhouse gases converted into carbon dioxide

IDC – Industrial Development Corporation

IEP – Integrated Energy Plan

IPP – independent power producer

ILO – International Labour Organisation

IRP – Integrated Resource Plan for Electricity

MYPD – Multiyear Price Determination

NDP – National Development

PJ - petajoule

PPA – Power Purchase Agreement

REIPPPP – Renewable Energy Independent Power Producer Procurement Programme

RFP – Request for Proposal

TCFD – Task Force on Climate-related Financial Disclosures

UNEP FI – United Nations Environment Programme Finance Initiative

UNGC – United Nations Global Compact

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1. Introduction

Around the world, pressure is building against coal-fired power. Pollution from coal-fired electricity generation contributes to the early deaths and ill-heath of thousands of people. Coal is also regarded as the single largest contributor to climate change. Despite these social and environmental risks, many international banks and institutional investors continue to provide financial support to coal-fired power. Campaign groups such as BankTrack argue that, by financing coal, these financial institutions are undermining the Paris Agreement's aim of limiting global temperature increase to below 1.5 degrees.

South Africa is heavily dependent on coal as a source of energy. However, a growing body of research and modelling shows that it is possible for South Africa to make a significant shift to renewable energy. But despite this, and despite its commitments under the Paris Agreement, South Africa continues to build new coal-fired power stations and to authorise major new coal mines.

This report considers trends and developments in the financing of coal-fired power in South Africa in the context of the South African government's policy framework for a transition to a low-carbon economy. The purpose of the report is to explore the investment trends around coal to improve understanding of the policy interventions that are required to assist South Africa transition to a low carbon economy.

2. Trends in energy sector finance

The financing of the power sector in South Africa is closely linked to the structure of the industry, which continues to be dominated by state-owned Eskom. Despite some private sector investment since 2007, Eskom still generates around 95% of South Africa's electricity. Around 85% of Eskom's installed capacity comes from coal-fired power. Eskom is also largely responsible for transmission and distribution networks. There were plans to introduce an Independent System Market Operator (ISMO), which would have separated the transmission grid from Eskom's control and boosted competition by providing IPPs with a level playing field, but these have been shelved.

Eskom's dominant position

The South African energy sector, particularly the power supply sector, has experienced considerable upheaval over the past decade. In 2007, state-owned power utility Eskom was forced to undertake "load shedding" or rolling blackouts after it was affected by a series of unplanned outages at power stations and high peak demand. The situation highlighted Eskom's inadequate supply reserve margin, which had dropped to around 8% of total capacity.

Eskom's power outages were not a sudden or unexpected development. In its 1998 White Paper on the Energy Policy of South Africa, the Department of Minerals and Energy (as it was known then) argued that “Eskom’s present generation capacity surplus will be fully utilised by about 2007”.[6] It also indicated that, given the long lead times in securing additional capacity, the next “decision on supply-side investments will probably have to be taken by the end of 1999 to ensure that the electricity needs of the next decade are met”.

However, amid policy uncertainty over the role that private investors should play in electricity generation, from 2001 to 2004 Eskom was prevented by government from investing in new generating capacity. Cabinet finally authorised a five-year R107bn energy sector investment plan in October 2004, under which Eskom would provide 70% of funding, and independent power producers (IPPs) the balance, but this was too late to avoid the load shedding that continued into 2008. [7]

Eskom’s capital expansion programme

Following cabinet’s authorisation, Eskom embarked on a capital expansion programme. This aimed to add 17GW in generating capacity by 2018 to Eskom’s 2005 net maximum capacity of 36.2GW.[8] Before Eskom launched its Capital Expansion Programme in 2005, it had not built any new capacity in a decade. In addition to recommissioning three mothballed power stations (Camden, Grootvlei and Komati) and adding 300MW to Arnot’s 2220MW capacity through refurbishment, the programme included the construction of two new coal-fired power stations – 4,764MW Medupi and 4,800MW Kusile – and the 1,300MW Ingula Pumped Storage Scheme. In 2005, Eskom expected its capital expansion programme budget over the next five years to be around R93bn[9], but the board raised this to R150bn in 2007, with generation projects accounting for 72% of the budget, based on higher electricity demand forecasts. Since 2007, the five-year capital expenditure budget has been increased to over R350bn.

Financing Eskom

The new build programme is largely being funded through debt finance from local and international bondholders, development finance institutions (DFIs) and export credit agencies. However, shareholder equity and revenue are important contributors to Eskom’s overall financial sustainability. They can strengthen the balance sheet and provide support for Eskom’s credit rating, which ensures that it can borrow at the cheapest rate possible. Injections of shareholder equity are rare, but in 2015/16 a R60bn long-term loan from government was converted to equity and an additional R23bn equity was provided by government. Eskom’s precarious financial position as of early 2018 suggests that further government support is required.

Eskom’s revenue is determined under the five-year Multi-Year Price Determination (MYPD) process that is managed by the National Energy Regulator of South Africa (NERSA). The fourth MYPD cycle was meant to start in 2018/19, but this has been postponed until 2019/2020 with a single year revenue application for 2018/19. The MYPD methodology allows Eskom to recover the costs of electricity supply plus a fair return. The return is supposed to provide the revenue necessary for debt interest payments and for base retained earnings to be built up to support future borrowing and allow Eskom to access the cheapest available finance by providing support to its credit rating.[10]

Since 2008, Eskom has increased its tariffs by over 440%. This has supported Eskom's revenue growth, but expenses, which include primary energy costs, employee benefits and other operating expenses, have also grown rapidly. This, combined with Nersa's tariff decisions not meeting Eskom's full requests, has meant that Eskom's expectations in 2009 that retained earnings could be used to fund half of the expansion programme have not materialised.[11]

Borrowing programme

Although Eskom relies on a range of sources for its borrowing programme, there has been a significant shift away from domestic and international bonds to funding from DFIs and financing from export credit agencies in recent years. Eskom initially planned to fund 50% of its capital expenditure from retained earnings, while the other 50% would be made up from external credit agencies and debt funding through the issuance of local and international bonds.[12] However, as can be seen from **Table 1: Eskom's borrowing programme**, while development finance more than doubled from 2012/13 to 2016/17 and export credit finance has also increased, bond issuance beyond private placement has dropped considerably.

Table 1: Eskom's borrowing programme[13]

	Drawdowns				Original Plan	Revised Plan
Potential sources, R billion	2012/13	2017/18	2015/16	2016/17	2017/18	2017/18
New domestic bond private placement		-	10	10.2	-	-
Domestic bonds	11.9	8	8.2	1.7	8	2.1
International bonds and loans		7	7.6		7	-
Commercial paper and short-term notes	10		6.3	7	7.5	3.1
Existing and new DFIs	14.6	39.5	10.9	30	39.5	18.1
Existing and new ECAs	4	7.2	4.7	5.2	7.2	3.6
Other		2.5	6.2	3.2	2.5	2.5
Total	**40.5**	**71.7**	**53.9**	**57.3**	**71.7**	**29.4**

Eskom's board has approved a borrowing programme of R337.7bn from 1 April 2017 to 31 March 2022. The borrowing programme receives considerable support through the government guarantee framework, which has been extended to 31 March 2023. As of 31 March 2017, R254bn of government guarantees have been used, while an additional R84bn is either awaiting approval or is under negotiation.[14] However, Eskom's ability to raise funds through the bond markets has been significantly curtailed over the past three years. This is partly due to heightened concerns over its corporate governance and financial problems. The funding challenges are also reflected in the significant revisions to the funding plan for 2017/18.

While Eskom has not issued bonds since early 2015, it has made use of a R10.2bn private placement with the Public Investment Corporation (PIC), which manages funds on behalf to the GEPF and other public sector unions. As of March 2017, the value of the GEPF's holding of Eskom bonds increased to R84.4bn from R73.7bn a year earlier.[15] Since 2014, when Eskom last held a public auction, the fair value of the GEPF's holding has increased by R27.5bn.[16] This includes a R20bn private placement from 2016.[17] In February 2018, the PIC also provided Eskom, which was on the verge of defaulting on its debt, with a R5bn bridging facility.[18] A R20bn short-term credit facility with a consortium of local and international banks was also agreed later in February 2018.

Institutional investors such as pension funds and insurance companies still hold significant positions in Eskom bonds. For Eskom's 15/25 bond, which was issued in February 2015 with a couple of 7.125% and a volume of US$1.25bn, the top ten owners in May 2017 were the GEPF (76.64% of the total), Sanlam Life Insurance, the Associated Institutions Pension Fund, Old Mutual plc, Sanlam Investment Management (SIMLEND), Stanlib, Liberty Life, Sanlam Ltd, MMI Group, and SAMWA National Provident Fund.[19]

International insurers and reinsurers such as MunichRe and Allianz, which announced in 2015 that it would divest from coal, also hold Eskom bonds.[20]

Development finance

Eskom has indicated that it expects DFIs to support around 45%-50% of its capital raising over the next five years, during which Eskom expects its debt to increase from around R350bn to R500bn.[21] Loans from export credit agencies and development finance institutions secured since 2010 include:

Table 2: Eskom loans and credit agreements with DFIs and ECAs

Announcement Date	DFI/ECA	Details
November 2009	African Development Bank	EUR1.86bn loan for coal-fired Medupi.[22]
April 2010	World Bank	US$3.75bn loan of which US$3.05bn was for completing Medupi, US$260m for the 100MW Sere wind farm and a 100MW concentrated power project in Upington, and US$485m for low-carbon energy efficiency projects.[23]
November 2010	Development Bank of Southern Africa	R15bn loan to support expansion programme.[24]

May 2011	US Export-Import Bank	US$805m loan to fund the procurement of engineering and construction management services from Black & Veatch International for Kusile.[25]
August 2011	Agence Française de Développement (AFD)	EUR100m credit facility agreement to fund Sere wind farm.[26]
September 2011	African Development Bank	Two loan agreements worth a total of US$365m for renewable energy projects with US$100m from the Clean Technology Fund.[27] It appears that some of this funding was used to finance Abengoa's 100MW XiNa concentrated power IPP.[28]
November 2015	Agence Française de Développement (AFD)	R2.3bn credit facility to finance distribution infrastructure projects in Eastern Cape, KwaZulu-Natal and Limpopo provinces.[29]
December 2015	African Development Bank	US$375m loan and a corresponding US$750m A/B syndicated loan with commercial banks for the capital expansion programme including transmission lines.[30]
March 2016	World Bank's Multilateral Investment Guarantee Agency (MIGA)	Guarantees of EUR698.9m for up to 15 years to cover a EUR470m loan facility from Deutsche Bank and Mizuho Bank.[31]
April 2016	New Development Bank (NDB)	US$180m for investment in transmission infrastructure for renewable energy. However, in August 2017, NDB president KV Kamath said in an interview that the loan was in abeyance until 2018 pending progress on the renewable energy independent power producer programme (REIPPPP).[32]
July 2016	African Development Bank	Loan facilities worth US$1.34bn for capital expenditure with US$965m through participation arrangements with nine commercial banks: Bank of China, Bank of Tokyo-Mitsubishi, CaixaBank, Citibank, HSBC, JP Morgan Chase, KfW IPEX Bank, Siemens Bank, and Standard Chartered.[33]
October 2016	China Development Bank	US$500m credit facility for capital expansion programme.[34]

March 2017	Agence Française de Développement (AFD)	R6bn loan facility for investment in transmission infrastructure, including renewable energy projects.[35]
July 2017	China Development Bank	US$1.5bn loan agreement, which will assist with financing Medupi.[36]

Private sector loans

While Eskom has facilitated the bulk of the funding for its capital expansion programme, there has also been some private sector involvement in both Medupi and Kusile. At Medupi, a group of European banks was part of a US$740m syndicated loan concluded in May 2009 that was used to fund part of the boiler contract with Japan's Hitachi. This was followed in December 2009 by a EUR1.185bn loan from five French banks to partly fund the turbine contracts for Medupi and Kusile with French company Alstom. The loan was covered by French export credit agency COFACE.[37] German export finance agency KfW IPEX and French bank Credit Agricole also provided additional funding in September 2008 and August 2010 respectively.

Although no South African banks appear to have been involved in these loans, FirstRand's Rand Merchant Bank, Nedbank and Standard Bank were part of a EUR705 syndicated loan that was used to fund part of the Kusile boiler contract with Hitachi. This loan was covered by credit insurer Euler Hermes Kreditversicherungs-AG.

Table 3: Private sector loans for Medupi and Kusile				
Eskom plant	**Loan amount**	**Date**	**Description**	**Banks involved**
Medupi	USD342m	Sep-08	Loan used to partially fund Hitachi boilers	KfW IPEX-Bank
Medupi	USD 740m	May-09	Syndicated loan fund foreign content of Medupi boiler contract with Hitachi Power	BHF, BNP Paribas, Commerzbank AG, Credit Agricole, HypoVereinsbank, KfW IPEX-Bank, Natixis,
Medupi & Kusile	EUR1,185m	Dec-09	Syndicated loan covered by COFACE to fund turbine contracts with Alstom S&E	BNP Paribas, Credit Mutuel-CIC, Credit Agricole, Natixis, Société Générale
Kusile	EUR 705m	Dec-09	Syndicated loan covered by Euler Hermes to fund foreign content of Kusile boiler contract with Hitachi Power	Bank of Tokyo Mitsubishi UFJ, Deutsche Bank, HSBC, KfW IPEX-Bank, **Nedbank, Rand Merchant Bank, Standard Bank**
Medupi	EUR 63.7m	Aug-10	Loan covered by COFACE for Alstrom's control and instrument contract	Credit Agricole

Independent power producer programme

Since cabinet's decision in 2004 that IPPs would provide 30% of new generation, several IPP programmes have been developed. In addition to South Africa's well-known renewable energy independent power producer procurement programme (REIPPPP), these include the Gas Peaker programme, the Coal Baseload IPP programme, and the Gas IPP programme.

The 1,020MW Gas Peaker programme, which was initiated in 2005, is regarded as the first thermal IPP project in South Africa[38], and has seen two plants come online. The Dedisa Open Cycle Gas Turbine (OCGT) plant, which is located in the Coega Industrial Development Zone (IDZ) outside Port Elizabeth, has 335MW of capacity. The Avon OCGT plant, 50km north-east of Durban KwaZulu-Natal, has 670MW of capacity. The plants run on diesel, but the plant design allows for conversion to combined cycle technology and gas as the primary feedstock.

Both projects were initially awarded to US energy company AES, but it withdrew in 2008 citing "changes to the project parameters and risk profile".[39] French power company GDF-Suez (now ENGIE) took over as the developer of the R10bn projects. Two companies, Avon Peaking Power (Pty) Ltd and Dedisa Peaking Power (Pty) Ltd, were established to own the respective plants. GDF-Suez retained a 38% ownership interest in the companies, while

Japan's Mitsui & Co owns 25%.[40] Black-owned Legend Power Solutions owns 27% via a special purpose vehicle while a black empowerment trust owns the remaining 10%.

Debt was used to fund 85% of the project.[41] The Development Bank of Southern Africa (DBSA) committed R1.9bn in debt, and R542m in BBBEE equity funding.[42] Commercial lenders included Nedbank Capital, which with R2bn underwritten was the largest lender, Investec, Absa, Rand Merchant Bank, and Sanlam Capital Markets.[43]

Shift to renewable energy

South Africa's renewable energy independent power producer procurement programme (REIPPPP) has been widely praised for its transparency, attracting investor interest and achieving reduced bid prices across the various auction rounds. According to a paper by Anton Eberhard and Raine Naude of the University of Cape Town's Graduate School of Business, "as a result of this programme, South Africa has achieved more investment via Independent Power Producers (IPPs) in four years than in the rest of Sub-Saharan Africa over the past two decades".[44] Over four bidding windows, 92 projects totalling R193bn in investment and over 6,300MW of capacity have been selected.[45]

86% of the 92 selected bidders have used a combination of project finance, which involves external lending to a special purpose vehicle, and equity to fund their projects. Corporate finance, which are direct loans to the project owners, was used for 6 of 17 deals in bid window 3, with some large international companies utilising their relatively strong balance sheets for financing, but it has only been used in 14% of projects across the 4 bids rounds. Project finance also dominates financing in terms of value, with 65% of total funding raised in debt. Equity and corporate finance have raised 23% and 12% of the R193bn total funding respectively.[46]

The requirement that 40% of each project company must be owned by South African citizens and 12% by black empowerment companies has ensured local participation. Old Mutual and South Africa's Independent Development Corporation (IDC), which have invested in 17 and 9 projects respectively, are the local investors with equity in the most number of projects, while a number of black-owned companies have participated in six or more transactions.

In terms of debt, over 20 different lenders have financed REIPPPP projects.[47] While a mix of foreign and local investors have provided equity, the majority of debt has originated from South African banks. Eberhard and Naude's calculations, which are based on bid submissions and do not reflect changes after financial close, show that the five largest banks (Standard Bank, Nedbank, Absa, Rand Merchant Bank (RMB), and Investec) have provided 68% of debt finance, while the DBSA and IDC are responsible for a further 13%.

