

South Africa

The World's Carbon Markets: A Case Study Guide to Emissions Trading

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Environmental Policy Overview:

COUNTRY PROFILE: South Africa, located at the southern tip of Africa and spanning 1,219,090 km², is the largest economy on the continent, and with a population of about 52 million. The country is categorized as a major emerging economy and was ranked third among the BRICS economies in the World Economic Forum's (WEF's) 2012 Global Competitiveness Index.¹ The most prominent economic sectors are mining, transport, energy, manufacturing, tourism, and agriculture. Since South Africa's economy is highly dependent on the primary sector and its abundant natural resources, it is particularly vulnerable to the effects of climate change.² Consequently, the South African government has recognized the need to take mitigation actions in order to ensure the continued growth and development of the economy, and further South Africa's international role on this issue. The government has already put in place several fiscal measures to reduce GHG emissions, including a fuel levy on petrol and diesel, an electricity generation levy, an energy efficiency tax incentive, and a tax exemption for revenues earned from UN Clean Development Mechanism (CDM) projects. The electricity generation levy was implemented in 2009 and includes the production of electricity from non-renewables, including coal, petroleum-based fuels, natural gas, and nuclear. The implementation of this levy was meant to initiate a starting framework for the development of a carbon tax.³

EMISSIONS PROFILE: South Africa is the 12th largest emitter of CO₂ emissions in the world. The country is responsible for nearly half the CO₂ emissions for the entire continent of Africa, and about 1.6% of global emissions.⁴ Total GHG emissions in 2009 amounted to 547 million tons, a near 20% increase since 2000 and 45% above 1994 levels - Total GHG emissions were roughly 461 million tons in 2000 and 380 million tons in 1994. Carbon dioxide accounts for approximately 80% of total GHG emissions in South Africa.⁵

In the year 2000, the energy sector, including electricity generation, petroleum refining, and transportation, was responsible for the largest share of emissions, accounting for more than 80% of total emissions.⁶ The power sector holds the largest share of CO₂ emissions at 48%, due to its heavy reliance on coal.⁷ In South Africa, coal predominates fossil fuel demand (about 75%) and accounts for over 92% of fuel input in electricity generation.⁸ Over 90% of total electricity generation in South Africa is produced by the public electricity utility Eskom.⁹

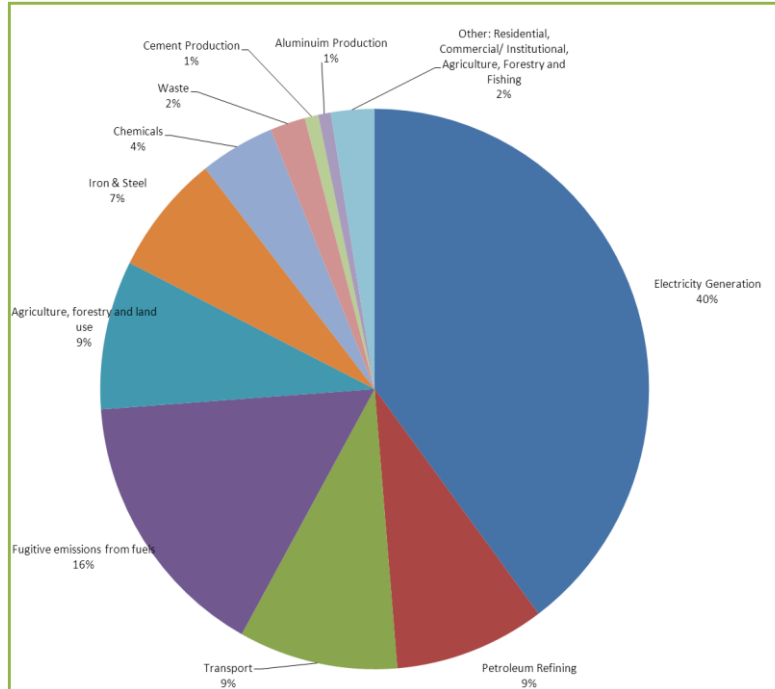


Figure 1: South Africa Emissions by sector, 2000 GHG Inventory (Source: South Africa Treasury)

Policy: South Africa signed the *Kyoto Protocol* under the United Nations Framework Convention on Climate Change (UNFCCC) on July 31, 2002 as a non-annex I party, and therefore does not have specific targets ascribed under the protocol. At the 15th Committee of Parties (COP) negotiations in Copenhagen in 2009, South Africa pledged to undertake mitigation actions to reduce emissions 34% by 2020, and 42% by 2025, below the business as usual trajectory. However, this voluntary pledge is subject to the provision of adequate financial, technological and capacity-building support by developed countries.¹⁰ These targets were submitted to the Copenhagen Accord on 29 January 2010.