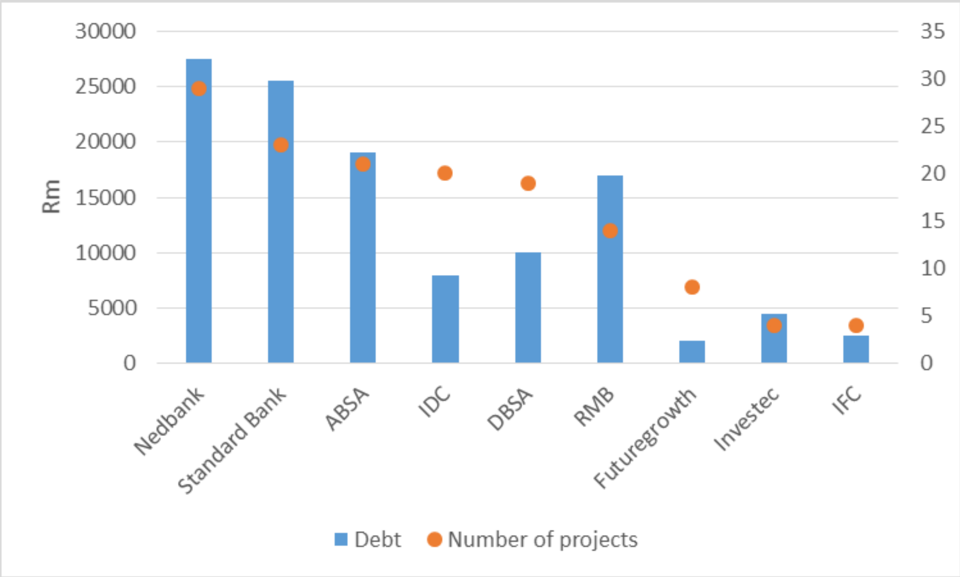

Figure 1: Major debt investors in REIPPPP

Despite the REIPPPP's success in moving South Africa towards the National Development Plan's target of adding 7,000MW in operational renewable power by 2020, the programme stalled in 2017 with Eskom's refusing to sign power producer agreements (PPAs) with 37 preferred bidders. This represents potential investment of over R50bn. Although Eskom cites the costs associated with the REIPPPP as the basis for its opposition, its negative position toward the REIPPPP appears to be more influenced by the threat that the REIPPPP poses to coal contracts, and on political support for the nuclear procurement programme. However, following Cyril Ramaphosa's election as ANC president in December 2017, a new Eskom board was appointed and there were indications that the PPAs might finally be concluded.

Coal Baseload IPP

The Ministerial determination for the 2,500MW Coal Baseload IPP was issued in December 2012 with two bid windows planned. For the first window, two bids with a combined capacity of 863MW were received in November 2015. Thabametsi and Khanyisa were announced as the preferred bidders in October 2016. [48]

The Thabametsi Power Plant will be a 630MW Circulated Fluidized Bed coal-fired power station located near Lephalale in Limpopo province. JSE-listed Exxaro is expected to supply Thabametsi Power Plant by developing a new mine next its Grootgeluk mine. Thabametsi's shareholders include:

- Japanese energy company Marubeni's wholly-owned subsidiary Axia Power;
- Korean Electric Power Corporation;
- the Unemployment Insurance Fund's Blue Falcon 253 Trading;
- Royal Bafokeng Holding's Jenzoprox,

- Black empowerment companies Tirisano Partner's Business Venture Investment no 1879, and KDI Holding's Mandlalex.[49]

Thabametsi's proposed lenders are ABSA, Nedbank, Standard Bank, Rand Merchant Bank, and the DBSA. According to the Department of Energy, the DBSA committed to providing R1.1bn in funding to the BBBEE equity partners, while the PIC, which also has direct equity exposure of R1.3bn via Blue Falcon, committed R575m in BBBEE funding.[50] The African Development Bank also appraised the project in September 2017.

Table 4: Coal IPP Bid Window 1 winners

	Thabametsi Power Plant	**ACWA Power Khanyisa IPP Project**
Location	Lephalale, Limpopo province	Emalahleni, Mpumal
Planned capacity	630MW	153MW
Proposed commissioning	Unit 1 – March 2021 Unit 2 – September 2021	Unit 1 – May 2020 Unit 2 – September 2020
Coal supply	JSE-listed Exxaro is expected to supply Thabametsi Power Plant by developing a new mine next its Grootgeluk mine	Anglo American Thermal Coal is expected to supply reclaimed coal from its Kleinkopje colliery to Khanyisa via a new intermediary company
Bid price (MWh)	R809.55	R795.06
Shareholders	Axia Power Holdings (24.5%) Korea Electric Power Corporation (24.5%) Blue Falcon 253 Trading (21%) Jenzoprox (15%) Business Venture Investments (10%) Mandalalex (5%)	ACWA Power (49%) Main Street 1377 (20%) Pele Natural Energy (15%) Nibira (11%) Palace Consulting Engineers (5%)
Financing	75 debt: 25 equity	75 debt: 25 equity
Debt	N/A	R11.4bn
Lenders	ABSA, Nedbank, Standard Bank, Rand Merchant Bank, DBSA	ABSA, Nedbank, Standard Bank, Industrial and Commercial Bank of China

The 153MW ACWA Power Khanyisa IPP Project will be located in Emalahleni, Mpumalanga province. Its shareholders are Acwa Power from Saudi Arabia, South African investment company Mazi Capital's Nibira, South African energy firm Pele Natural Energy and black-owned engineering consultancy Palace Group. Thebe Investment Group, which is part-owned by the ANC, is believed to hold a stake via Main Street 1377. Khanyisa plans to use discarded coal from Anglo American's waste piles.

Proposed lenders are ABSA, Nedbank, Standard Bank, and the Industrial and Commercial Bank of China. The IDC has committed to providing R1.2bn in funding to the BBBEE shareholders in Khanyisa.

Khanyisa has submitted its generation licence application to Nersa ahead of public hearings, but, as can be seen in **Case Study 1: Thabametsi**, progress on these projects has been delayed by legal challenges to their environmental authorisations.

Coal Baseload Bid Window 2

The second bid window for the Coal Baseload IPP is currently suspended. In October 2016, when the winners of the first bid window were announced, then minister of energy Tina Joemat-Pettersson indicated that the request for proposals (RFP) for the second window was being reviewed, in order to potentially include “clean coal technologies”. In September 2017, Joemat-Pettersson’s successor Mmamoloko Kubayi announced that IPP programmes were suspended until the updated Integrated Energy Plan (IEP) and updated Integrated Resource Plan for Electricity (IRP) were finalised.

However, at least nine companies are undertaking work to secure the necessary environmental authorisations and prepare bids for the second bid window.

Table 5: Potential bidders in Window 2 of coal IPP

Parent company/shareholders	Project	Capacity	Location	Status
Kuyasa Mining	KiPower	600MW	near Delmas	EA granted; court challenge pending
Chancellor House; Shandong Electric Power Construction Corporation;	Colenso Power (Pty) Ltd	1050MW	near Colenso, KwaZulu-Natal	EA set aside on appeal as documents outstanding
Community Investment Holdings, which also owns rights for proposed Temo coal mine that would supply Namane	Namane Generation (Pty) Ltd	600MW	Lephalale, Limpopo	EA appeal pending
Resource Generation	Boikarabelo	260MW	Lephalale, Limpopo	EA granted
Cennergi is a JV between Exxaro and Tata Power	Tshivhaso (Cennergi (Pty) Ltd	1200MW in two 600MW phases	Lephalale, Limpopo	EIA in process
	Mutsho Power Company (Pty) Ltd	660 MW	Limpopo	EIA in process
H2 Clean Energy (Pty) Ltd Plans to source coal from	H2 Energy Power Station	600MW	KwaMhlanga	EIA in process

HCI's Palesa Coal Mine				
Masimong Group Holdings (MGH), a black empowerment group founded by Mike Teke, CEO of Seriti Resources.	Dedicoal (Pty) Ltd - Lephalale Coal and Power Project	600MW	Lephalale, Limpopo	EIA in process
Waterberg Coal Company; Sekoko Resources	Waterberg Power Co	600MW	Lephalale, Limpopo	Status unclear – may not have commenced

Following the Thabametsi ruling (see Case Study 1), a court challenge against the Department of Environmental Affair's (DEA) failure to consider climate change impacts is being brought against KiPower, which had already received its environmental authorisation.

KiPower, which is the furthest ahead of the companies potentially interested in bidding in a second bid window - in terms of acquiring the relevant authorisations - has indicated that 70% of the US$1.7bn development costs will be funded by a mix of commercial and development banks, including the IDC and PIC. No specific commercial lenders have been identified yet.[51]

Gas-to-power IPP

As with the Coal Baseload IPP programme, the Gas-to-Power programme has stalled pending the finalisation of the updated IEP and IRP. There have been different ministerial determinations relating to gas. The first was made in December 2012 for 2,652MW of gas-fired generation. This was amended in August 2015 to increase generation capacity from natural gas to 3,126MW. In March 2016, a further determination was made for an additional 600MW to be developed in conjunction with a strategic partner. A preliminary information memorandum for the 3,126MW programme was released in October 2016, but the request for qualification has been delayed on numerous occasions.

While Standard Bank has expressed an interest in participating in the gas-to-power IPP programme, the programme is still at a very early stage of development.[52]

Private power stations

Eskom is responsible for the bulk of South Africa's electricity generation, but there are a number of private power plants that fall outside of the IPP programmes. The most significant of these include the City of Cape Town's Steenbras Power Station, a 180MW pumped storage scheme, and the Kelvin Power Station, which is currently owned by Nedbank Capital and Investec Bank. Nedbank and Investec, which had advanced funding to the previous owner Globaleq, an international power company, became custodians after Globaleq relinquished it in 2006. Kelvin was privatised by the City of Johannesburg in 2001 when US firm AES acquired a 95% interest. In 2014 Nedbank and Investec looked to sell

Kelvin, which had a power purchase agreement with the City of Johannesburg until 2012 but they have not yet been able to do so.

Some listed companies also operate their own power plants. In addition to coal-fired power plants, Sasol inaugurated a 140MW gas-fired plant at its Sasolburg site in mid-2013.[53] Pulp and paper company Mondi operates a 27MW gas turbine at its mill near Richard's Bay.

Coal mining

South Africa is the fifth-largest coal producer in the world. According to the *BP Statistical Review of World Energy 2017,* 70% of South Africa's primary energy consumption is from coal. As a result, South Africa is the 14th largest emitter of carbon dioxide in the world.[54]

Roughly a quarter of coal produced in South Africa is exported, while 50% is used for electricity generation and the balance for industry, including Sasol's coal-to-liquid facility.[55] With around 85% of its installed capacity derived from coal-fired power, Eskom plays a very important role in the coal mining sector and in the development of new coal mines. Eskom forecasts that it will require more than 2 billion tonnes of coal to 2050.[56]

Eskom uses predominantly two types of coal contract: long-term cost-plus contracts and fixed price contracts, which can be both short- and long-term. Cost-plus contracts, which are based on mining costs plus an agreed profit margin, are used for dedicated mines situated near to Eskom's power plants.[57] Eskom provides both the initial capital and working capital.

As can be seen in **Table 6: Eskom coal suppliers**, as of September 2017, Eskom had contracts with 40 suppliers.[58] This is compared to 29 suppliers in 2015. Four of the suppliers have long-term cost-plus contracts under which production is only given to Eskom. These are:

- South32's Khutala colliery;
- Seriti Coal's New Vaal and New Denmark collieries (previously Anglo American Thermal Coal);
- Seriti Coal's Kriel colliery (previously Anglo American Inyosi Coal); and
- Exxaro Coal's Matla colliery.

A further four mines (Exxaro's Grootgeluk, South32's MMS, Tegeta's now-infamous Optimum, and Goedgevonden, which is a joint venture between Glencore and African Rainbow Minerals) have fixed price contracts. Fixed-price mines are multi-product mines that supply Eskom but export higher grade coal.[59] The cost-plus and fixed price contract suppliers account for almost 70% of Eskom's annual contracted supply volumes. The balance is provided by mines on medium term contracts.

Table 6: Eskom coal suppliers

Major shareholders	Parent companies	Supplier Name	Colliery name	Power Station Name	Contract type	Contractual Volumes Per Annum (Mt)	Length of the contract (Years)	Notes
	State-owned	African Exploration Mining and Finance Company	Chilwavhusiku	Kusile	Medium term	0.9	10	
	State-owned	African Exploration Mining and Finance Company	Mzimkhulu	Kusile	Medium term	2.48	10	
	State-owned	African Exploration Mining and Finance Company	Vlakfontein	Kendal	Medium term	1.5	5	
Masimong Group (25%), Thebe Investments (25%), Zungu Investments (Zico) (25%) and Community Investment Holdings (CIH) (25%)	Seriti Resources Pty Ltd (66%)	Seriti Coal (previously Anglo American Inyosi Coal SA (Pty) Ltd)	Kriel	Kriel	Cost plus	8.5	40	March 2018: Anglo American concluded the sale of its Eskom-tied thermal coal operations to Seriti Resources.
Masimong Group (25%), Thebe Investments (25%), Zungu Investments (Zico) (25%) and Community Investment Holdings (CIH) (25%)	Seriti Resources Pty Ltd (90%)	Seriti Coal (previously Anglo American Thermal Coal SA (Pty) Ltd)	New Denmark	Tutuka	Cost plus	5.1	40	March 2018: Anglo American concluded the sale of its Eskom-tied thermal coal operations to Seriti Resources.
Masimong Group (25%), Thebe Investments (25%), Zungu Investments (Zico) (25%) and Community Investment Holdings (CIH) (25%)	Seriti Resources Pty Ltd (90%)	Seriti Coal (previously Anglo American Thermal Coal SA (Pty) Ltd)	New Vaal	Lethabo	Cost plus	17.8	40	March 2018: Anglo American concluded the sale of its Eskom-tied thermal coal operations to Seriti Resources.
IDC (8%); Anglo American (9.7%)	Exxaro Resources Ltd (100%)	Exxaro Coal (Pty) Ltd	Grootegeluk	Matimba	Fixed price	15.3	45	
c	Exxaro Resources Ltd (100%)	Exxaro Coal (Pty) Ltd	Grootegeluk	Medupi	Fixed price	15.1	49	
IDC (8%); Anglo American (9.7%)	Exxaro Resources Ltd (100%)	Exxaro Coal (Pty) Ltd	Matla	Matla	Cost plus	10.1	40	Oct 2015: Exxaro requested an estimate R1.8bn funding for new mining shaft at Matla.
IDC (8%); Anglo American (9.7%)	Exxaro Resources Ltd (100%)	Exxaro Coal Mpumalanga (Pty) Ltd	NBC	Arnot/Komati/ Tutuka	Medium term	2.88	8	Dec 2015: Eskom cancelled Exxaro's fixed price Arnot contract, which was due to expired in 2023. Optimum was subsequently awarded the contract.
	African Rainbow Minerals (26%), Glencore (74%) [beneficial interest]	Glencore (Xstrata) / AR Coal JV	Goedgevonden	Majuba	Fixed price	2.8	17	
South African Clothing and Textile Workers Union (HCI = 32.8%)	Hosken Consolidated Investments (100%)	HCI Coal (Pty) Ltd	Mbali	Matla	Medium term	0.24	4	
South African Clothing and Textile Workers Union (HCI = 32.8%)	Hosken Consolidated Investments (100%); Khusela Women Investments (20%)	HCI Khusela Coal (Pty) Ltd	Palesa	Grootvlei	Medium term	1.92	8	
	Burgh Group Holdings (49%); Lurco Group (51%)2	Iyanga Mining (Pty) Ltd	Klipfontein	Majuba/Kendal /Kusile	Medium term	1.8	3	
	Phembani Group (50.01%) [via Shanduka Coal]; Glencore International AG (49.99%)	Izimbiwa Coal (Pty) Ltd (previously Shanduka)	Graspan	Majuba	Medium term	2.1	8	

		Izimbiwa Handling Systems (Pty) Ltd	Doornrug	Matla	Medium term	0.6	5	
	Wescoal Holding Ltd (100%)	Keaton Mining (Pty) Ltd	Vanggatfontein	Tutuka	Medium term	1.92	11	Feb R350m facility. R170m to replace 2011 financing, R150 to fund Xceed acquisition' R50 in working capital.
Oakbay Investments (29%)	Tegeta Exploration and Resources (Pty) Ltd	Koornfontein Mines (Pty) Ltd	Koornfontein	Komati	Medium term	2.4	7	June 2016: Secured a loan of R150m using R170m in rehabilitation fund as security. Feb 2018: filed for business rescue.
		Kuyasa Mining (Pty) Ltd	Delmas	Majuba	Medium term	1.68	8	
		Liketh Investments (Pty) Ltd	KK Pit 5	Hendrina	Medium term	2.4	9	
		Liketh Investments (Pty) Ltd	Tavistock/Tweefontein	Duvha/Komati	Medium term	1.3	7	
		Lurco Mining Services (Pty) Ltd	VDD	Komati	Medium term	0.48	7	
IchorCoal (45.16%)	Mbuyelo Coal (41% economic interest via Orha Mining)	Ntshovelo Mining Resources (Pty) Ltd	Vlakvarkfontein	Majuba	Medium term	1.2	3	
Oakbay Investments (29%)	Tegeta Exploration and Resources (Pty) Ltd	Optimum Coal Holdings	Optimum	Hendrina	Fixed price	5.5	26	Feb 2018: filed for business rescue.
		Overlooked Colliery (Pty) Ltd	Overlooked	Matla	Medium term	1.29	6	
	Mbuyelo Group	Perisat Investments (Pty) Ltd	Rirhandzu	Majuba/Kusile	Medium term	1.2	5	
		Silverlake Trading 447 (Pty) Ltd	Uitgevalen	Camden	Medium term	0.6	5	
	Phembani Group (8%)	South 32 (Pty) Ltd (BECSA)	Khutala	Kendal	Cost plus	13.3	40	
	Phembani Group (8%)	South 32 (Pty) Ltd (BECSA)	Middelburg Mine Services	Duvha	Fixed price	10	41	
		Stuart Coal (Pty) Ltd	East Block	Tutuka	Medium term	1.44	8	
		Sudor Coal (Pty) Ltd	Halfgewonnen	Camden	Medium term	2.16	10	Unclear but confirmed on IDC website.
	Oakbay Investments (29%)	Tegeta Exploration and Resources (Pty) Ltd	Brakfontein	Majuba	Medium term	1.36	11	
IchorCoal (45.16%)	Mbuyelo Coal (100%)	Tshedza Mining Resources (Pty) Ltd	Manungu	Kendal/Kusile	Medium term	1.62	15	Feb 2015: Mbuyelo received R210m loan from IDC for Manungu.
		Umsimbithi Mining (Pty) Ltd	Wonderfontein	Arnot	Medium term	2.4	3	
IchorCoal (29.99%); Coal Development Holdings BV (AMED Fund) (27.5%)	Universal Coal Plc (49.9%)	Universal Coal Development (Pty) Ltd	New Clydesdale Complex	Matla	Medium term	1.2	7	June 2015: Secured A$55m (R525m) from Investec. A$30m (R285m) to settle current project finance. A$2.6m (R25m) working capital for Kangala. A$23m (R215m) fund NCC.
IchorCoal (29.99%); Coal Development Holdings BV (AMED Fund) (27.5%)	Universal Coal Plc (70.5%)	Universal Coal Development I (Pty) Ltd	Wolvenfontein	Kusile/Kendal	Medium term	2	9	Sept 2012: RB provided R270m project finance loan.
	IchorCoal (74%); Mbuyelo Resources (26%)	Vunene Mining (Pty) Ltd	Usutu	Camden	Medium term	1.2	5	
IchorCoal (45.16%)	Mbuyelo Coal (Pty) Ltd (50.1%)	Welgemeend Colliery (Pty) Ltd	Welgemeend	Matla	Medium term	0.84	8	
	Wescoal Holding Ltd (100%)	Wescoal Mining (Pty) Ltd	Elandspruit (Majuba)	Majuba	Medium term	0.42	5	Nov 2014: Secures R180m five-year loan (R70m to retire existing Investec facility' R110m to commission Elandspruit) and R20m working capital facility from Investec.
	Wescoal Holding Ltd (100%)	Wescoal Mining (Pty) Ltd	Elandspruit (Tutuka)	Tutuka	Medium term	1.14	5	Nov 2014: Secures R180m five-year loan (R70m to retire existing Investec facility' R110m to commission Elandspruit) and R20m working capital facility from Investec.

The growth in the number of suppliers reflects not only the requirement to meet demands for Eskom's new coal-fired power stations Kusile and Medupi, and those returned to service, but also structural changes and increasing political pressure against the cost-plus mines. Eskom's requirement that coal suppliers have 50% plus one share black economic empowerment (BEE) ownership has facilitated the growth of junior miners. Coal contracted from suppliers with short- and medium-term contracts has increased from 1 million tons in 2000 to 45 million tons in 2017.[60] According to a study by law firm Dentons, reasons for this include Eskom burning more coal per unit of electricity due to challenges such as poor quality coal, and cost-plus collieries failing to deliver contracted volumes. An additional 11Mt per year from medium-term contracts will need to be secured to meet Eskom's forecasted coal supply requirements.[61]

However, Eskom's failure to invest in cost-plus mines to increase or maintain existing production has also played a role. Eskom requires investment of almost R40bn to sustain the cost-plus mines. While Eskom's financial problems are a significant factor, its reluctance to do so is also alleged to be driven by political factors. Exxaro's Arnot colliery, for example, previously had a cost-plus contract to supply Arnot power station with 4.1Mt of coal per year. Eskom ended the coal supply contract with Exxaro in December 2015, and the mine was subsequently closed amid allegations that the contract had been terminated to benefit the Gupta-owned Optimum.[62] This was denied by Eskom. However, there are also other reports that government has prevented Eskom from providing capital to mines with long-term contracts in order to make pricing from mines on medium-term contracts more attractive by raising the cost of coal from cost-plus mines.[63] Eskom's failure to invest has raised concerns that it might face a coal shortage or "coal cliff" in coming years, as the cost-plus mines reach the end of their lives.

It also appears to be driving multinational and large mining companies to reassess their exposure to Eskom. South32 announced in November 2017 that it would look to reduce its interest in its South African energy coal business, although it would invest R4.3bn to extend the life of its Klipspruit colliery by 20 years. South32 is also planning an extension to the Khutala colliery.[64] In June 2017, Exxaro announced that it would sell Arnot and its North Block Complex as part of a restructuring exercise. It was also considering selling Matla, which is contracted to supply Eskom with 10.1Mt of coal a year.[65] Eskom has committed to provide Exxaro with R1.8bn in capital expenditure for a new mining shaft at Matla. This has yet to be released.[66] Anglo American announced in April 2017 that it would sell its Eskom-tied coal operations to Seriti Resources for R2.3bn.[67] The deal was concluded on 1 March 2018. In January 2018, Anglo American announced that it would also sell its R20bn New Largo project, which is expected to provide 15Mt annually to Kusile, to New Largo Coal, which is a consortium of Seriti, the IDC and Coalzar.[68] Anglo American failed to come to an agreement with Eskom on issues such as BEE ownership, which has delayed progress of the New Largo project.

While there are 40 supplier contracts, the actual corporate control of suppliers is much more concentrated. The black-owned power, mining and energy conglomerate Phembani Group, for example, holds a 50.01% interest in Izimbiwa Coal (formerly Shanduka Coal), but is also invested in South32. Frankfurt-listed IchorCoal holds interests in at least six contracts through its investment holdings in Universal Coal Plc, Mbuyelo Coal and Vunene Mining. JSE-listed Wescoal's 2017 acquisition of Keaton Energy, which supplies 1.92Mt of coal per annum from its Vanggatfontein colliery, has also boosted its business with Eskom.

A number of these ventures have ties to the ANC. For instance, the Phembani Group merged with President Cyril Ramaphosa's Shanduka in 2015, after Ramaphosa divested after being elected to parliament. African Rainbow Mineral's Patrice Motsepe is linked to Ramaphosa and cabinet minister Jeff Radebe by marriage. The Gupta family's political links and involvement in Tegeta and Oakbay are now notorious. Potential coal IPPs also have political links: former ANC Treasurer General Matthews Phosa was chairman of Waterberg Coal Company while ANC investment vehicle Chancellor House is a shareholder in Colenso Power.

It is also worth noting that a number of the junior mines have also accessed finance through listings. In fact, in many cases, the cash-constrained junior mines have looked to equity financing, whether listed or unlisted, rather than debt. For example, when Wescoal secured R200m in funding from Investec in November 2014, this was seen as "somewhat unusual".[69] However, there are other instances of debt financing. These include:

- April 2011: Sekoko Resources, which initially partnered with Australia's Firestone Energy, secured R250m of funding from the IDC for its Waterberg Coal Project.[70] Firestone has subsequently delisted and is facing liquidation. [71] Standard Bank replaced the IDC in March 2014 with a R400m loan agreement, but this was recalled in March 2015 over financing concerns.[72]
- September 2011: ABSA Capital agreed to provide Continental Coal with a seven year loan of US$35m to fund the underground Penumbra thermal coal project; a three-year US$15m loan to refinance existing debt and working capital of around US$15m.[73] IchorCoal bought financially troubled Continental Coal's interest in Penumbra and Vlakvarkfontein in 2015.[74]
- February 2014: Keaton Mining secured a R350m facility from Investec. R170m replaced earlier funding from Investec, R130m was used to fund the acquisition of Australian-listed Xceed Resources, and R50m was for working capital.
- February 2015: Mbuyela Coal secured a R210m loan from the IDC to develop the Manungu colliery in Mpumalanga.
- June 2015: Universal Coal secured R525m from Investec. R285m was used to settle a 2012 project finance agreement with FirstRand's RMB, R25m was for working capital and R215m to fund the New Clydesdale Colliery (NCC) project in Mpumalanga.

Investec and the IDC appears to be most active in this space, but there is insufficient disclosure to fully assess the situation. Although details have not been disclosed, the IDC has also funded Sudor Coal and Kuyasa Mining, which has plans to develop the KiPower IPP. The IDC's loan book for coal mining increased from R454m in 2014 to R644m in 2017.[75] It also has equity investments of around R85m in coal mining companies.

However, it appears that sources of funding for junior mining companies are becoming more difficult to access. In 2014, Eskom itself launched a Black Emerging Miners Development Fund, which was intended to provide equity and loan finance to emerging miners, but development of the Fund did not progress. Eskom blamed lower electricity sales and lower coal demand due to the REIPPPP, but its own financial constraints are likely to have been a major factor.[76] A number of banks seem to have stopped or slowed lending to junior coal mines. This appears to be related to the commodity cycle, regulatory uncertainty over developments such as the black empowerment Mining Charter, and Eskom's governance issues and policy positions.

Without a coal supply agreement from Eskom, it is incredibly difficult for companies to provide the security against which banks will agree to provide funds. A number of junior coal mining companies continue to pursue discussions with Eskom as part of their development strategy. In some cases, these companies have also looked at the opportunities that might be presented through the next bid round for the Coal Baseload IPP programme. Financing developments involving mining companies not currently contracted to Eskom include:

Table 7: Financing non-Eskom mines

Company	Project	Investors	Description	Finance	IPP Prospect
Coal of Africa	Makhado Project	M&G Investment Management (18%); Haohua Energy (18%); Yishun Brightrise (16.75%); Summer Trees (10%); TMM Holdings (8.41%); Investec (5%)[i]	3.2Mtpa thermal coal for domestic or export markets	April 2017: R240 loan from IDC, which will be issued as new shares equating to 5% at each of two advance dates.	Mutsho Power Company (Pty) Ltd's proposed 660MW coal IPP plans to source coal from Makhado
Resource Generation	Boikarabelo Coal Mine	PIC (19.49%); Noble Resources (13.69%); Shinto Torii (10.69%)[ii]	3.6 million tonnes (export) 2.4 million tonnes (do mestic)	August 2016: Resgen agreed, through its Legjadja Coal subsidiary, terms with RMB, IDC, PIC and Noble Resource on R5.52bn funding.	ResGen's 300MW IPP project has environme ntal and land approvals

[i] M&G Investments is UK-based asset manager, Haohua Energy is an energy company based in Hong Kong, Yishun Brightrise is a Singapore-based investment company, Summer Trees is an investment company based in Singapore, TMM Holdings is a South African company.
[ii] Noble Resources is Singapore-based energy and industrial company. Shinto Torii is a subsidiary of black empowerment firm Altius Investment Holdings.

Financing energy efficiency

As noted by the International Energy Agency, "energy efficiency offers a powerful and cost-effective tool for achieving a sustainable energy future".[77] A number of energy efficiency financing projects emerged after 2008 when Eskom started experiencing unplanned power outages or "load shedding". Several sources of funding emerged, including commercial loans, cash grants, carbon credits and tax deductions.

As of 2015, all of the major banks offered energy efficiency loans, which fund projects that improve energy efficiency and reduce energy costs. As can be seen in **Table 8: Energy Efficiency Support**, many of these were supported by credit facilities from foreign agencies. In some cases, such as the ABSA and Nedbank programmes, incentives such as rebates on the principal loan or reductions in the interest rate were provided. The IDC's Green Energy Efficiency Fund, for example, which received support from Germany's KfW, provided loans of between R1m and R50m at a discounted rate of prime less 2%. Other facilities include the Anglo American Green Fund and the Evolution One Fund.

Table 8: Energy efficiency support		
Agency	**Description**	**Commercial Bank**
Agence Française de Développement	€120 million credit facility for energy efficiency and renewable energy	ABSA
		Industrial Development Corporation (IDC)
		Nedbank
German Development Bank (KfW)	€48 million long-term loan at prime less 3%	Industrial Development Corporation (IDC)
International Finance Corporation (IFC)	$10 million line of credit for energy efficiency	Sasfin
Swiss State Secretariat for Economic Affairs (SECO)	€50 million financing for SMMEs – including financing for energy efficiency and renewable energy	Mercantile Bank
International Finance Corporation (IFC)		
European Investment Bank (EIB)	€100 million renewable energy funding	Investec
Source: Private Sector Energy Efficiency[78]		

Cash grants were also provide through a range of projects. These include Eskom's Integrated Demand Management programme, which saw companies paid R1.20/kWh for energy savings, and the Manufacturing Competitiveness Enhancement Programme (MCEP) run by the department of trade and industry. Under the MCEP, energy efficiency projects could access a cost-sharing grant for, among others, technology upgrades or business development activities that result in cleaner, more efficient production. The Green Fund (described in more detail in **Section 4: Government framework**), administered by the DBSA also funded energy efficiency projects.

Energy efficiency finance appears to have stalled over the last two years. The Private Sector Energy Efficiency (PSEE) programme, which was managed by the National Business Initiative and launched with GBP8.6m in funding from the UK Department of International Development in December 2013, concluded its work, which included providing specialist energy audits and system design, in November 2015.[79] Eskom's Integrated Demand Management programme has been suspended. The programme identified over 21,000GWh of lifetime energy savings across 1,100 sites, but only 646GWh of savings at 336 sites were implemented.[80] The average payback period of the projects implemented was 0.9 years
.

Future finance

The direction that financing of the power sector will take is dependent on several factors, including policy decisions on the future energy mix and growing international pressure on the financial sector to address the risks posed by climate change.

Energy policy developments

South Africa's energy policy is currently in a state of flux, with a process to update the IEP and IRP. The IEP, which will cover the period to 2050, is intended to "provide a roadmap of the future energy landscape for South Africa which guides future energy infrastructure investments and policy development". The IEP has not yet been finalised, but a draft version that was released for public comment in July 2013 forecast that total energy demand will increase at an average annual rate of 2% from around 2,250PJ in 2010 to around 5,700PJ in 2050. The Department of Energy hoped to finalise the IEP by Q1 2018 but further delays are possible.

The updated IRP has experienced similar delays. The IRP 2010-2030, which is currently in use, was promulgated in March 2011 and, as a "living plan", was expected to be updated every two years. It was updated in 2013, but this version was not finalised by government. A central reason for this is believed to be the fact that the IRP 2013 suggested that a decision on nuclear procurement can be delayed, given lower power demand forecasts. The IRP 2010 requires an additional 9,600MW of nuclear power, with the first unit to come online in 2023.

Table 9: Energy generation mix shows that the most recent draft version of the updated IRP (IRP2017) continues to drive nuclear procurement, with plans under the base case to add more than 20,000MW of nuclear generation by 2050. It also includes new coal-fired generation of 5,250MW by 2030 and an additional 9,750MW by 2050. However, this scenario imposes an artificial cap on the required amount of solar and wind power, which means that it is not the least-cost model. The CSIR has developed models that show that the least-cost electricity mix by 2050 will be based on 70% power from renewable sources.

Table 9: Energy generation mix

	IRP 2010		IRP 2016		IRP 2016 – new build (MW)	
	2010	**2030**	**2030**	**2050**	**2030**	**2050**
Coal	81.7%	45.9%	50.81%	31.6%	5250	9750
OCGT	5.5%	8.2%	13.65%	6.96%	11016	24276
CCGT	0%	2.6				
Nuclear	4.1%	12.7%	4.1%	30.01%	0	20385
Wind	0%	10.3%	11.92%	18.09%	8000	29400
Other renewables and cogeneration	8.7%	20.3%	19.52%	13.34%	4680	12920
Total MW	43895MW	89532MW	81350MW			

Following the appointment of David Mahlobo as minister of energy in October 2017, further work has been done to develop the IRP scenarios. In early December 2017, Mahlobo, who continued to drive nuclear procurement, claimed that the IRP had been finalised and approved by cabinet. Following President Zuma's resignation in February 2018 and the appointment of Jeff Radebe as minister of energy in February 2018, the drive towards nuclear procurement will fall away and further revisions to the IRP will be required to address the shortcomings seen under Mahlobo.

If the various scenarios considered by the IRP process take proper account of South Africa's international commitments on climate change and emissions, it is extremely difficult to see how new coal-fired power can rationally be included in the mix. This is particularly the case considering that the overnight capital costs, which exclude interest payments, used in the modelling suggest new coal power will cost US$2,950 to US$3,560 per kW, compared to US$680 for gas and US$1,390 for solar.[81]

Stranded assets

Stranded assets in relation to fossil fuel projects are the proven reserves that companies will not be able to be develop if climate change mitigation targets are to be met. Carbon Tracker, which uses the concept of stranded assets to consider the "implications of not adjusting investment in line with the emissions trajectories required to limit global warming",[82] argued in 2012 that South Africa's coal reserves destined for use in the domestic market exceeded the country's entire carbon budget, which is the amount of CO_2 that can ben emitted while keeping global temperature increases to below 2 degrees. The carbon budget was calculated to be 16.4 $GtCO_2e$ based on the "required by science" option in the government's Long-Term Mitigation Scenario.[83] Winkler and Marquard have similarly calculated a carbon budget under South Africa's "peak, plateau and decline" emission trajectory of 19 $GtCO_2e$ for the period 2010-2050.[84] Over a shorter period to 2035, the carbon budget might range from 10.3$GtCO_2e$ to 15.3 $GtCO_2e$.[85]

The carbon budget has important implications for the future development of South Africa's energy sector, in light of the country's international commitments on climate change. Carbon Tracker found that the emissions associated with burning all of South Africa's domestic coal reserves were equivalent to 19.2GtCO_2e with almost 18GtCO_2e of these attributable to companies listed on the JSE. Burton and Winkler found that the South African Coal Roadmap scenarios, based on the domestic production and use of coal between 2010-2035, would result in emissions of between 10GtCO_2e and 12.1GtCO_2e. If coal exports are included, emissions would increase to between 14.7GtCO_2e and 17.2GtCO_2e. These forecasts do not include a full analysis of domestic emissions or expanded coal exports.

These studies suggest that future development and use of coal will take South Africa very close to or tip it over its carbon budget. Burton and Winkler found that the expansion of coal infrastructure would lock South Africa into a high emissions trajectory.[86] Meanwhile, Carbon Tracker concluded that this analysis showed that "South Africa will have no room within its carbon budget for the development and combustion of new coal reserves through to 2050".[87] It recommended that investors challenge the investment decisions supporting the development of new coal assets and identify opportunities for growth in a low carbon economy.

International developments

Internationally, there is growing pressure on capital markets to address climate change issues. In addition to keeping the global average temperature increase to well below 2^{o}C above pre-industrial levels, the Paris Agreement on climate change aims to make "finance flows consistent with a pathway toward low greenhouse gas emissions and climate-resilient development". [88]

The financial sector has come under increasing scrutiny over the last two years over the risks from climate change. In September 2015, Governor of the Bank of England Mark Carney set out the three ways in which climate change can affect financial stability.[89] These were physical risks related to current insurance liabilities from climate-related events, liability risks stemming from future compensation claims from those who experience loss or damage from climate change, and transition risks, such as a revaluation of asset prices, resulting from the shift towards a lower-carbon economy. Carney has played an important role in raising questions around the impact of climate change and the role that financial institutions, including central banks, can play in addressing systemic environmental risks.

Carney's stand and his work with former mayor of New York City Michael Bloomberg on the G20's Financial Stability Board's Taskforce on Climate-related Financial Disclosures (TCFD) have ensured that the banking sector is no longer seen as an industry with low exposure. Awareness has grown that it is the banking sector's lending portfolio, with assets extending across all sectors and markets, rather than its operational footprint, that leaves it exposed to climate change risks.