Following the 2009 pledge, the South African government began researching and analyzing ways to best achieve the goals the country set forth. An analysis of a carbon tax was first presented in a 2010 discussion paper for public comment released by the South African National Treasury.¹¹ The 2010 paper examined the implementation of a carbon tax and the advantages and disadvantages of a carbon tax versus an emissions trading scheme. The discussion paper was updated in May 2013 and includes a final argument supporting the implementation of a carbon tax. South Africa is a participant of the World Bank's Partnership for Market Readiness (PMR), a capacity building program supporting the development of market-based policies.

Domestic Markets:

Three options for implementing a comprehensive carbon price through the carbon tax were proposed in the 2010 carbon tax discussion paper^{12,13}:

1. Tax applied directly to measured GHG emissions
2. Fossil fuel input tax on coal, crude oil and natural gas, based on their carbon content
3. Tax levied on energy outputs (electricity and transport fuels)

Due to complicating factors affecting the implementation of a tax directly on actual emissions, a **fuel input tax** was the best agreed upon option by the South African government as a proxy for a direct tax on emissions. Instead of measuring and taxing emissions directly, CO₂-equivalent emissions will be quantified based on the carbon content of fuels at the point at which they enter the economy using appropriate and accurate emissions factors and procedures that are approved by the Department of Environment Affairs (DEA), and comply with information published by the Intergovernmental Panel on Climate Change (IPCC).¹⁴

Sector	Basic Tax Free Threshold	Trade Exposure (Max.)	Process Emissions	Total	Offset Allowance
Electricity	60	-	-	60	10
Petroleum (coal/gas to liquid)	60	10	-	70	10
Petroleum (Refinery)	60	10	-	70	10
Iron and Steel	60	10	10	80	5
Cement	60	10	10	80	5
Glass and Ceramics	60	10	10	80	5
Chemicals	60	10	10	80	5
Pulp and Paper	60	10	-	70	10
Sugar	60	10	-	70	10
Agriculture/Land-Use/Forestry	60	-	40	100	0
Waste	60	-	40	100	0
Fugitive Emissions	60	10	10	80	5
Other	60	10	-	70	10

Table 1: Tax-Free Thresholds by Sector, including Trade Exposure and Process Emission thresholds (Source: Treasury Department of South Africa)

The proposed carbon tax policy will include a percentage-based tax-free threshold, for which companies will not have to pay for a fixed percentage of their emissions. From 2015-2020, the tax-free threshold will be fixed at 60%. Additional relief will be given to trade-intensive sectors and sectors where the *potential to reduce emissions is limited*, such as process emissions including the cement, iron, steel, aluminum and glass sectors. Offsets may also be used to reduce a firm's carbon tax liability up to a sector specific limit determined by the mitigation potential of that sector. The maximum tax-free threshold for those sectors included in the first five-year period is 80% (including offsets). Agriculture, forestry, land use and waste sectors will not be included during the first five-year period, due to the complexity in measuring and verifying emissions from these sectors. After the first 5-year period the percentage tax-free thresholds will be reduced and could potentially be replaced with absolute emissions thresholds, subject to alignment with other initiatives.¹⁵

The Carbon Tax was originally scheduled to begin January 1, 2015, but in a recent budget speech, the government announced a delay in implementation until 2016.¹⁶ The goal of the tax is to phase the tax in gradually to smooth the adjustment period for covered companies. The tax rate will start at 120 ZAR/ton CO₂-e in 2015 and increase by 10% per year until 2019. This initial tax rate will be revisited and revised before the February 2019 budget to assess carbon tax policy after 2019. The carbon tax will cover only emissions that result directly from fuel combustion and gasification, and from non-energy industrial processes (Scope 1 emissions). These emissions include carbon dioxide, methane, nitrous oxide, perfluorocarbons, hydrofluorocarbons, and sulphur hexafluoride.¹⁷

FLEXIBILITY MECHANISMS: South Africa’s new carbon tax program will allow firms to reduce their tax liability through the purchase of offsets. The specifics of the offset mechanism and design features, including carbon offset standards, project types and methodologies, and origins of offset projects have yet to be published. In the meantime, an initial idea of what the offset program will look is based on existing international offset programs. Potential offset project types could include agriculture, forestry, land-use, waste, community-based, municipal energy efficiency and renewable energy, electricity transmission and distribution efficiency, small-scale renewable energy (up to 15 MW) and transport projects. Projects will be located in South Africa only. A number of verification standards outside of South Africa, including the UN Clean Development Mechanism (CDM), Verified Carbon Standard (VCS), and CDM Gold Standard (GS), will be used until the country establishes its own standards.¹⁸ Demand for offset credits is estimated at 20 to 25 million credits per year.¹⁹

Eligible Projects
Any project in the AFOLU or Waste Sector
Community based and municipal energy efficiency and renewable energy
Electricity transmission and distribution efficiency
Small-scale renewable energy (up to 15 MW)
Transport sector projects
Ineligible Projects
All industrial gas destruction projects
Energy efficiency in company owned or controlled operations that are covered by the carbon tax
Embedded or cogeneration of renewable energy for company owned or controlled operations that are covered by the carbon tax
Parasitic electricity usage by fossil fuel based power stations
Fuel switch projects in company owned or controlled operations that are covered by the carbon tax
Energy efficient coal-fired power stations

**Table 2: Proposed Eligible and Ineligible Project Types in South Africa’s Offset Market
(Source: IETA Greenhouse Gas Market 2013)**

Still To Be Decided
Projects under the South African Renewable Energy Independent Power Producer Procurement Programme (REI4P)
Large-scale renewable energy ‘Programme of Activities’ (POA) as registered under the CDM (above 15 mw)

**Table 3: Still To Be Decided Projects In South Africa’s Offset Market
(Source: IETA Greenhouse Gas Market 2013)**

COMPLEMENTARY MEASURES: South Africa’s government has put in place a number of support measures to ease the transition into the carbon tax regime. The policy is designed not to increase the total tax burden, and thus will include tax shifting, rebate or other assistance measures for households. For coal combustion and gasification processes, there will be a specific tax rebate for Carbon Capture and Storage (CCS).

The government identified a number of flagship programs as part of its 2011 White Paper²⁰ across a number of areas, including:

Climate Change Response Public Works: The program will consolidate and expand the Expanded Public Works Program and its sector components such as the Non-State Sector's Community Works Program and Environment and Culture Sector program including Working for Water, Working on Fire, and Working for Energy, which have been effective in promoting climate resilience and poverty relief.²¹

Water Conservation and Demand Management: The program will accelerate the implementation of the National Water Conservation and Water Demand Management Strategy in the industry, mining, power generation, agriculture and water services sectors. Additionally, the program will accelerate the establishment of rainwater harvesting tanks in rural and low-income settlements.²²

Renewable Energy: The program will scale up the renewable energy program in line with the 2010 Integrated Resource Plan, and enhance the deployment of renewable energy technologies.²³

Energy Efficiency and Energy Demand Management: The program will build on existing energy efficiency programs that support energy efficiency improvements in industry and expand coverage beyond electricity. The program will include the development of energy efficiency programs for key government buildings and residential buildings, targeting low-income housing and commercial buildings.²⁴

Transportation: The program will focus on the development of an enhanced public transport program to promote low-carbon mobility and a rail recapitalization program that will shift freight and passenger travel from road to rail. An Efficient Vehicles Program will also be created to improve the average efficiency of the country's vehicle fleet by 2020.²⁵

Waste Management: The program will develop a waste-related GHG emission mitigation action plan and explore opportunities for waste-to-energy conversion practices, as well as the production and capture of methane or landfill gas from waste sites.²⁶

Carbon Capture and Storage (CCS): The program will be lead by DoE and will focus on the development of a Carbon Capture and Sequestration Demonstration Plant.²⁷

Adaptation Research: Lead by the South African National Biodiversity Institute (SANBI), the program will scope sectoral adaptation requirements and costs, identify adaptation strategies with cross-sector linkages and benefits, and assess climate change vulnerabilities to define potential sub-regional response strategies.²⁸

Furthermore, South Africa has in place other support measures to manage energy costs. For example, the Integrated National Electrification Programme (INEP) aims to ensure electricity supply for all households, schools and clinics. There is also a free basic energy policy, which provides 50KWh per month to indigent households – and this may be reviewed and strengthened moving forward.

Renewable energy is promoted through the Renewable Energy Independent Power Producer (REIPP) procurement initiative. This assists Independent Power Producers (IPPs) to bid for renewable energy on the national grid. The government is considering the potential to receive international climate finance to support this initiative.