The TCFD report, which was released in June 2017, sets out four recommendations on climate-related financial disclosures that are applicable across sectors and organisations. The recommendations are:

- **Governance:** Disclose the organisation's governance around climate-related risks and opportunities.
- **Strategy:** Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.
- **Risk Management:** Disclose how the organisation identifies, assesses, and manages climate-related risks.
- **Metrics and Targets:** Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

Supplementary guidance has been developed for the financial sector, with the TCFD believing that "disclosures by the financial sector could foster an early assessment of climate-related risks and opportunities, improve pricing of climate-related risks, and lead to more informed capital allocation decisions".[90] The Supplemental Guidance for Banks recommends that they should disclose any major concentration of credit exposure to carbon-related assets and should consider disclosing climate-related risks in their lending.

As a member of the G20, which was instrumental in the formation of the Financial Stability Board, South Africa will be encouraged to implement the recommendations of the TCFD. According to a Treasury official, the regulatory framework is already under review to "determine how best to enhance climate related disclosures, reporting and monitoring necessary to support decisions taken at a policy level".[91]

Policies and exclusions

In recent years, a number of international banks have started to develop policy positions on financing fossil fuels, and have taken steps to reduce their exposure to fossil fuel companies. NGO BankTrack has identified more than 35 international banks that have made commitments. These include:

- Natixis – in October 2015, French-bank Natixis committed to stop financing coal-fired coal plants and thermal coal mines worldwide. It also committed to not financing companies that are more than 50%-reliant on operating coal-fired power plants or thermal coal mines.[92]
- JP Morgan – in March 2016, JP Morgan published an updated policy that committed to end financing for new coal mine projects and new coal power plants in high-income countries and reduce exposure to "pure play" coal mining companies.
- Deutsche Bank – in January 2017, Deutsche Bank committed to not financing greenfield thermal coal mines and new coal-fired power projects worldwide, and to reduce its exposure to the coal mining sector.[93]

While BankTrack sees all commitments to reduce financing for coal mining or coal power as positive, it argues that "only a plan to fully phase out finance for the coal sector – both mining and power – is an adequate response to the challenge of climate change".[94] It calls on banks to sign the Paris Pledge to Quit Coal, which so far has 21 signatories from 11 countries.

In addition to the banking sector, insurance companies are also taking steps to reduce their exposure to fossil fuels, particularly coal. In November 2017, for example, Zurich announced that it would no longer offer insurance to companies that rely on coal for more than half of their turnover.[95] This follows a similar move by AXA and Allianz in 2015.

In September 2016, Futuregrowth Asset Management announced that it would not fund coal-fired power generation until environmentally sustainable methods of operating were developed.[96] Futuregrowth had already suspended funding to various state-owned companies including Eskom, the IDC and the DBSA pending governance reviews in August 2016.

3. Financial institutions' policies

In light of recent trends in the financing of energy projects, especially the growing international pressure on financial institutions to address climate change issues, the next section considers how South African banks and DFIs approach this issue. It considers this in the wider context of their environmental and social policies.

Banks play an essential role in the economy by providing financial services to individuals and companies. While many banks will argue that their impact on the environment and communities is small due to the size of their operational footprint, banks can have a far greater impact through their lending and investment practices. Through financing activities that cause environmental damage or result in human rights violations, banks can undermine social and environmental sustainability.[97]

This has been acknowledged by the members of the Banking Association of South Africa (BASA), which adopted the Principles for Managing Environmental and Social Risk ("The Principles") in October 2015. The Principles replaced the 2011 Code of Conduct for Managing Environmental and Social Risks. The Principles "recognise the role that financial institutions can play in the protection, promotion and fulfilment of social, economic and environmental rights in South Africa by conducting and reporting on their operations, business, lending and investing practices in a sustainable manner." [98] In addition to committing to managing their direct impact on the environmental and communities, the members of the Banking Association commit to:

- Encouraging clients to adhere to environmental and social regulations and legislation by establishing internal processes to identify high risk industries where additional due diligence is required.
- Ensuring that due recognition is given to environmental and social risks when making lending decisions through appropriate credit and risk management policies.
- Developing and maintaining appropriate environmental and social due diligence guidelines for lending to high risk industries.
- Developing and implementing systems and procedures to identify, measure, and monitor environmental and social risks during the life cycle of project finance agreements and requiring clients to do the same.

Furthermore, South African banks are also members and signatories of various voluntary initiatives that support the adoption of sustainable policies and practices. These include the United Nations Global Compact (UNGC), which covers ten principles for environment, human rights and corruption; the UNEP Finance Initiative (UNEP FI), which is a partnership between the United Nations Environment Programme and the global financial sector to promote sustainable finance; the CDP (Carbon Disclosure Project), which works with investors and companies to achieve better disclosure of environmental impacts including carbon emissions; and the Equator Principles, which are a risk management framework used by financial institutions to manage environmental and social risks, particularly in project finance.

Table 10: Commitments of South Africa's major banks and DFIs				
	UNGC	**UNEP FI**	**CDP**	**Equator Principles**
Barclays Africa/ABSA	N	N*	Y	N*
FirstRand	N	Y	Y	Y
Investec	Y	N	N**	N
Nedbank[iii]	Y	Y	Y	Y
Standard Bank	N	Y	N	Y
IDC	N	Y	N	N
DBSA	Y	N	N	N
* - former majority shareholder Barclays Plc is ** - Investec Asset Management is				

While the Principles for Managing Environmental and Social Risk and voluntary initiatives are an important step, these commitments do not replace the need for banks to develop their own policies and procedures to address environmental and social risks.

Environmental risks

The banking sector is exposed to a variety of environmental risks through its lending practices. In attempting to address the potential risks of environmental damage such as air pollution, biodiversity loss, soil erosion and water stress, banks use tools such as Environmental Management Systems (EMS) to manage and mitigate environmental issues at various business units that could either lead to financial losses or liabilities, or breaches of environmental laws. EMSs require environmental risks to be identified, measured, managed and monitored through lending cycles.

As part of their environmental management systems, many banks apply the risk management framework set out by the Equator Principles. The Equator Principles are used in project finance deals of over US$10m or corporate finance deals of over US$50m. However, in general, the banks also apply a similar framework to other deals that do not meet these thresholds. Barclays Africa, FirstRand, Nedbank and Standard Bank are signatories to the Equator Principles. Although Investec is not a signatory, it has declared its support for the requirement that all projects comply with relevant laws, and committed to not investing in projects that do not have acceptable environmental impact assessments or that do not comply with legislation.[99] Investec's objections to the Equator Principles include "excessively bureaucratic requirements" and the potential conflict between nationwide developmental imperatives, such as improved road infrastructure or power generation, and locally affected parties, who might need to be relocated as a result.[100] Investec argues that these trade-offs should be resolved by local parties and their representatives.

[iii] Nedbank has also committed to the Natural Capital Declaration, which is a commitment by financial sector CEOs

While environmental management systems are important, it is essential that they are informed by an environmental policy that sets out the approach towards environmental sustainability. The environmental policy reflects an organisation's understanding of its relationship with the environment in the context of the regulatory and legal environment. The policy also informs the objectives and targets of the organisation. Best-practice requires sector- and issue-specific policies to be developed to strengthen positions in high risk areas and for policies to be publicly available to ensure that external stakeholders are able to engage with financial institutions and hold them accountable.

While all of South Africa's major corporate banks and DFIs considered in this report reference an environmental policy in their annual reports or other disclosures, the only institutions that publicly disclose their environmental policies are Investec and the DBSA. Some banks also refer to sector policies and exclusion lists. Nedbank's 2016 Sustainability Report, for example, indicates that it has developed sector policies for agriculture, mining, oil and gas, natural capital, waste, recycling, hazardous substances, asbestos and contaminated land, while Barclays Africa's 2014 Environment fact sheet refers to a Nuclear Policy and Defence Policy, but neither Nedbank's nor Barclays Africa's policies are publicly available.[101] This is in contrast to international bank Barclays Plc, which not only sets out its approach to managing environmental risk in lending, but also provides publicly available industry-specific guidance notes for over 50 environmentally and socially sensitive activities across 10 different sectors.[102]

As a result, apart from the DBSA and Investec, it is impossible to assess whether or not the banks' environmental policies are comprehensive and cover both operational and lending risks. It is also impossible to assess if environmental policies or more detailed sector- or issue-specific policies meet international standards. It is also impossible to assess the extent to which banks' commitments to voluntary initiatives are transferred through to their own policies. For example, does Nedbank incorporate the precautionary principle[iv], which is one of the UNGC's ten principles, into their environmental policies?

Climate change risks

Investors, such as Boston Common Asset Management, have raised concerns that "the banking industry has not successfully integrated climate change risk into its long-term strategic planning or understood the implications…for its business operations".[103] Various frameworks have been developed by investors such as Boston Common and NGOs like BankTrack through which they hope to ensure that the banking sector and the wider financial industry make sure that climate risks are properly addressed.

Boston Common Asset Management's 2017 report *On Borrowed Time: Banks & Climate Change,* which assessed 45 global banks' climate change policies and practices, provides a

[iv] The precautionary principle recognises that, given environmental damage may be irreversible, in situations where there is scientific uncertainty, it is better to avoid possible harm than to try to remedy it later.

useful framework to assess South African banks' policies on climate change. The report focused on 14 performance metrics across three broad categories. These were:

- Climate Strategy

  Governance
  - Has the bank established board-level oversight for long-term climate strategy?
  - Has the bank established performance goals for the management or implementation of climate strategies?
  - Has the bank explicitly linked climate strategy-related goals to executive compensation?

- Risk Management

  Carbon Footprinting
  - Has the bank measured and disclosed the carbon footprint, or performed other benchmarking exercises, on any of its financing activities (e.g. its lending to the energy sector)?
  - Has the bank utilized carbon footprinting or another benchmarking tool to set targets to reduce exposure to carbon intensive industries?

  Stress Testing
  - Has the bank instituted regular environmental stress tests?
  - If so, has the bank integrated stress test findings into decision-making?

- Opportunities

  Energy Efficiency Financing
  - Has the bank quantitatively disclosed energy efficiency financing?
  - Has the bank quantitatively disclosed energy efficiency financing in the context of overall lending and investments, for example as a proportion of overall lending and investments?
  - Has the bank set targets for energy efficiency financing?

  Renewable Energy Financing
  - Has the bank quantitatively disclosed renewable energy financing?
  - Has the bank quantitatively disclosed renewable energy financing in the context of overall lending and investments, for example as a proportion of overall lending and investments?
  - Has the bank set targets for renewable energy financing?

In South Africa, banks' annual integrated reports and other public disclosures make clear that the main focus of the banks in addressing climate change relates to operational issues. All five of the JSE-listed banks covered in this report provide responses to the Carbon Disclosure Project (CDP). However, not all of the banks properly acknowledge that climate change-related risks extend beyond their direct operations and are also related to indirect risks resulting from loans and investments.

Table 11: CDP performance		
Bank	**2016 score**	**2016 Scope 1&2 South Africa (tCO_2e)**
Barclays Africa	B	180802
FirstRand	A-	264130.25
Investec	A-	31340
Nedbank	A	146606.47
Standard Bank	B	287888

Only two of the five banks have a publicly available statement on climate change. Nedbank's website and an earlier version of its Climate Change Position Statement recognise both the direct and indirect risks from climate change. [104] The most recent Climate Change Position Statement commits to "directing a significant portion of our lending to accelerate decarbonisation of the South African economy at a rate that is commensurate with the national carbon budget". Nedbank's Fair Share 2030 strategy also proposes:

> (i) a decarbonising of our lending book in line with the carbon budget trajectory; and
> (ii) an increased flow of lending to sustainable-development finance to enable the provision of modern energy services, clean water and sanitation, etc.[105]

FirstRand's 2016 Climate Change and Energy Report recognises that "climate change poses a number of direct risks to FirstRand's operations, as well as indirect risks to financing activities as a result of risks posed to its clients".[106] It also commits to "assisting in the transition toward a low-carbon economy and support the Paris Agreement".

The Investec Group environmental policy recognises "the challenges that climate change presents to the global economy" and support "any meaningful activity that either reduces the negative impact on or prolongs the life of our planet".[107] However, the policy is relatively weak in how it addresses climate change in terms of its strategy and commitments. However, Investec's latest annual report acknowledges the risk that "lending and investment activities give rise to unintended environmental, social and economic consequences" and includes climate-related impacts when assessing transactions.[108]

Although Standard Bank does not appear to have a publicly available statement on climate change, it does acknowledge both direct and indirect risks from climate change in its most recent annual reports. Standard Bank's strategic initiatives to mitigate climate change include "managing the environmental and social risks related to financing activities" and financing renewable energy projects.[109]

Barclays Africa mentions indirect risks from lending, investing and procurement as potential environmental impacts, but climate change is not specifically mentioned as an environmental risk. In fact, Barclays Africa fails to mention climate change at all in its 2016

Integrated Report, apart from indicating that its “CDP score stayed steady at B (‘taking coordinated action on climate change issues’)”.[110] Given that Barclays Plc, which was Barclays Africa’s controlling shareholder until 2017, includes several references to climate change in its Environmental Sustainability Policy Statement, this could be an oversight by Barclays Africa.[111] However, with minimal transparency and disclosure on environmental issues in general, it is difficult to tell.

In terms of the 14 performance metrics set out by Boston Common Asset Management, the performance of South African banks is extremely weak. The two main areas of activity are clearly:

- **Establishing board-level oversight of climate change issues** - the social and ethics committees at Nedbank, FirstRand and Investec have oversight of climate change risks and opportunities. The social and ethics committee at Standard Bank has oversight for environmental issues, but climate change is not mentioned specifically. According to its 2016 Annual Report, Barclays Africa’s Social and Ethics Committee reviewed updates on the Group’s environmental impact, including energy and water usage, and carbon emissions, but there is no indication that this covered indirect impacts from lending or investments.[112]
- **Renewable energy financing -** various banks have disclosed the extent of their financing for the renewable energy sector. However, this is generally not given in the context of either overall lending or as a proportion of total energy investments.

Based on publicly disclosed reports and other information, none of the banks have:

- established performance goals for management on the implementation of climate strategies;
- explicitly linked climate strategy-related goals to executive compensation;
- undertaken carbon footprinting of their financing activities or instituted regular environmental stress tests[v];
- disclosed energy efficiency financing and/or targets;
- set targets for renewable energy financing (although Nedbank’s R6bn “stretching” annual lending target for 2015 and 2016 “to encourage new and innovative lending with deliberate social and environmental impact” included renewable energy projects);
- Publicly disclosed goals to reduce their exposure to carbon-intensive sectors.

To some extent, this situation is not surprising, given the response to Boston Common Asset Management’s survey. In its 2017 report, Boston Common Asset Management found that

[v] However, Nedbank has stress tested the “impact of strong actual and projected growth in renewable energy projects by Nedbank Capital, as well as stress testing of commodities, including the oil and gas segment, given the significant decrease in oil prices this year.”

while 80% of responding banks had adopted more explicit oversight of climate risk at board level, only 50% had linked climate strategy goals to executive compensation. Fewer than 40% of responding banks set financing targets for either renewable energy or energy efficiency and fewer than 20% disclosed renewable energy financing in the context of overall lending. Furthermore, while almost 50% had instituted environmental stress tests, less than 20% integrated the resultant findings into decision making.

This situation highlights a general lack of a strategic approach toward climate-related risks on the part of the banking sector. This will limit the impact that the banking sector will have on addressing climate change. It also undermines the various commitments that banks have made towards supporting a low-carbon future and limiting increases in global average temperature to below 2°C.

Human rights policies

According to the United Nations Global Compact Office and Office of the United Nations High Commissioner for Human Rights' *Guide for Business: How to Develop a Human Rights Policy*, a human rights policy:

- Provides a basis for embedding the responsibility to respect human rights through all business functions;
- Demonstrates international good practice;
- Builds trust with external stakeholders and responds to stakeholder expectations;
- Allows policy gaps to be identified and a company to be alerted to new areas of human rights risk.[113]

A human rights policy should include an explicit commitment to respect all human rights and refer to specific human rights instruments including the Universal Declaration of Human Rights and the International Labour Organisation's (ILO) Declaration on Fundamental Principles and Rights at Work. Other key areas that can be addressed include non-discrimination, child labour, freedom of association, health and safety, security and the rights of indigenous people, including the right to Free, Prior and Informed Consent (FPIC). Banks should commit not to invest in companies that do not respect human rights in their policies.

Of the five commercial banks considered in this report, only Nedbank publicly discloses a separate human rights policy. The Nedbank Group Human Rights Statement is guided by the Universal Declaration of Human Rights and acknowledges the rights enshrined in the Bill of Rights of South Africa's Constitution, such as the freedoms of religion, association and movement.[114] It also acknowledges its commitments as a signatory to the UNGC. However, the policy does not explicitly address issues such as FPIC, nor does it commit to not investing in businesses that do not respect human rights. Instead, it describes its due diligence approach, which includes a Social and Environmental Management System and the Equator Principles.

Equator Principles: Strengthening Climate Change Commitments

In August 2017, a group of civil society organisations wrote to Nigel Beck, chairman of the steering committee of the Equator Principles Association (EPA), requesting that three issues be placed on the agenda for the Equator Principles' (EP) Annual Meeting in Sao Paulo in October 2017.[115] Beck is also Head of Environmental and Social Risk and Finance at Standard Bank. The issues were:

- Strengthening the commitments of all members of the EPA to fully consider the climate impact of projects to be financed under the EPs;
- Strengthening the commitments of all members of the EPA to fully respect Indigenous Peoples' rights when financing projects under the EPs;
- Starting a formal revision process of the EPs, so that these commitments are reflected in a new version of the Principles (EPIV).

The EPA steering committee released a statement in November 2017 that the EPA is "planning to start a process of updating the Equator Principles. The aim of the process will be on a targeted update to the EPs – 'EP4' – that will consider the key issues of scope of applicability, human rights (inclusive of the rights of Indigenous Peoples), and climate change, amongst others." The process will be concluded by June 2019.