International Markets:

South Africa’s main experience with carbon markets prior to the carbon tax discussions has been the **CDM**. To date, there are **347 CDM projects** submitted to the Designated National Authority – **209 Project Idea Notes (PINs)** and **138 Project Design Documents (PDDs)**. Out of 138 PDDs, the CDM Executive Board (EB) has registered 80 projects –including 27 Programme of Activities (PoAs). **12 have reached CER issuance**, and **58** are at different stages of the project cycle – DNA approval, validation stage, and/or request for review. The projects submitted to the DNA for initial review and approval cover the following project types; bio-fuels, energy efficiency, waste management, cogeneration, fuel switching and hydro-power, and cover sectors like manufacturing, mining, agriculture, energy, waste management, housing, transport and residential.²⁹

Qualifying projects under the CDM need to demonstrate environmental and financial additionality; that is, a project that would result in reductions in net emissions would not be viable in the absence of carbon finance resulting from direct capital investments and purchases of certified emissions reductions (CERs) by developed countries.³⁰

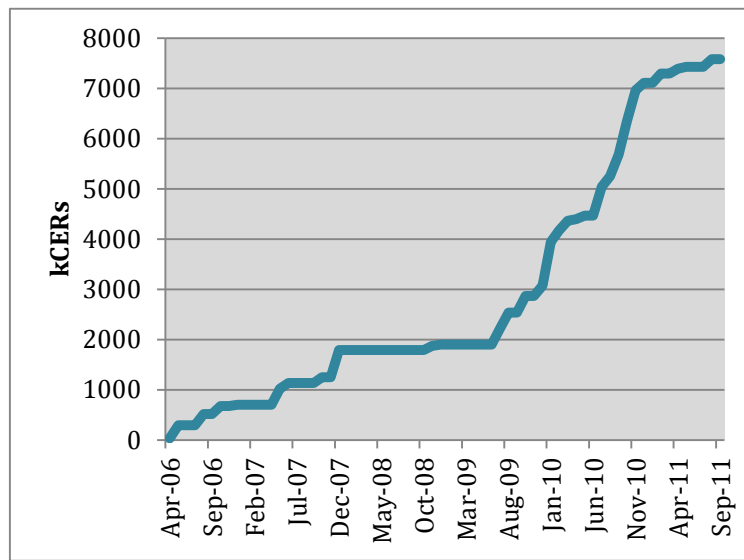


Figure 3: CDM Projects Distribution in South Africa (Projects distribution, registered only)
(Source: DoE)

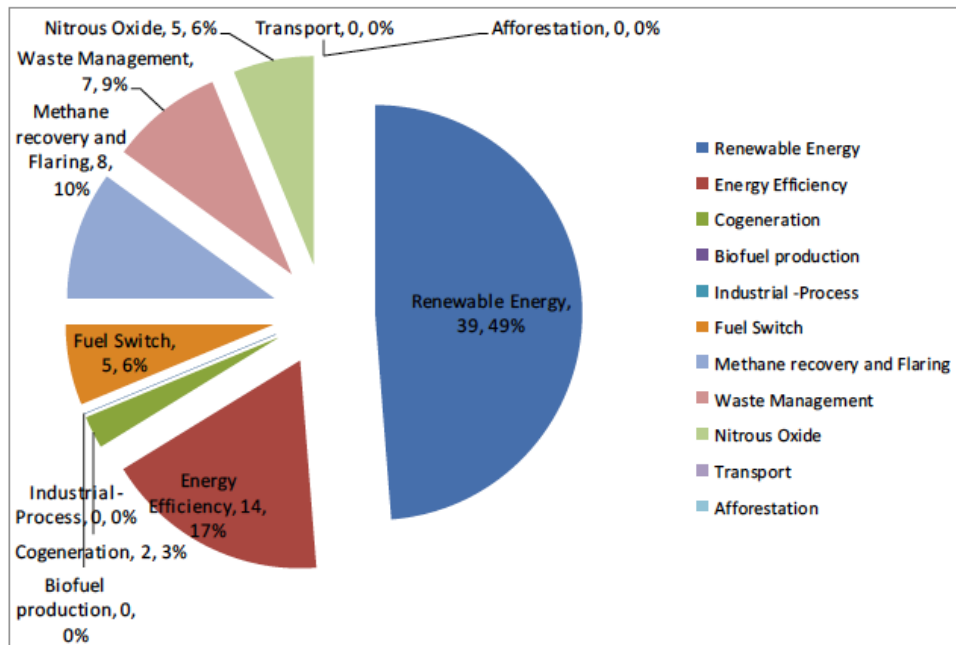


Figure 2: Total CERs issued by South Africa from April 2006 to September 2011 (Source: CDM Pipeline)

Recent Environmental History:

South African government began reforming and assessing fiscal measures to address environmental issues in 2006 with the release of a 2006 Environmental Fiscal Reform Policy Paper. The 2006 paper lays out South Africa's environmental initiatives, including sustainable development, and the use of market based instruments to correct for environmental externalities.³¹ In the first decade of the 21st century the government implemented a number of different fiscal measures, including taxes and various incentives that would move South Africa toward a greener economy. These fiscal measures include a fuel levy on petrol and diesel, an electricity generation levy, an energy efficiency tax incentive, a tax exemption for revenues earned from CDM projects, a renewable energy depreciation allowance, a depreciation allowance for biofuels production, and a research and development tax incentive among others.

UNIQUE ISSUES:

1. The energy sector in South Africa is dominated by one large entity, Eskom. As a result, one entity comprises a large percentage of covered entities under the tax.
2. South Africa will be the first national government to implement a multi-sector carbon tax, alongside a carbon tax on fuel producers being implemented in Mexico.

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Disclaimer: The authors encourage readers to please contact the EDF and IETA Contacts with any corrections, additions, revisions, or any other comments, including any relevant citations. This will be invaluable in strengthening and updating the case studies and ensuring they are as correct and informative as possible

¹ http://www.southafrica.info/business/economy/econoverview.htm#_UvEfdBbBy5R

² South Africa Department of National Treasury (2013) *Carbon Tax Policy Paper Reducing Greenhouse Gas Emissions And Facilitating The Transition To A Green Economy*. Pretoria: National Treasury. Pg 19. Available at: <http://www.treasury.gov.za/public%20comments/Carbon%20Tax%20Policy%20Paper%202013.pdf>

³ National Treasury (NT), 2010. *Reducing greenhouse gas emissions: The carbon tax option*. Discussion Paper, December 2010. Pretoria: National Treasury. Pg 9 Available at: <http://www.treasury.gov.za/public%20comments/Discussion%20Paper%20Carbon%20Taxes%2081210.pdf>

⁴ Supra, Note 3 pg. 16

⁵ Supra, Note 2 pg. 47

⁶ Supra, Note 2 pg. 47

⁷ Supra, Note 3 pg. 16

⁸ UNEP (2004). *Climate Policy Frameworks Beyond 2012: Development and Climate Change in South African Context*. Energy Research Centre. University of Cape Town. November 2004: pp 1-20.

⁹ National Treasury (2013). *Policy Mapping Workshop: South Africa's Policy Interaction Experience*. Pretoria: National Treasury. Available at: http://www.thepmr.org/system/files/documents/Policy%20Mapping%20I_South%20Africa_0.pdf

¹⁰ http://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/southafricacphaccord_app2.pdf

¹¹ Supra, Note 3

¹² Supra, Note 3

¹³ Supra, Note 2, pg. 12

¹⁴ Supra, Note 2, pg. 12

¹⁵ Supra, Note 2, pp 52-57

¹⁶ National Treasury (February 2014). *2014 Budget Speech*. Available at: <http://www.treasury.gov.za/documents/national%20budget/2014/speech/speech.pdf>

¹⁷ Supra, Note 2

¹⁸ Supra, Note 2, pp 57 and 85

¹⁹ IETA (2013) *Greenhouse Gas Market 2013*. IETA. pp.60. Available at: <http://www.ieta.org/assets/Reports/ghgreport2013-web.pdf>

²⁰ Department of Environmental Affairs (DEA), 2011a. *National Climate Change Response White Paper*. Pretoria: DEA, Available at: https://www.environment.gov.za/sites/default/files/legislations/national_climatechange_response_whitepaper.pdf

²¹ Supra, Note 20

²² Supra, Note 20

²³ Supra, Note 20

²⁴ Supra, Note 20

²⁵ Supra, Note 20

²⁶ Supra, Note 20

²⁷ Supra, Note 20

²⁸ Supra, Note 20

²⁹ Department of Energy (DoE); (2013). *Designated National Authority: SA CDM Projects Portfolio*. Available at: http://www.energy.gov.za/files/esources/kyoto/kyoto_sa.html (Data updated January 15, 2014 at time accessed)

³⁰ Supra, Note 2 pp. 57

³¹ National Treasury. (2006). Draft policy paper: *A Framework for Considering Market-Based Instruments to Support Environmental Fiscal Reform in South Africa*. South Africa: National Treasury. Available at: <http://www.treasury.gov.za/publiccomments/DraftEnvironmentalFiscalReformPolicyPaper6April2006.pdf>