Of the other banks, Standard Bank includes a Statement of Human Rights in its 2016 Report to Society that refers to both the Universal Declaration and the ILO Declaration.[116] The Statement commits to "exercising due diligence in deciding who we do business with and understanding the potential human rights impacts of our business relationships, purchasing, lending and investing", taking "appropriate steps", including exiting a business relationship, where human rights abuses are discovered, and adhering to the Equator Principles.

Investec does not have a formal human rights policy, but "strives to advance the UN principles within [its] sphere of influence".[117] Investec also argues that its Code of Conduct, which is not publicly available, covers issues such as diversity and respect, and that it supports international efforts to end human trafficking, slavery, forced and child labour. As a signatory to the UNGC, Investec is also committed to the six principles relating to human rights and labour rights.

A supplement to Barclays Africa's 2016 annual report confirms that it operates "in accordance with the International Bill of Human Rights, including the UN Guiding Principles on Business and Human Rights, and takes account of other internationally accepted human rights standards."[118] It also points out that human rights are explicitly referenced in its code of conduct, the "Barclays Way", which also refers to the Barclays Statement on Human Rights. However, now that Barclays Plc is no longer the controlling shareholder, Barclays Africa should develop its own policy framework.

FirstRand's Code of Ethics includes respect for human rights, non-discrimination and fair labour practices, but the group does not appear to have a human rights statement or policy.[119]

As with environmental policies, the above situation suggests that South African banks, in general, fail to meet international best practice with respect to their policies on human rights. A lack of transparency makes it difficult for stakeholders to scrutinise policy commitments. Where policies are available, the content fails to incorporate essential elements.

In the absence of effective human right policies, the banks rely on their Social and Environmental Management System (SEMS) or similar frameworks to identify and address human rights issues. They also use the Equator Principles where relevant, but there is growing concern that the Equator Principles provide inadequate protection for indigenous rights, particularly in terms of FPIC.

3. Case studies

In light of the above discussion on trends in financing power projects in South Africa, and the policies of various financial institutions on environmental and social issues, including climate change, it is worthwhile considering two projects in more depth. These cases studies highlight the role that financial institutions play in supporting new power projects and in supporting changes in the strategic direction of the companies that they lend to.

Case Study 1: Thabametsi

Thabametsi Power Plant, which will be located near Lephalale in Limpopo province, was announced as one of two successful bidders in the first bid window of the Coal Baseload IPP procurement programme In November 2016. [120] The Thabametsi Power Plant will be a 630MW Circulated Fluidized Bed coal-fired power station. It will be supplied with coal from Exxaro's Thabametsi mine, which it will develop next to its existing Grootgeluk mine. The proposed commissioning dates for the two units are March 2021 and September 2021 respectively. The life of the power station will be until at least 2046. Although the project was required to reach commercial and financial close by 3 November 2017, then minister of energy Mmamaloko Kubayi put IPP programmes on hold in September 2017, pending finalisation of the IRP.

As noted above, Thabametsi's shareholders include Japanese energy company Marubeni's wholly-owned subsidiary Axia Power, Korean Electric Power Corporation, the Unemployment Insurance Fund's Blue Falcon 253 Trading, Royal Bafokeng Holding's Jenzoprox, Tirisano Partner's Business Venture Investment no 1879, and KDI Holding's Mandlalex.[121] The latter two entities are black-owned companies. The initial project development was led by French company GDF Suez (now Engie) and Exxaro Resource.

Thabametsi's proposed lenders are ABSA, Nedbank, Standard Bank, Rand Merchant Bank, and DBSA. According to the Department of Energy, the DBSA committed to providing R1.1bn in funding to the BBBEE equity partners, while the PIC, which also has direct equity exposure of R1.3bn via Blue Falcon, committed R575m in BBBEE funding.[122] The African Development Bank also appraised the project in September 2017.

Environmental authorisations

Prior to submitting its bid in November 2015, Thabametsi was required, among other things, to obtain environmental authorisation from the DEA. The DEA's chief director granted Thabametsi its environmental authorisation (EA) in February 2015. However, environmental justice NGO Earthlife Africa Johannesburg (ELA), with legal representation from the Centre for Environmental Rights, launched an appeal against the granting of the EA in May 2015. Grounds for the appeal included the fact that the location of the plant would be in an area that is water-stressed and has been declared a priority area under the National Air Quality

Act, and that the project failed to consider South Africa's international and national obligations to address climate change

More than 1,000 ELA supporters marched to the French Consulate on 15 May 2015 to protest Engie's involvement in the project. ELA highlighted the contradiction in Engie, a "company group that markets itself as a global energy player with expertise in renewable energy and which seeks to combat climate change" supporting a coal-fired power project.[123] In June 2015, Engie announced that it was withdrawing from the project. Engie was replaced by Japan's Marubeni and Korea's Kepco. Exxaro continues its involvement.

In March 2016, the Minster of Environmental Affairs dismissed Earthlife Africa's appeal but amended the environmental authorisation and imposed further conditions. These included requiring the project developer to undertake a climate change impact assessment and a palaeontological assessment before development could commence. While supporting the Minister's requirement that a climate change impact assessment be conducted, the Centre for Environmental Rights questioned why the Minister had upheld the authorisation when it was clear that material impacts were not considered prior to granting environmental approval.[124] This led to ELA's legal challenge against the environmental authorisation in March 2016.

South Africa's first climate change court case

In March 2017, the North Gauteng High Court ruled that ELA was correct to argue that the climate change impact of the project should have been considered before ministerial authorisation was given. The court ordered the environmental authorisation to remain suspended until the Minister made a fresh decision, having taken the findings of the climate change impact assessment into account. According to the Centre for Environmental Rights (CER), the judgement in what has been called "South Africa first climate change court case" confirmed [CER's emphasis]:

- neither the DoE's Determination calling for new coal-fired power, nor the Integrated Resource Plan for Electricity (IRP) trumps environmental legislation. Each project's climate change and other environmental impacts must be individually assessed, and the DEA, or other environmental authority, <u>must independently exercise its discretion</u> on whether or not to allow a project to go ahead;
- coal-fired power stations are significant contributors to climate change, and climate change poses a substantial risk to sustainable development in South Africa;
- our existing law, the National Environmental Management Act, 1998 (NEMA), requires an EIA to include a <u>comprehensive</u> assessment of climate change impacts for all projects with potentially serious climate change impacts before a decision can be made as to whether to authorise the project;
- the EIA assessment of climate change impacts must not simply be a quantification of the project's greenhouse gas (GHG) emissions: it must also include an assessment of the broader climate change impacts (like water scarcity and health), and how the project would make them worse. The assessment must also consider the extent to

which the viability of the project itself will be affected by those climate change impacts; and

- in considering whether to authorise a development with significant climate change impacts, the environmental authority must determine which, if any, measures are required to reduce its emissions, and to ensure the resilience of the project and the surrounding environment to those impacts.[125]

The climate change impact assessment

The final Climate Change Study and Palaeontological Impact Assessment undertaken by Savannah Environmental was released for public review on 30 June 2017. The assessment found that Thabametsi's operations would result in 9.88tCO_2e per year, which would be rated "very large" using benchmarks from international lender standards.[126] It further acknowledges that the emissions are "of a similar but slightly lower magnitude per kWh generated than those from the Eskom coal-fired power plants which are scheduled to be decommissioned around the time of the Thabametsi plant's entry into service".[127] However, Savannah found that the climate change impacts did not amount to a "fatal flaw".[128]

However, ELA responded that the fact that Thabametsi would be developing a new coal-fired plant with similar GHG emissions to Eskom's old plants (largely due to the relatively high N_2O emissions) is highly problematic. ELA also pointed to Savannah's failure to consider the external costs of GHG emissions and how the power station would affect vulnerable communities and the environment through climate change. ELA concluded that "in light of the staggering climate impacts of the proposed Thabametsi power station, which will be emitting significant GHGs for at least 30 years (up until 2050 at least), it would be unlawful for the environmental authorisation to remain in place".[129]

Minister's decision

In January 2018, Molewa ruled, after having apparently taken the findings of the climate change impact assessment into account, that the environmental authorisation would remain in place. Molewa found that ""while the environmental and social costs associated with the proposed power station are high, this does not necessarily represent a fatal flaw, provided that the benefits are justified and can be motivated" and that "the overall assessment of the risks and impacts associated with the GHG emissions and climate change vulnerabilities is systematic, realistic, conservative and not understated".[130]

Role of financial sector

ABSA, Nedbank, Standard Bank, Rand Merchant Bank, and DBSA were all named as the project lenders in Thabametsi's October 2016 application to NERSA for an electricity generation licence.[131] This is despite the various commitments and statements supporting action on climate change.

Nedbank Group's Climate Change Position Statement, for example, says that "as a country with still unacceptably high carbon emissions, SA must answer the call to reduce its reliance on fossil fuels" and that it is "committed to decarbonise its lending book in line with the carbon budget trajectory".[132] RMB's parent company states in its 2016 Climate and Energy Report that it is committed to "assisting in the transition to a low-carbon economy and the support the Paris Agreement to keep global temperature increases below 2°C.

Meanwhile, the National Development Plan says that "carbon emissions will form part of environmental assessment procedures for infrastructure investment decisions at all levels of government and in all government agencies and parastatal".[133] As the IDC is owned by the government, this should apply to its lending decisions.

However, with South Africa's largest commercial banks, the DBSA and the PIC apparently lining up to either fund the Thabametsi project itself, or its BEE partners, it does not appear that these institutions are in fact adhering to their commitments in there climate change policies.

Case Study 2: Exxaro Resources

Exxaro Resources is a black-owned JSE-listed coal and heavy minerals company. While Exxaro also has interests in iron ore, titanium, zinc and wind energy projects, coal accounts for 99% of its 2016 revenue and operating profits.

Exxaro concluded a replacement BEE transaction in December 2017 that saw it reduce its black ownership reduced from over 50% to 30%. The IDC holds 22.9% of the new BEE company alongside three BEE entities and Exxaro itself. Numerous fund managers are among Exxaro's shareholders, but an updated list of major shareholders has not been released since the transaction.

Coal mines

In 2016, Exxaro produced 42.8Mt of coal from eight managed mines. This was similar to the 43Mt in 2015. The majority of thermal coal is supplied to Eskom.

Table 12: Exxaro's mines

Mine	Market	Products	Run-of-mine	Life-of-mine
Arnot	Domestic (Eskom)	Thermal coal		Coal-supply agreement with Eskom terminated on 31 December 2015
Dorstfontein complex (74%)	Export	Thermal coal	3.3Mt	15 years
Forzando complex (74%)	Export	Thermal coal	2.3Mt	12+ years*
North block complex	Domestic	Thermal coal	4.4Mt	.5 years
Grootegeluk	Domestic and export	Thermal, metallurgical and coking coal	43.7Mt	24+ years*

Leeupan	Domestic and export	Thermal and metallurgical coal	6.4Mt	13 years
Matla	Domestic (Eskom)	Thermal coal	7.9Mt	8+ years*
Mafube (50%)	Domestic and export	Thermal coal	4.1Mt	12 years

* - adequate reserves exist well beyond expiry of mining right

Exxaro also has a number of greenfield and brownfield expansion projects. A number of these are at concept or pre-feasibility stage, while feasibility has been concluded at:

- Belfast: a R3.2bn thermal coal mine that is expected to open in Q4 2019. Around 2.7Mt of coal will be delivered at full capacity. The life-of-mine is 17 years.
- Thabametsi: a thermal coal mine that will supply 3.9Mt annually at full capacity. First production was expected in 2020 but delays to the associated IPP will likely set back production. The projected cost is R2.8bn.

Climate change and emissions

Exxaro is a major emitter of GHG. Its emissions account for roughly 1% of South Africa's total. Exxaro's position on climate change acknowledges the role of human activity and the potential negative social and economic impacts. Exxaro calls for "urgent and unequivocal wide-ranging collective action by governments, business and civil society".[134]

Exxaro released a Climate Change Response Strategy and Position Statement in 2010. This followed the formation of a Clean Energy Forum in 2007.[135] It measures its emissions and reports to the Climate Disclosure Project. However, the company failed to meet its 5% carbon reduction target in 2016.

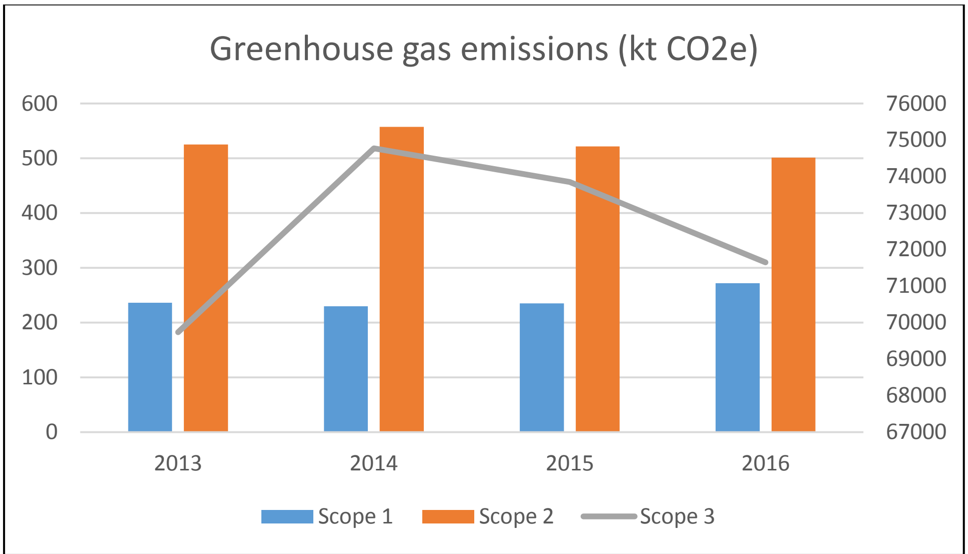

Figure 2: Exxaro's greenhouse gas emissions

Although Exxaro argues that it believes that coal is a relevant source of power, it acknowledges the medium- to longer-term risks. In 2016, Exxaro identified "stranded assets" as one of its top 15 risks for the first time.[136]

Long-term strategy

In its 2016 Integrated Report, Exxaro reports that "given rising stakeholder activism against coal as a source of energy, Exxaro has responded to shareholder enquiries on our strategy to reduce emissions, transition to renewable energy and adapt to the so-called 2ºC climate environment (limiting the increase in global temperature to below pre-industrial levels)".[137] This was not the first year that Exxaro had been required to respond to shareholder concerns. In late 2013, the US-based Ceres Investor Network and Carbon Tracker sent companies including Exxaro letters requesting information on the company's exposure to initiatives driving reductions in GHG emissions, and how this issue could be managed through strategies such as divestment and diversification.[138]

Exxaro has highlighted diversification as part of its long-term business strategy at various points over the last eight years. Exxaro's 2026 group strategy focuses on two areas: its traditional activity of mining and new opportunities in energy, water and agriculture.
In 2012, Exxaro formed a 50:50 joint venture with India's Tata Power's Khopoli Investments subsidiary to focus on opportunities in the renewable energy sector.[139] Cennergi was awarded two wind farm projects in 2013 under the REIPPPP.[140] However, Exxaro's 2014 acquisition of Total Coal South Africa, which held a 74% stake in the Dorstfontein and Forzando mines, appears to be counter to diversification efforts. Shareholders will need to maintain pressure to ensure that Exxaro's board keeps ahead of growing international pressure against coal.

4. Government framework

The South African government has released numerous policy documents that provide guidance on the transition to a low-carbon economy. Initiatives since the National Framework on Sustainable Development was released in 2008 are outlined below.

National Strategy on Sustainable Development

The National Strategy on Sustainable Development (NSSD 1), which was approved by cabinet on 23 November 2011, built on the 2008 National Framework for Sustainable Development. The NSSD 1 covered the period from 2011 to 2014. The NSSD 2, which would cover 2015 to 2020, was expected to follow, but has not been released. The NNSD 1 identified 113 interventions across the following five strategic objectives:

1. Enhancing systems for integrated planning and implementation;
2. Sustaining our ecosystems and using natural resources efficiently;
3. Towards a green economy;
4. Building sustainable communities;
5. Responding effectively to climate change.

The shift towards a green economy as envisioned in the NNSD 1 aims to secure “a just transition towards a resource-efficient, low-based and pro-employment growth path”.[141] The action plan includes providing support to the regulatory framework; implementing green economy programmes such as sustainable transport, energy efficiency and waste management initiatives; and creating investment opportunities and financing instruments.

New Growth Path 2020 and the Green Economy Accord

The New Growth Path 2020 framework, which was released by the Minister of Economic Development in November 2011, was the main economic policy document of former President Jacob Zuma’s first term. It aimed to build consensus on how to restructure South Africa’s economy by identifying sectors where large-scale employment could be created, and developing a policy framework that would support job creation. The New Growth Plan targeted “300,000 additional direct jobs by 2020 to green the economy, with 80,000 in manufacturing and the rest in construction, operations and maintenance of new environmentally friendly infrastructure”.[142]

The Green Economy Accord, which was signed on 17 November 2011, is an outcome of the stakeholder engagement process on the New Growth Plan. It was signed by representatives of organised labour, business, civil society and government. The Accord contains twelve commitments to support the development of the Green Economy. These include increasing investments in the green economy; expanding procurement of renewable energy; promoting energy efficiency across the economy; and launching clean-coal initiatives to reduce the emissions from the use of coal-based technologies.[143] The IDC allocated R22.4bn to fund green projects over five years in 2011.[144]

Industrial Policy Action Plan (IPAP)

The Industrial Policy Action Plan 2017/18 – 2019/20, which is the ninth iteration of the plan, recognises that "more needs to be done to support domestic industries to adopt less carbon-intensive production processes, in addition to seizing the manufacturing opportunities available in the dynamic renewable energy and green industries space".[145]

The IPAD includes "green industries" as one of the sectoral focus areas. Four key action programmes are identified:

1. **Strategic Industrialisation through the Independent Power Programme:** the IPAP calls for a more strategic approach towards procurement and sector development in order to maximise the opportunities presented by the independent power producer programme. This approach is intended to better align rollout with industrial capacity; ensure that a minimum threshold of local content is met; and that independent power producers contribute to industrial development.
2. **Fostering industrial development in a South African green economy:** this programme aims, through coordinated policy alignment across government, to assist local industry to address climate change issues, deal with climate change-related regulations such as a carbon tax and transition to a low-carbon development path.
3. **Electric vehicle project:** looks to increase electric vehicles in the transport sector and support business opportunities that are created as a result.
4. **The development of green skills:** Resource Efficiency and Cleaner Production (RECP) is identified as a potential area in which skills can be developed to contribute to businesses and improve job opportunities for skilled youth.

National Development Plan

Chapter 5: Ensuring environmental sustainability and an equitable transition to a low-carbon economy, of the National Development Plan (NDP) suggests that "while the country's coal deposits currently represent a relatively cheap and reliable source of energy, coal is carbon intensive and in the medium to long term, its use could prejudice South Africa's interests as global restrictions on carbon emissions to mitigate climate change are introduced".[146] It calls for the link between economic activity, environmental degradation and carbon-intensive energy consumption to be broken to support the transition to an "environmentally sustainable, climate-change resilient, low-carbon and just society".[147]

To achieve support for South Africa's "transition to an environmentally sustainable, climate-change resilient, low-carbon economy and just society" by 2030, the NDP envisions:

- coordinated planning and investment in infrastructure that takes account of climate change and other environmental pressures;
- adaptation strategies including disaster preparedness and ecosystems rehabilitation programmes;
- growth in renewable energy with government support and the introduction of targeted carbon pricing;
- carbon emission reductions in line with international commitments; and

- policy and regulatory frameworks that determine the environmental and social costs of new developments.

The NDP also highlights several decisions that could "potentially lock South Africa into an unsustainable and carbon-intensive path".[148] These include the building of coal-fired power stations Medupi and Kusile, which "lack flexibility in operations and…commit the country into significant carbon-dioxide emissions over their projected lifespans" and the development of new coal fields, such as those in the Waterberg.

Medium-term Strategic Framework 2014 - 2019

One of the Medium-term Strategic Framework's (MTSF) 14 priority outcomes is the protection and enhancement of South Africa's environmental assets and natural resources. The main focus for MTSF 2014-2019 is "planning, piloting and investing in the creation of a framework for implementing the transition to an environmentally sustainable and low-carbon economy in South Africa".[149]

Relevant targets include:

- renewable power generation to account for 42% (or 17,800MW) of new build generation by 2030;
- energy efficiency improvement of 12% by 2015 with target for 2019 to be set in National Energy Efficiency Action Plan;
- 300% increase in rand value of research and development to support a green economy over investment in 2011.[150]

National Climate Change Response White Paper

According to the National Climate Change Response White Paper, the objectives of South Africa's response to climate change are to manage climate change impact by building resilience and emergency response capacity, and make a "fair contribution to the global effort to stabilise greenhouse gas (GHG) concentrations".[151] This follows the government's commitment at the Copenhagen climate summit in 2009 to reduce emissions by 34% and 42% from a "business as usual" growth path by 2020 and 2025 respectively.

The White Paper address both adaptation and mitigation. Adaptation responses include:

- integrating climate change considerations into planning processes for, among others, water, health and human settlements and the management of biodiversity and ecosystems;
- improving early warning systems for weather and climate-related extreme events to support disaster risk reduction and management.

Mitigation responses are informed by South Africa's commitment to contribute its fair share to global GHG mitigation efforts and the "poverty eradication challenges" it faces.[152] Key elements include:

- using the National GHG Emissions Trajectory Range, which details the peak (2025), plateau (2025 to 2035) and decline (from 2036) trajectory, as the performance benchmark to measure the outcome of mitigation actions;
- defining emission reduction outcomes for each sector;
- defining carbon budgets for major GHG emitting sectors;
- using market instruments such as carbon pricing, emission offsets or emission trading schemes to support emission reduction;
- monitoring and evaluating data from a national system to support analysis of mitigation responses.

The White Paper acknowledges that, as South Africa has limited opportunities to mitigate emissions for non-energy sources such as reducing deforestation, significant mitigation contribution will have to come from improving energy efficiency, demand management and a shift to a lower-emission energy mix. It also finds that "policy decisions on new infrastructure investments must consider climate changes impacts to avoid the lock-in of emissions-intensive technologies into the future".[153]

Carbon budget

In 2016, the Department of Environmental Affairs introduced a carbon budget system as outlined in the White Paper. The first phase, which will run between 2016 and 2020, is a voluntary pilot exercise that is focused on enhanced reporting requirements. It does not include compliance measures. The second phase, which will run from 2021, will be mandatory.

Carbon tax

The Second Draft Carbon Tax Bill was released by Treasury for introduction in parliament and public comment in December 2017. The date of implementation is currently expected to be 1 January 2019. A carbon tax is an important development as it will send a price signal to producers and consumers. The First Draft Carbon Tax Bill was initially released for public comment in 2015, but implementation was delayed on several occasions.

The Carbon Tax Bill is expected to introduce an environmental levy of R120 per ton CO_2-e. With various tax free thresholds, including a 60% threshold from implementation to 2020, the effective rate will be between R6 and R48 per ton CO_2-e. Companies participating in Phase 1 of the carbon budget will also receive an additional 5% tax-free allowance. Other allowances will be made for trade exposed sectors and carbon offsets.

Carbon offset regulations

The draft regulations on carbon offsets were published in June 2016 under the Carbon Tax Bill. Organisations will be able to reduce their taxable emissions by 5% to 10% of their total emissions by investing in carbon offset projects, which are projects that result in a measurable reduction, avoidance or sequestration of CO_2 equivalent GHG emissions[154].

The Carbon Offset Regulations were developed jointly by the National Treasury, the Department of Energy and the DEA. The carbon offset mechanism is in line with the proposals contained in the *National Climate Change Response White Paper of 2011* and efforts to transition to a low carbon, greener economy as pronounced in the National Development Plan.

Intended National Determined Contribution

South Africa's Intended National Determined Contribution (INDC) submitted in accordance with the Conference of the Parties to the United Nations Framework on Climate Change in Paris in 2015 provides more clarity on its emissions reduction target by specifying an intended emissions range to 2030.[155] The range between 2025 and 2030 is given as between 398 and 614 Mt CO2e with emissions peaking between 2020 and 2025. The 2009 pledge of a 42% reduction from "business as usual" levels by 2025 is maintained.

The INDC maintains that the "key challenge for South Africa is to catalyse, at an economy-wide scale, financing of and investment in the transition to a low carbon and climate resilient economy and society".[156] Mitigation and adaptation projects are identified including the REIPPPP and energy efficiency projects. The INDC places the principles of equity, responsibility, capacity and sustainable development at its centre.[157] It is regarded as the first country to use a carbon budget to determine if its INDC reflects an equitable or fair share of global emission reductions.[158]

The Green Fund

The Green Fund, which is coordinated by the Department of Environmental Affairs in partnership with the National Treasury, was established in 2012 with the aim of providing "catalytic finance to facilitate investment in green initiatives that will support poverty reduction and job creation".[159] The DBSA is the implementing agent. National Treasury provided an initial R800m and an additional R300m contribution in 2014. The R1.1bn in funds has been fully allocated. The fund looks to overcome market weaknesses by:

- Promoting innovative and high impact green programmes and projects;
- Reinforcing sustainable development objectives through green interventions;
- Building an evidence base for the expansion of the green economy; and
- Attracting additional resources to support South Africa's green economy development.

The Green Fund considers projects in three main areas: Green Cities and Towns; Low Carbon Economy; and Natural Resource Management. According to the Green Fund's "Impact Study", 55 projects were approved by the end of 2016 and R782m in funding disbursed. The Fund has supported the creation of more than 2,300 direct jobs and the training of almost 9,000 people. More than R184m was invested in renewable energy projects and around R160m on waste reduction projects.[160]

Section 12L

The South African National Energy Development Institute (SANEDI) is responsible for energy research and technology development, and implementation of energy efficiency measures. SANEDI plays an important role in government's work towards a low-carbon transition as it administers Section 12L of the Income Tax Act. Section 12L, which became effective in November 2013, offers a tax deduction of R0.95/kWh of energy saved over a 12 month period from implementing a qualifying energy efficiency initiative.

Electricity generation levy

The Environmental Levy on Electricity Generation is imposed on electricity generated in South Africa using non-renewable fuels and nuclear power. The levy is charged at 5.5c per kWh. Eskom passes the cost of the levy on to consumers. While Treasury indicated that it would phase out the levy when the carbon tax is introduced, it is now expected to be reduced.

Regulation 28 of the Pension Funds Act

"Reg 28" governs the prudential investment guidelines for pension funds based in South Africa. It sets the limits of investment exposure that pension funds might have to different asset classes such as equities or debt as well as offshore allocations. Reg 28 was amended in July 2011 as follows:

> "A fund has a fiduciary duty to act in the best interest of its members whose benefits depend on the responsible management of fund assets. This duty supports the adoption of a responsible investment approach to deploying capital into markets that will earn adequate risk adjusted returns suitable for the fund's specific member profile, liquidity needs and liabilities. Prudent investing should give appropriate consideration to any factor which may materially affect the sustainable long-term performance of a fund's assets, including factors of an environmental, social and governance character. This concept applies across all assets and categories of assets and should promote the interests of a fund in a stable and transparent environment."

Reg 28 is seen as supportive of the move towards a low-carbon economy, as it requires environmental and social considerations to be incorporated into investment decisions.

South Africa Sustainable Finance Initiative 2017

National Treasury convened a working group of financial sector regulators and associations in January 2017 to develop a framework document on sustainable finance. Participants include the Banking Association South Africa, the JSE, the Financial Services Board and the South African Reserve Bank. The working group's paper, which is expected to be released in early 2018, will assess drivers for sustainable finance, identify current market developments and provide recommendations on a national strategic approach. It is expected that this initiative will lead to the development of a national sustainable finance strategy, which will be aligned to international developments such as the recommendations of the G20 Green Finance Study Group.[161]

Green bonds

Although not strictly part of government's framework supporting a low-carbon transition, green bonds, which are used to fund projects with positive environmental benefits, including those relating to climate change, are attracting increasing interest in South Africa. This is reflected in the JSE's launch of its Green Bond Segment in October 2017.[162] The JSE's first green bond, which was a R1.46bn bond issued by the City of Johannesburg to fund climate change mitigation strategies and low carbon infrastructure, was issued in June 2014.[163] This was followed by the World Bank's International Finance Corporation's R1bn listing in December 2015[164] and the City of Cape Town' s R1bn listing in July 2017.[165] However, the first green bond in South Africa was actually issued by the Industrial Development Corporation as a R5bn private placement with the Public Investment Corporation (PIC) in 2012.[166]

Nedbank's Green Savings Bond is the only option available to the retail investor. The Green Savings Bonds, which was launched in 2012, invests in renewable energy projects with the minimum investment set at R1000.

Just transition and jobs

A key factor in the transition to a low carbon economy is the effect on jobs and employment. According to the Chamber of Mines, coal mines employed over 77,500 people and generated sales of R122bn in 2016.[167] Coal-reliant Eskom employs almost 48,000 people.[168] Although the Congress of South Africa Trade Unions' (Cosatu) policy on climate change promotes a just transition to a low-carbon and climate resilient economy[169], unions concerns over potential jobs losses are clear in the filing of a Section 77 notice to protest over the potential 6,000 job losses from closing three Eskom coal-fired plants. Coal truckers have also protested against mine closures.

In order to secure a just transition to a low carbon economy, it will be necessary to reskill these workers and plan for possible job losses. The Million Climate Jobs Campaign has highlighted the potential employment opportunities that could be created by responding to the demands of climate change. These include jobs in renewable energy, waste, transport and tourism.

Too little, too late?

Although there are various policy documents that support the transition towards a low-carbon economy, concerns are regularly raised over the government's approach. These concerns include:

- **Lack of overarching approach:** While the government's policy statements provide a framework for a low-carbon transition, the range of initiatives means that there is no overarching approach that is easily discernible. At least one interviewee suggested that this reflects the lack of a real plan to support a transition to a low-carbon economy.

- **Inconsistencies in policy frameworks:** there are numerous instances of contradictory policies within the government's framework. For example, while the NDP calls for a transition to an "environmentally sustainable, climate-change resilient, low-carbon and just society" [170], the government's mining policy as articulated in the Mineral and Petroleum Resources Development Act Amendment Bill promotes energy-intensive beneficiation.[171]
- **Green economy just an add-on:** Similarly, while various policies such as the Industrial Policy Action Plan and the Medium-term Strategic Framework reference a low-carbon transition, there is often little to suggest that this is central to the government's strategy. The "green economy" appears to be seen as merely a component of the wider economy, rather than the central basis around which South Africa's economic trajectory should be based.
- **Weak commitments:** The Climate Action Tracker, which is a consortium of three research organisations tracking climate action, has found that South Africa's 2030 climate commitment is not consistent with keeping global warming to below 2°C or the Paris Agreement's 1.5°C limit. As a result, the Climate Action Trackers rates South Africa' projected emissions as "highly insufficient".[172]
- **Poor implementation:** South Africa has an important position in international fora such as the G20, and its position on issues such as climate change are given prominence. However, concerns have been raised over the gap between its international commitments and the implementation of these at a domestic level, particularly in terms of energy policy.[173]
- **Lack of coordination:** Numerous departments play a role in the development of government's framework for a low-carbon transition. These include the Department of Foreign Affair in terms of climate negotiations; the Department of Energy, which is responsible for energy policy; the Department of Mineral Resources, which has oversight of mining regulation; the Department of Public Enterprises, which is government's shareholder representative at Eskom; the Department of Transport; the Department of Environmental Affairs; the Department of Trade and Industry; and Treasury. However, in many cases, these departments have competing mandates and are not aligned on developments affecting a transition toward a low-carbon economy.
- **Ongoing support for coal:** The Climate Action Tracker is also critical of the fact that coal-fired power is expected to grow, and of Eskom's delays in signing power purchase agreements with renewable energy companies. In fact, ongoing support for coal within energy policy - such as the IRP - arguably overwhelms and negates government's framework for a transition to a low carbon economy. The dominant role of coal in South Africa's energy mix means that without a more radical approach the government is merely making marginal adjustments.
- **Vested interests:** the ongoing support for coal at government level is reflected in the multiple vested interests in the system. These include existing coal miners, black

economic empowerment partners, junior miners, unions, and banks and other financial institutions. The historical development of a “minerals-energy complex” during apartheid continues to act as a significant restraint on a low-carbon transition.

- **Exclusions in policy:** similarly, while the Carbon Tax is intended to put a price on carbon, the fact that various tax-free allowances are made will undermine its effectiveness. For example, Eskom and other electricity producers will receive a 60% tax-free allowance for fossil fuel combustion emissions, which along with a 5% allowance for participating in the carbon budget and a 10% offsets allowance, means a maximum total allowance of 75%.[174]

5. Conclusions and recommendations

This report considers the main trends in how the energy sector, particularly power generation, is financed in South Africa. It shows that Eskom, which has a dominant position in terms of generating capacity and which is currently involved in a massive new build programme, is increasingly reliant on funding from development finance institutions and export credit agencies. This is, in part, due to growing concerns among debt investors over Eskom's governance, and the sustainability of its borrowing programme.

It has also considered the success of the renewable energy independent power producer procurement programme (REIPPPP), which has seen 92 projects totalling R193bn in investment and over 6,300MW of capacity selected. Project finance provided by commercial banks and DFIs has dominated REIPPPP financing in terms of value, with 65% of total funding raised in debt. However, these banks and DFIs have also been named as proposed lenders for two new coal-fired IPPs, which have been delayed by legal challenges against the Department of Environmental Affairs' failure to consider climate change impacts before granting environmental authorisations. In some case, these banks and DFIs are also funding the coal mines that supply Eskom and that will be used as feedstock for the coal IPPs. However, overall levels of funding are difficult to ascertain given a lack of disclosure.

There is growing international pressure on financial institutions to address climate change impacts. Initiatives such as the Taskforce on Climate-related Financial Disclosures (TCFD) are calling for improved disclosure and transparency on climate exposure. A number of international banks have started to develop policy positions on financing fossil fuels, and have taken steps to reduce their exposure to fossil fuel companies.

However, South African banks and DFIs are behind their international peers in assessing environmental and social risks, particularly those relating to climate change. Only two of the five major banks, for example, have a publicly available statement on climate change. While the banks have taken steps to establish board oversight of climate change issues and disclose their financing of renewable energy, it does not appear, based on public disclosures, that the banks have set performance goals for management on the implementation of climate strategies, the undertaking of carbon footprinting of their financing activities, or their publicly disclosed goals to reduce exposure to carbon-intensive sectors. It does not appear that banks are applying rigorous climate impact risk assessments in their own lending practices.

Although the South African government has released numerous policy documents that provide guidance on the transition to a low-carbon economy, there are a number of concerns regarding the approach. Not only is there no single vision of what a transition to a low-carbon economy should look like, there are also numerous inconsistencies between policies that reflect the tensions between different departmental mandates. There are also concerns that the government's commitments to address climate change are inconsistent with keeping warming to below 2°C. With the latest revisions calling for 5,250MW of new coal-fired generation by 2030, it is appears that the government will rely on anaemic growth rates and lost industrial activity to remain within the carbon budget.

To address the challenges posed by climate change, civil society needs to challenge both government and the financial institutions to do more to end the financing of fossil fuels. Civil society should build on individual strengths of different organisations and coordinate activities that make clear through effective campaigns that investing in fossil fuels is not socially responsible. Pressure on financial institutions needs to be brought at key stages in lending processes, such as before financial close of projects, if the required outcome is secured before it is too late. Government should be challenged on inconsistencies in policymaking and pushed to adhere to its climate change commitments. Climate litigation can be used to prompt further action by reluctant parties.

While divestment campaigns are a useful way to mobilise communities, civil society should also develop effective engagement strategies to maintain pressure on key actors including regulators, policymakers, investors and financial institutions to ensure that climate change is treated with urgency and adequate measures are implemented. While the ultimate goal might be divestment from fossil fuels, it is important that interventions form part of a wider strategy to support a transition to a low-carbon economy. Divestment campaigns have a better chance of prompting short-term action such as fossil fuel policy development or emissions reduction targets when supported by engagement. Specific areas of engagement for different stakeholders could include:

Policy makers: FSB, JSE, SARB etc

- Ensure that climate-related disclosures, reporting and monitoring are incorporated into the regulatory framework.
- Establish an effective oversight mechanism for implementation of Regulation 28 and other responsible investment initiatives. This should include ensuring that investment mandates comply with Regulation 28.
- Encourage policymakers, including the South African Reserve Bank and the FSB, to fully outline the risks posed by systemic environmental risks, such as those from climate change.
- Require climate impact assessments to be performed as part of lending decisions.

Banks

- Adopt and publicly disclose adequate policies on funding new coal and new coal-fired power stations. If possible, this should include commitments to end funding of fossil fuels.
- Implement the recommendations of the TCFD report, including disclosure on governance, impacts and risk management of climate-related risks and the disclosure of climate-risks in their lending.
- Improve disclosure of indirect risks of climate change from lending practices, including disclosure of renewable energy and energy efficiency financing as a proportion of overall lending and investments.

- Set and disclose targets to reduce exposure to carbon-intensive sectors.
- Undertake carbon footprinting and stress tests of risk exposure, and disclose the results.
- Establish board oversight of climate change issues and link executive compensation to management of climate-related risks.
- Incorporate climate changes issues into BASA's Principles for Managing Environmental and Social Risk.

Investors

- Perform fiduciary duty in integrating environmental and social risks into investment decisions.
- Ensure that investee companies, including those in financial sector, adequately disclose their climate-related financial exposure and risk management.
- Maintain pressure on government to implement commitments on climate change.
- Provide input on regulatory development such as those affecting energy policy.

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[1] Eberhard, A. and Naude, R. 2017. *The South African Renewable Energy IPP Procurement Programme.* UCT GSB, pp 1. Available at: www.gsb.uct.ac.za/files/EberhardNaude_REIPPPPReview_2017_1_1.pdf

[2] Eberhard, A. and Naude, R. 2017. pp 36.

[3] UNFCC. *Adoption of the Paris Agreement.* 12 December 2015. Available at: http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf, Article 2(c) , p22.

[4] Task for on Climate-Related Financial Disclosures. 2017. *Final report: Recommendations of the Task Force on Climate-related Financial Disclosures.* Available at: https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf, p15

[5] IFC. *Q&A with Dr Reshma Sheoraj, Director: National Treasury of South Africa.* Available at: https://www.ifc.org/wps/wcm/connect/c300f24d-9463-4c0f-b667-5e70b78ee798/QA+with+Dr+Reshma+Sheoraj.pdf?MOD=AJPERES

[6] Department of Minerals and Energy. 1998. *White Paper on the Energy Policy of South Africa*. pp53. Available at: http://www.energy.gov.za/files/policies/whitepaper_energypolicy_1998.pdf

[7] BusinessReport. 'Firms invited to share R165bn pie'. 24 October 2004. Available at: https://www.iol.co.za/business-report/economy/firms-invited-to-share-r165bn-pie-759845

[8] Eskom. 2012. *Annual Report 2012 Fact Sheet.* Available at:http://financialresults.co.za/2012/eskom_ar2012/fact-sheets/005.php

[9] Eskom 2005. *Annual Report 2005.* Available at: http://www.eskom.co.za/OurCompany/Investors/IntegratedReports/Documents/ESKOM_ANNUAL_REPORT_2005.pdf

[10] Eskom. 2012. *Revenue Application: Multi-Year Price Determination 2013/14 to 2017/18.* Available at: http://www.nersa.org.za/Admin/Document/Editor/file/Notices/Invitations/Multi-Year%20Price%20Determination%202013-14%20to%202017-18%20%28Revenue%20Application-%20Part%201%29.pdf

[11] Kohler, S. 'Earnings and capital markets to fund electricity capacity'. *EngineeringNews*. 15 May 2009. Available at: http://www.engineeringnews.co.za/print-version/earnings-and-capital-markets-to-fund-electricity-capex-2009-05-15

[12] Department of Public Enterprises. June 2007. *Eskom Building Programme*. pp 7. Available at: http://www.dpe.gov.za/resourcecentre/Acts/Eskom%20Build%20Programme%2007.pdf

[13] 2016/17 and 2017/18 figures from Eskom's Integrated Report 2017, revised funding 2017/18 from Eskom's 2017/18 Interim Results, others from respective annual reports, no figure for 2014/15.
[14] Eskom. 2017. *Integrated Report 2017.* Available at: http://www.eskom.co.za/IR2017/Documents/Eskom_integrated_report_2017.pdf
[15] GEPF. *2017 Annual Report.* Available at: http://www.gepf.gov.za/uploads/annualReportsUploads/GEPF_2017_AR_2017.pdf, p83
[16] GEPF. *2014 Annual* Report. Available at: http://www.gepf.gov.za/uploads/annualReportsUploads/GEPF_Annual_Report_201415.pdf, p99
[17] Bizcommunity. 'PIC to rethink stakes in state-owned enterprises'. 2 November 2017. Available at: http://www.bizcommunity.com/Article/196/516/169562.html
[18] Ensor, L. 'Loan pulled Eskom from brink of default'. *BusinessDay.* 12 February 2018. Available at: https://www.businesslive.co.za/bd/companies/energy/2018-02-12-loan-pulled-eskom-from-brink-of-default-says-pic/
[19] Thompson, W. 'Government employees are propping up Eskom'. *Moneyweb.*25 May 2017. Available at: https://www.moneyweb.co.za/moneyweb-opinion/government-employees-are-propping-up-eskom/
[20] UnfriendCoal. 2017, 3 August. *Climate and coal policies of leading global insurers- briefing papers.* Available at: https://unfriendcoal.com/2017/08/03/climate-and-coal-policies-of-leading-global-insurers-briefing-papers/
[21] Creamer, T. 'Eskom expects DFIs to form 'backbone' of capital-raising effort in coming three years. *EngineeringNews.* 6 July 2017. Available at: http://m.engineeringnews.co.za/article/eskom-expects-dfis-to-be-backbone-of-capital-raising-effort-in-coming-three-years-2017-07-06/rep_id:4433
[22] SA government. *The African Development Bank (AfDB) approves EUR1.86bn loan for Eskom Medupi Power Project.* 26 November 2009. Available at: *http*://www.treasury.gov.za/comm_media/press/2009/2009112601.pdf
[23] World Bank. *World Bank supports South Africa's Energy Security Plans.* 8 April 2010 Available at: *http*://www.worldbank.org/en/news/press-release/2010/04/08/world-bank-supports-south-africas-energy-security-plans
[24] DBSA/Eskom. *DBSA supports Eskom's build programme with a R15bn loan.* 4 November 2010. Available at: https://www.dbsa.org/EN/DBSA-in-the-News/NEWS/Media%20Archives/2010.11.4%20DBSA%20%20Eskom%20media%20release%20abf.pdf
[25] I-NetBridge. 'Eskom gets $806mln loan for Kusile'. 30 May 2011. Available at: https://www.iol.co.za/business-report/economy/eskom-gets-806-mln-loan-for-kusile-1075839
[26] Eskom. *Eskom and Agenge Francaise de Developpement (AFD) sign a EUR100-million loan for Eskom's Renewable Energy Projects.* 25 August 2011. Available at: http://www.eskom.co.za/OurCompany/MediaRoom/Pages/AFD_Release.aspx
[27] AfDB. *AfDB, Eskom sign USD365m renewable energy loans.* 26 September 2011. Available at: https://www.afdb.org/en/news-and-events/afdb-eskom-sign-usd365m-renewable-energy-loans-8385/
[28] AfDB. *AfDB to finance its first renewable energy independent power producer project in South Africa.* 26 June 2014. Available at: https://www.afdb.org/en/news-and-events/afdb-to-finance-its-first-renewable-energy-independent-power-producer-project-in-south-africa-13332/
[29] Eskom. *Eskom partners with Agence Française de Développement and Electricité de France to enhance reliability of South African power grid.* 23 November 2015. Available at: http://www.eskom.co.za/news/Pages/NO23B.aspx
[30] AfDB. *AfDB Supports ESKOM to construct and maintain transmission lines and power stations in South Africa*. 21 December 2015. Available at: https://www.afdb.org/en/news-and-events/afdb-supports-eskom-to-construct-and-maintain-transmission-lines-and-power-stations-in-south-africa-15264/
[31] MIGA. *MIGA Guarantees Back Eskom CAPEX Financing to Strengthen Transmission Infrastructure.* 30 March 2016. Available at: https://www.miga.org/Lists/Press%20Releases/CustomDisp.aspx?ID=514
[32] Cohen, T. 'Eskom's Brics loan put on ice until 2018'. *BusinessDay. 17 August 2017.* Available at: https://www.businesslive.co.za/bd/companies/energy/2017-08-17-eskoms-brics-loan-put-on-ice-until-2018/
[33] AfDB. *Lighting up and Powering Africa: AfDB boosts Eskom's electricity generation capacity with a USD 1.34 billion jumbo loan.* 8 July 2016. Available at: https://www.afdb.org/en/news-and-events/lighting-up-and-powering-africa-afdb-boosts-eskoms-electricity-generation-capacity-with-a-usd-1-34-billion-jumbo-loan-15933/

[34] Eskom. *Eskom signs an inaugural US$500 million credit facility with China Development Bank.* 3 October 2016. Available at: http://www.eskom.co.za/news/Pages/Oct3.aspx http://www.eskom.co.za/news/Pages/Oct3.aspx

[35] Njobeni, S. 'R6bn French loan for grid upgrades,' *Business Report.* 20 March 2017. Available at: https://www.iol.co.za/business-report/energy/r6bn-french-loan-for-grid-upgrades-8269600

[36] Eskom. *Eskom signs a US$1.5 billion loan agreement with the China Development Bank.* 6 July 2017. Available at: http://www.eskom.co.za/news/Pages/Jull6B.aspx

[37] Reuters. 'Eskom signs 1.18bln euro loans with French banks'. Available at: http://af.reuters.com/article/investingNews/idAFJOE5BR05N20091228

[38] Eberhard, Anton, Katharine Gratwick, Elvira Morella, and Pedro Antmann. 2016. *Independent Power Projects in Sub-Saharan Africa: Lessons from Five Key Countries.* Directions in Development. Washington, DC: World Bank. p185. Available at: https://openknowledge.worldbank.org/bitstream/handle/10986/23970/9781464808005.pdf

[39] 'US company quits power plant tender'. *Business Report.* 2 April 2008. Available at: https://www.iol.co.za/business-report/economy/us-company-quits-power-plant-tender-710253

[40] Barradas, S. 'Department of Energy peaker projects, South Africa'. *EngineeringNews.* 9 October 2015. Available at: http://www.engineeringnews.co.za/print-version/department-of-energy-peaker-projects-south-africa-2015-10-09

[41] Perrot, V. and Girod, C. 2013. 'Reaching a peak in South Africa'. *PFI Middle East & Africa Report.* Available at: http://www.pfie.com/reaching-a-peak-in-south-africa/21108445.fullarticle

[42] DBSA. *2017 Sustainability Review.* Available at: https://www.dbsa.org/EN/InvestorRelations/Environmental%20Appraisal%20Documents/DBSA%20Sustainability%20Review%202016-17.pdf

[43] Barradas, S. 'Department of Energy peaker projects, South Africa'. *EngineeringNews.* 9 October 2015. Available at: http://www.engineeringnews.co.za/print-version/department-of-energy-peaker-projects-south-africa-2015-10-09

[44] Eberhard, A. and Naude, R. 2017. *The South African Renewable Energy IPP Procurement Programme.* UCT GSB, pp i. Available at: www.gsb.uct.ac.za/files/EberhardNaude_REIPPPPReview_2017_1_1.pdf

[45] Eberhard, A. and Naude, R. 2017., pp 1.

[46] Eberhard, A. and Naude, R. 2017. pp 33.

[47] Eberhard, A. and Naude, R. 2017. pp 36.

[48] Department of Energy. *Coal-based Independent Power Producer programme announcement.* 10 October 2016. Available at: https://www.ipp-projects.co.za/PressCentre/GetPressRelease?fileid=228bdd35-e18e-e611-9455-2c59e59ac9cd&fileName=PressRelease-Coal-based-Independent-Power-Producer-programme-announcement-10Oct2016.pdf

[49] Thabametsi Power Company. *Electricity Generation Licence Application Form.* Nersa. 25 October 2016. Available at: https://cer.org.za/wp-content/uploads/2016/12/Thabametsi-Application.pdf

[50] Department of Energy. *Facts Sheet: Bid Window 1: Coal Procurement Programme.* Available at: http://www.saippa.org.za/Portals/24/Documents/2016/Coal%20IPP%20factsheet.pdf

[51] Prinsloo, L. 'Private power players on starting grid'. *Sunday Times.* 24 January 2016. Available at: https://www.pressreader.com/south-africa/sunday-times/20160124/282278139347178

[52] Creamer, T. 'Standard Bank keen to participate in South Africa's gas-to-power programme'. *EngineeringNews*. 8 July 2016. Available at: http://www.engineeringnews.co.za/login.php?url=/article/standard-bank-keen-to-participate-in-south-africas-gas-to-power-programme-2016-07-08

[53] Sasol. *South Africa's first gas-fired power plant fully operational.* 10 July 2013. Available at: http://www.sasol.co.za/media-centre/media-releases/south-africa-s-first-gas-fired-power-plant-fully-operational

[54] US Energy Information Administration. 2017. *South Africa.* Available at: https://www.eia.gov/beta/international/analysis.cfm?iso=ZAF

[55] Ibid.

[56] Mathews, C. 'No new mines but no coal cliff – Eskom'. *Business Day.* 29 May 2015. Available at: https://www.pressreader.com/south-africa/business-day/20150529/281582354230354

[57] Eskom. May 2015. *Eskom Coal Supply and the Role of Emerging Miners.* Available at: http://www.fossilfuel.co.za/conferences/2015/JCMV-X/Session-2/02Mudzi-Marageni.pdf

[58] Department of Public Enterprises. *National Assembly - Questions for Written Reply PQ2645.* 1 September 2017.

[59] Burton, J & Winkler, H. 2014. *South Africa's planned coal infrastructure expansion: Drivers, dynamics and impacts on greenhouse gas emissions.* Energy Research Centre, University of Cape Town p8. Available at: www.erc.uct.ac.za/sites/default/files/.../14-Burton-Winkler-Coal_expansion.pdf

[60] Dentons South Africa. July 2015. *Report in respect of the investigation into the status of the business and challenges experienced by Eskom.*

[61] Mathews, C. 'No new mines but no coal cliff – Eskom'. *Business Day.* 29 May 2015. Available at: https://www.pressreader.com/south-africa/business-day/20150529/281582354230354

[62] Le Cordeur, M. 'Exxaro's coal fight with Eskom heats up'. Fin24. 3 MArhc 2016. Available at: https://www.fin24.com/Economy/Eskom/exxaros-coal-fight-with-eskom-heats-up-20160303

[63] Thobejane, M. December 2016. *An assessment of the security of coal supply to Eskom in the short and medium term.* UCT GSB MBA thesis. Available at: https://open.uct.ac.za/bitstream/item/28894/thesis_com_2017_thobejane_marisane.pdf?sequence=1

[64] McKay, D. 'South32 says Eskom committed to Khutala coal expansion'. *MiningMX.* 6 February 2017. Available at:http://www.miningmx.com/special-reports/mining-indaba/mining-indaba-2017/28904-south32-says-eskom-com mitted-khutala-coal-expansion/

[65] McKay, D. 'Exxaro may sell Eskom-dedicated Matla coal mine in asset review'. *MiningMX.* 26 June 2017. Available at: http://www.miningmx.com/news/energy/29910-exxaro-may-sell-eskom-dedicated-matla-coal-mine-asset-review/

[66] Ibid.

[67] Anglo American. *Anglo American announces sales of Eskom-tied thermal coal operations in South Africa.* 10 April 2017. Available at: http://www.angloamerican.com/media/press-releases/2017/10-04-2017

[68] McKay, D. 'Anglo to sell New Largo to Seriti-led consortium for R850m'. *MiningMX.* 29 January 2018. Available at: https://www.miningmx.com/news/energy/31428-anglo-sell-new-largo-seriti-led-consortium-r850m/

[69] McKay, D. 'Wescoal secures R200m for Elandspuit'. *MiningMX.* 31 October 2014. Available at: http://www.miningmx.com/news/energy/11612-wescoal-secures-r200m-for-elandspruit/

[70] Buthelezi, L. 'Sekoko secures R250m from IDC for Waterberg coal mine'. *Business Report.* 19 April 2011. Available at: https://www.iol.co.za/business-report/companies/sekoko-secures-r250m-from-idc-for-waterberg-coal-mine-1059036

[71] Mothombeni, A. 'Mathews Phosa out to liquidate Aussie company over R16m debt'. *Business Report.* 17 September 2017. Available at: https://www.sowetanlive.co.za/sundayworld/news/2017-09-17-mathews-phosa-out-to-liquidate-aussie-company-over-r16m-debt/

[72] Ginindza, B. 'Waterberg Coal takes turn for the worse as bank recalls R400m loan.' *Business Report.* 18 March 2015. Available at: https://www.iol.co.za/business-report/companies/waterberg-coal-takes-turn-for-the-worse-as-bank-recalls-r400m-loan-1833387

[73] Swanepoel, E. 'Continental secures $65m for Penumbra mine'. *EngineeringNews.* 14 September 2011. Available at: http://www.engineeringnews.co.za/print-version/65m-secured-for-continentals-penumbra-mine-development-2011-09-14

[74] Ichorcoal. June 2015. *Ichorcoal to buy Continental interests.* Available at: http://www.ichorcoal.com/media/corporate-news/2015/june-2015/ichorcoal-to-buy-continental-interests

[75] IDC. *2017 Annual Financial Statements.* Available at: https://www.idc.co.za/ir2017/pdfs/Financial%20statements-%20single%20format.pdf

[76] Ntingi, A. 'Eskom woes trickle down to would-be coal barons'. *Finweek.* 30 March 2017. Available at: https://www.pressreader.com/south-africa/finweek-english-edition/20170330/281599535323143

[77] Quoted in ISO. May 2011. *Standards for energy efficiency.* Available at: https://www.iso.org/news/2011/05/Ref1427.html

[78] Private Sector Energy Efficiency (PSEE). 2015. *Energy Efficiency Finance.* Available at: http://www.psee.org.za/downloads/publications/FPP9315_NBI_PSEE_Finance_Publication.pdf

[79] Ibid.

[80] PSEE. *The private sector energy-efficiency programme: 2013-2015.* Available at: http://psee.org.za/downloads/PSEE%20brochure_final_HI-RES.pdf

[81] Yelland, C. 'Eskom's latest work on the IRP for the DoE rejects nuclear'. *EE Publishers.* 24 November 2017. Available at: http://www.ee.co.za/article/eskoms-latest-work-irp-doe-rejects-nuclear.html

[82] Carbon Tracker. *Terms list: Stranded Assets.* Available at: https://www.carbontracker.org/refs-and-resources/terms-list/#stranded-assets

[83] Carbon Tracker Initiative. 2012. *Unburnable Carbon: Budgeting carbon in South Africa*, pp 4.

[84] Burton, J & Winkler, H. 2014. South Africa's planned coal infrastructure expansion: Drivers, dynamics and impacts on greenhouse gas emissions. Energy Research Centre, University of Cape Town, Cape Town, South Africa. pp 17.

[85] Burton, J & Winkler, H. 2014. pp 17.

[86] Burton, J & Winkler, H. 2014. pp 23.

[87] Carbon Tracker, pp 5.

[88] UNFCC. *Adoption of the Paris Agreement.* 12 December 2015. Available at: http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf, Article 2(c) , p22.

[89] Carney, M. September 2015. *Breaking the tragedy of the horizon – climate change and financial stability.* Speech given at Lloyd's of London. Available at: http://www.bankofengland.co.uk/publications/Pages/speeches/2015/844.aspx

[90] Task for on Climate-Related Financial Disclosures. 2017. *Final report: Recommendations of the Task Force on Climate-related Financial Disclosures.* Available at: https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf, p15

[91] IFC. *Q&A with Dr Reshma Sheoraj, Director: National Treasury of South Africa.* Available at: https://www.ifc.org/wps/wcm/connect/c300f24d-9463-4c0f-b667-5e70b78ee798/QA+with+Dr+Reshma+Sheoraj.pdf?MOD=AJPERES

[92] Natixis. *Natixis to cease financing coal industries worldwide.* 15 October 2015. Available at: https://www.natixis.com/natixis/upload/docs/application/pdf/2015-10/pr_natixis_15102015_eng.pdf

[93] Deutsche Bank. *Amended guidelines for coal financing*. 31 January 2017. Available at: https://www.db.com/newsroom_news/2017/medien/amended-guidelines-for-coal-financing-en-11466.htm

[94] BankTrack. *Bank Moves Out of Coal.* Available at: http://coalbanks.org/#txt_Bank_moves_out_of_coal

[95] Burton, L. 'Zurich ends coal investments as insurers pull$20bn from sector.' *The Telegraph.* 15 November 2017. Available at: http://www.telegraph.co.uk/business/2017/11/15/zurich-ends-coal-investments-insurers-pull-20bn-sector/

[96] Dzonzi, T. 'Futuregrowth suspends funding to coal industry over concerns of environmental sustainability'. *Mail & Guardian.* 20 September 2016. Available at: https://mg.co.za/article/2016-09-20-futuregrowth-suspends-funding-to-coal-industry-over-concerns-of-environmental-sustainability-1

[97] BankTrack. 2010. *Close the Gap*, p 6. Available at: https://www.banktrack.org/download/close_the_gap/close_the%20gap.pdf

[98] The Banking Association South Africa. *Principles for Managing Environmental and Social Risk.* 28 October 2015. Available at: http://www.banking.org.za/news-media/publications/presentation-submissions/principles-of-social-environment-risk

[99] Investec. *2016 Sustainability Report.* Available at: http://reports.investec.co.za/iar2016/sustainability/5_corporate_governance_risk.php

[100] Investec. *2013 Sustainability Report.* Available at: http://www.financialresults.co.za/2013/investec_sr2013/6-corporate-governance-and-risk.php

[101] Barclays Africa. *2014 Integrated Report: Environment fact sheet.* Available at: https://www.barclaysafrica.com/content/dam/barclays-africa/bagl/pdf/reports/2014/barclays-africa-limited-environment-fact-sheet-2014.pdf

[102] Barclays. *Environmental risk in lending.* Available at: https://www.home.barclays/citizenship/our-approach/environmental-risk-in-lending.html

[103] Boston Common Asset Management. 2014. *Financing Climate Change: Carbon Risk in the Banking Sector*, p1. Available at: http://news.bostoncommonasset.com/boston-common-report-financing-climate-change-carbon-risk-in-the-banking-sector/

[104] Nedbank. *Climate Change.* Available at: https://www.nedbank.co.za/content/nedbank/desktop/gt/en/aboutus/green-and-caring/sustainability/climate-change-position-statement.html

[105] Nedbank. *Nedbank Group Climate Change Position Statement.* Available at: https://www.nedbank.co.za/content/dam/nedbank/site-assets/AboutUs/Sustainability/Supporting%20Documents/9861_Climate%20change%20positioning%20statement(F).pdf

[106] FirstRand. 2016 *FirstRand climate change and energy report.* Available at: https://www.firstrand.co.za/Sustainability/EquatorPrinciplesReports/2016%20FirstRand%20climate%20change%20and%20energy%20report.pdf

[107] Investec. 2017, 13 March. *Investec group environmental policy statement.* Available at: https://www.investec.com/content/dam/south-africa/welcome-to-investec/corporate-responsibility/sustainability_reports_statements/Investec-Group-environmental-policy-statement-13-March-2017.pdf

[108] Investec. 2017. *Annual Report*, p46 and p179. Available:

[109] Standard Bank. 2016. *Annual Integrated Report.* Available at: http://reporting.standardbank.com/resultsreports.php

[110] Barclays Africa. 2016. *Integrated Report.* Available at: https://www.barclaysafrica.com/.../barclays.../reports/2016/2016-Integrated-report.pdf

[111] Barclays. 2016. *Environmental Sustainability Policy Statement.* Available at: https://www.home.barclays/content/dam/barclayspublic/docs/Citizenship/Policy-Positions/2016%2012%2016_environmental%20sustainability%20policy%20statement_policy%20positions_our%20approach_dotcom.pdf

[112] Barclays Africa. 2016. *Annual report – Governance Review.* Available at: http://barclaysafrica2016ar.co.za/governance-and-remuneration/governance-review/committee-reviews/directors-affairs-committee/#ethics

[113] OHCHR/UNGC. 2011. *How to Develop a Human Rights Policy.* Available at: http://www.ohchr.org/Documents/Publications/DevelopHumanRightsPolicy_en.pdf

[114] Nedbank Group. *Human Rights Statement.* Available at: https://www.nedbank.co.za/content/dam/nedbank/site-assets/AboutUs/About%20Nedbank%20Group/Corporate%20Governance/Governance%20and%20Ethics/Nedbank_Human_Rights_Statement.pdf

[115] Banktrack. *Letter – strengthening the climate change commitments of the Equator Principles.* Available at: https://www.banktrack.org/download/letter_from_65_organizations_to_equator_principles_association_on_brazil_annual_meeting/170829_final_letter_to_epa_with_signatories_2.pdf

[116] Standard Bank. 2016. *Report to Society.* Available at: http://sustainability.standardbank.com/pdfs/Standard_Bank_Report_to_society_2016_Our_ethics_and_values.pdf

[117] Investec. 2017. *Annual Report – corporate responsibility.* Available at: http://reports.investec.co.za/iar2017/1_corporate_responsibility_02.php

[118] Barclays Africa. 2016. *GRI fact sheet.* Available at: http://barclaysafrica2016ar.co.za/pdf/Barclays_Africa_GRI_Factsheet_2016.pdf

[119] FirstRand. 2015. *Code of Ethics.* Available at: https://www.firstrand.co.za/AboutUs/GovernanceAndCompliance/Code%20of%20ethics.PDF

[120] Department of Energy. *Coal-based Independent Power Producers programme announcement.* 10 October 2016. Available at: https://ipp-projects.co.za/PressCentre/GetPressRelease?fileid=228bdd35-e18e-e611-9455-2c59e59ac9cd&fileName=PressRelease-Coal-based-Independent-Power-Producer-programme-announcement-10Oct2016.pdf

[121] Thabametsi Power Company. *Electricity Generation Licence Application Form.* Nersa. 25 October 2016. Available at: https://cer.org.za/wp-content/uploads/2016/12/Thabametsi-Application.pdf

[122] Department of Energy. *Bid Window 1: Coal Procurement Programme*. Available at: http://www.saippa.org.za/Portals/24/Documents/2016/Coal%20IPP%20factsheet.pdf

[123] Centre for Environmental Rights. *Media release: Earthlife Africa's appeal pushes back new coal-fired power station in water-stressed Limpopo.* 18 May 2015. Available at: https://cer.org.za/news/media-release-earthlife-africas-appeal-pushes-back-new-coal-fired-power-station-in-water-stressed-limpopo

[124] Centre for Environmental Rights. *Newsflash: Minister instructs developers to assess climate change impacts of proposed Limpopo coal-fired power station*. 17 March 2016. Available at: https://cer.org.za/news/newsflash-minister-instructs-developers-to-assess-climate-change-impacts-of-proposed-limpopo-coal-fired-power-station

[125] Centre for Environmental Rights. *Winning SA's first climate change court case: What it means for affected communities, industry, government and the people of South Africa*. 5 April 2017. Available at: https://cer.org.za/news/winning-sas-first-climate-change-court-case-what-it-means-for-affected-communities-industry-government-and-the-people-of-south-africa

[126] Savannah Environmental. June 2017. *Thabametsi Power Station – Climate Change Study and Palaeontological Impact Assessment.* Available at: https://cer.org.za/wp-content/uploads/2016/07/Thabametsi-Final-Summary-Report-Jun17.pdf

[127] Ibid, pp20

[128] Ibid, pp32

[129] Centre for Environmental Rights. *Thabametsi climate impact assessment reveals staggering greenhouse gas emissions*. 2 August 2017. Available at: https://cer.org.za/news/media-release-thabametsi-climate-impact-assessment-reveals-staggering-greenhouse-gas-emissions

[130] Centre for Environmental Rights. *Thabametsi coal plant given go ahead despite staggering climate impacts.* 6 February 2018. Available at: https://cer.org.za/news/thabametsi-coal-plant-given-go-ahead-despite-staggering-climate-impacts

[131] Thabametsi Power Company. *Electricity Generation Licence Application Form.* Nersa. 25 October 2016. Available at: https://cer.org.za/wp-content/uploads/2016/12/Thabametsi-Application.pdf

[132] Nedbank. *Nedbank Group Climate Change Position Statement.* Available at: https://www.nedbank.co.za/content/dam/nedbank/site-assets/AboutUs/Sustainability/Supporting%20Documents/9861_Climate%20change%20positioning%20statement(F).pdf

[133] South African Government. *National Development Plan 2030*, p211. Available at: https://www.gov.za/issues/national-development-plan-2030

[134] Exxaro. *Climate change.* Available at: http://www.exxaro.com/index.php/sustainability/climate-change/#2

[135] Cape Times. 27 May 2011. *Exxaro and SA's energy environment.* 27 May 2011. Available at: https://www.pressreader.com/south-africa/cape-times/20110527/282295316796457

[136] Exxaro. 2016. *Integrated Report.* Available at: http://www.annualreports.com/HostedData/AnnualReports/PDF/OTC_EXXAF_2016.pdf

[137] Ibid.

[138] WWF. March 2014. *Sustainable Finance South Africa.* Available at: www.wwf.org.za/?10266/Sustainable-Finance-South-Africa-March-2014

[139] Exxaro. 2012. *Exxaro and Tata Power form Joint Venture Company.* Available at: http://www.exxaro.com/index.php/exxaro-and-tata-power-form-joint-venture-company/

[140] Exxaro. *Exxaro's Energy JV, Cennergi, Achieves Financial Closure on Two Wind Projects.* Available at: http://www.exxaro.com/index.php/exxaros-energy-jv-cennergi-achieves-financial-closure-on-two-wind-projects/

[141] South African Government. 2011. *National Strategy for Sustainable Development and Action Plan.* p25. Available at: https://www.environment.gov.za/sites/default/files/docs/sustainabledevelopment_actionplan_strategy.pdf,

[142] South African Government. 2011. New Growth Path 2020, p 31. Available: www.economic.gov.za/communications/publications/new-growth-path.../download

[143] Economic Development Department. 2011. *New Growth Path: Green Economy Accord.* Available at: https://www.gov.za/sites/www.gov.za/files/Accord_GREEN.pdf

[144] Economic Development Committee. *New Growth Path & Job Creation Target of 5 Million.* 29 August 2011. Available at: https://pmg.org.za/committee-meeting/13313/

[145] Department of Trade and Industry. *Industrial Policy Action Plan 2016/17-2018/19*, p6. Available: https://www.thedti.gov.za/parliament/2016/IPAP_2016-17.pdf
[146] South African Government. *National Development Plan 2030*, p198. Available at: https://www.gov.za/issues/national-development-plan-2030
[147] Ibid, p199
[148] Ibid, p211.
[149] Department of Planning, Monitoring and Evaluation. *Medium Term Strategic Framework (MTSF) 2014-2019*, p29. Available: www.dpme.gov.za/keyfocusareas/outcomesSite/Pages/default.aspx
[150] Department of Planning, Monitoring and Evaluation. *Medium Term Strategic Framework (MTSF) 2014-2019-Outcome 10.* p 13. Available at: http://online.fliphtml5.com/slsf/ceqg/#p=1
[151] Department of Environmental Affairs. 2015. *National Climate Change Response White Paper*, p5. Available at: https://www.environment.gov.za/.../national_climatechange_response_whitepaper.pdf
[152] Ibid, p25
[153] Ibid, p26
[154] South African government. *Explanatory note for the Draft Regulations on the Carbon Budget.* 20 Juen 2016. Available at: http://www.treasury.gov.za/public%20comments/CarbonTaxBill2016/Explanatory%20Note%20Carbon%20Offset%20Regulation.pdf
[155] Rich, D; Northrop, E, and K. Mogelgaard. *South Africa Pledges to Peak Its Greenhouse Gas Emissions by 2025.* 1 October 2015. Available at: http://www.wri.org/blog/2015/10/south-africa-pledges-peak-its-greenhouse-gas-emissions-2025
[156] South African Government. *South Africa's Intended National Determined Contribution (INDC)*, p8. Available at: www4.unfccc.int/ndcregistry/.../South%20Africa%20First/South%20Africa.pdf
[157] Ibid, p10.
[158] Rich, D; Northrop, E, and K. Mogelgaard. *South Africa Pledges to Peak Its Greenhouse Gas Emissions by 2025.* 1 October 2015. Available at: http://www.wri.org/blog/2015/10/south-africa-pledges-peak-its-greenhouse-gas-emissions-2025
[159] Department of Environmental Affairs. *Green Fund.* Available at: https://www.environment.gov.za/projectsprogrammes/greenfund
[160] Department of Environmental Affairs. *South Africa's Green Fund.* Available at: http://www.sagreenfund.org.za/wordpress/wp-content/uploads/2017/09/Green-Fund-Impact-Study.pdf
[161] IFC. *Q&A with Dr Reshma Sheoraj, Director: National Treasury of South Africa.* Available at: https://www.ifc.org/wps/wcm/connect/c300f24d-9463-4c0f-b667-5e70b78ee798/QA+with+Dr+Reshma+Sheoraj.pdf?MOD=AJPERES
[162] JSE. *JSE launches Green Bond segment.* 25 October 2017. Available at:https://www.jse.co.za/articles/Pages/JSE-launches-Green-Bond-segment-to-fund-low-carbon-projects.aspx
[163] JSE. *JSE lists its first green bond.* 9 June 2014. Available at:https://www.jse.co.za/news/the-johannesburg-stock-exchange-lists-its-first-green-bond
[164] JSE. *IFC launches green bond on the JSE.* 10 December 2015. Available at: https://www.jse.co.za/articles/ifc-launches-green-bond-on-the-jse
[165] City of Cape Town. *Green pays: City's R1 billion bond a resounding success in the market.* 12 July 2017. Available at: http://www.capetown.gov.za/media-and-news/Green%20pays%20City
[166] Webb, M. 'IDC concludes R5bn 'green bond' with PIC.' *EngineeringNews.* 7 November 2012. Available at: http://www.engineeringnews.co.za/article/idc-concludes-r5bn-green-bond-with-pic-2012-11-07
[167] Chamber of Mines. June 2017. *Facts and Figures 2016.* Available at: http://www.chamberofmines.org.za/industry-news/publications/facts-and-figures/send/17-facts-and-figures/442-facts-and-figures-2016
[168] 'R88,000: That's the average bonus for an Eskom employee.' *Techfinancials.* Available at: https://techfinancials.co.za/2017/07/23/r88-000-thats-average-bonus-eskom-employee/
[169] COSATU. 2017. *A just transition to a low-carbon and climate resilient economy- COSATU policy on climate change.* Available at: http://www.sagreenfund.org.za/wordpress/wp-content/uploads/2017/05/Naledi_A-just-transition-to-a-climate-resilient-economy.pdf
[170] NDP, p199

[171] SAPA. 'NDP contradicts mines policy'. *Fin24.* 8 February 2013. Available at: https://www.fin24.com/Economy/NDP-contradicts-mines-policy-20130208

[172]Climate Action Tracker. *South Africa.* 6 November 2017. Available at: http://climateactiontracker.org/countries/southafrica.html

[173] Groenewald, Y. 'The value of coal'. *Fin24.* 30 October 2016. Available at: https://www.fin24.com/Economy/Eskom/the-value-of-coal-20161030-2

[174] Minister of Finance. 2017. *Draft Carbon Tax Bill – B-2017.* Available at: http://www.treasury.gov.za/public%20comments/CarbonTaxBill2015/Carbon%20Tax%20Bill%20final%20for%20release%20for%20comment.pdf