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South Africa

The Republic of South Africa is Africa's largest energy consumer and second largest energy producer. A major coal producer and exporter, South Africa also has a highly developed synthetic fuel industry and small reserves of oil.

Note: Information contained in this report is the best available as of January 2005 and is subject to change.



GENERAL BACKGROUND

Since the installation of a democratic government following the end of apartheid in 1994, South Africa has worked toward bringing economic equality to historically disadvantaged (non-white) groups. Despite major institutional transformations of the judicial, educational, health, housing and governance sectors, however, income disparity continues to rank amongst the highest in the world. According to *Global Insight*, for instance, 20.5 million black South Africans (56% of total black population) were living in poverty in 2003, compared with 190,000 white South Africans (4% of total white population). Official unemployment estimates are at 30%, although many believe 40% unemployment is more accurate. Poverty among South Africa's disadvantaged groups is exacerbated by one of the world's highest HIV/AIDS infection rates.

South Africa's real gross domestic product (GDP) grew 2.6% in 2004, and is forecast to grow 3.2% in 2005. Conservative government fiscal policies have reduced the double-digit inflation that South Africa experienced in the 1980s. Inflation was 1.4% in 2004 and is forecast at 3.0% for 2005. In August 2004, the South African Reserve Bank's Monetary Policy Committee (MPC) lowered interest rates by 50 base points. If inflation remains low and the currency remains stable, further rate cuts may be made in the future.

Both the government and South African businesses have been greatly concerned about the historical instability of South Africa's currency, the rand. The Myburgh Commission, created by the government in 2002 to investigate allegations of currency manipulation, found no evidence of such

in the rand's depreciation. Since the second half of 2002, the rand has made a dramatic recovery in the international currency market; many South African companies blame the rand's recovery for falling profits.

The South African government has committed to ensuring that black-owned companies have access to the energy sector. Under its black economic empowerment (BEE) program, the South African government has set targets for the percentage of each industry to be controlled by black-owned corporations. Large, predominately white-owned corporations have sold assets to achieve this objective, with the first sale occurring in late 2000. BEE firms are commonly referred to as "empowerment" firms.

South Africa maintains membership in the [African Union \(AU\)](#), the [Southern Africa Development Community \(SADC\)](#), and the [Southern Africa Customs Union \(SACU\)](#).

COAL

Coal is the primary fuel produced and consumed in South Africa. The country has the world's seventh largest amount of recoverable coal reserves (54.6 billion short tons), approximately 5% of the world total.

Production

South Africa is the world's sixth largest coal producer, producing 245.3 million short tons (mmst) of coal in 2002. The Mpumalanga province accounts for 83% of South African coal production, while Free State (9%) Limpopo (7%) and KwaZulu-Natal (1%) also house production facilities. Although South Africa has 19 official coal fields, 70% of recoverable reserves lie in the Highveld, Waterberg, and Witbank fields. Anglo American's Anglo Coal (Anglo), BHP Billington's Ingwe Coal (Ingwe), domestic mining firms Eyesizwe Coal (Eyesizwe), Kumba Resources (Kumba), Sasol Mining (Sasol), and Swiss-based Xstrata Coal South Africa (XCSA) are responsible for the majority of South Africa's coal production.

In July 2003, Anglo American and Sasol announced plans to develop the Kriel South coalfield, from which each is expected to produce 5.5 mmst annually. Anglo will establish an operation on the northern portion of the field, and Sasol plans to expand its existing underground operations at the Syferfontein colliery in its southern portion. Anglo Coal will invest \$96 million and Sasol \$40 million in the project, which is expected to commence in 2005. In October 2004, Kumba Resources revealed plans to invest \$52 million to build two additional coal mines, Grootegeluk and Leeuwpan, to be completed by July 2006.

XCSA's WitCons Colliery is currently undergoing a \$4.8 million expansion expected to increase production by 50%. XCSA is also upgrading the Tavistock Colliery to raise annual production capacity from 1.2 mmst to 2 mmst. A feasibility study for full-scale production is being undertaken at XCSA's new Goedgevonden Colliery, currently a small contractor open-pit facility that utilizes production facilities at XCSA's nearby South Witbank mine.

In January 2003, Ingwe announced the sale of its Delmas colliery in Mpumalanga to Kuyasa Mining, a small South African empowerment firm. The sale of Delmas leaves Ingwe with operational control of seven mines in South Africa, four of which it owns and three of which are jointly owned with XCSA. Ingwe is considering merging some of its operations to maintain its position as the main supplier to South Africa's electricity utility, Eskom.

Exports

Although only one-third of coal produced in South Africa is exported, primarily to the European Union (EU) and East Asia, South Africa was the world's third largest net coal exporter (73.7 mmst) in 2002.

The vast majority of South African coal exports are shipped through the Richards Bay Coal Terminal (RBCT). With the capacity to export 79.4 mmst annually, RBCT is the world's largest coal export facility. At present, only shareholding members of the RBCT Company-- including Ingwe, Anglo, XCSA, Total South Africa, Sasol, Kangra and Eyesizwe, and JCI/Lonrho/Duiker. Ingwe, Anglo and XCSA-- are permitted to use the export facility. Ingwe, Anglo, and XCSA combined own 86% of the RBCT.

Although the South Dunes Coal Terminal (SDCT) opened in 2000 to facilitate the participation of empowerment companies in the coal export sector, RBCT exporters and the SDCT partners agreed in June 2001 to expand the RBCT as well. Because no new rail infrastructure is needed, the expansion of RBCT is considered the most cost-effective method of increasing South Africa's coal export capability. RBCT's expansion will increase its annual export capacity by 11 mmst. SDCT firms will be permitted to export 7.2 mmst per year from the terminal. In March 2002, SDCT firms secured \$41 million of the expansion's \$52 million total cost. The remaining \$11 million will be financed by RBCT shareholders. The first shipment of coal by an empowerment entrant was loaded at the RBCT in October 2003. Its full expansion is expected to be completed in 2005.

Kumba and the Iron and Steel Corporation of South Africa (ISCOR) export coal through the Durban Coal Terminal (DCT), whereas Gold Fields utilizes the Matola Coal Terminal (MCT), both of which are located in Maputo, [Mozambique](#). Although only 1.4 mmst of South African coal was exported through MCT in 2001, \$13.8 million worth of improvements planned for the South Africa-Maputo railway and the planned dredging of the Port of Maputo to allow access to larger vessels may encourage increased exports. MCT management anticipates that the facility will have the capacity to export 5.5 mmst of coal by 2006; however, increased rail charges may hinder South African exports. Spoornet, South Africa's state-owned rail company, announced plans in 2003 to increase freight charges to the MCT and DCT by 30% on average over three years.

Consumption

South Africa consumed 171.6 mmst of coal in 2002, 90% of which was used for electricity generation and the synthetic fuel industry. Other coal consuming sectors include the non-synthetic fuels industrial sector, metallurgical industries, and the merchant & domestic sectors.

SYNTHETIC FUELS

South Africa has a highly developed synthetic fuels industry supported by abundant coal resources and offshore natural gas and condensate production in Mossel Bay. Sasol, with a capacity of 150,000 barrels per day (bbl/d), and the Petroleum Oil and Gas Corporation of South Africa (PetroSA), with a capacity of 50,000 bbl/d, are the major producers of synthetic fuel in South Africa.

Sasol, the world's largest manufacturer of oil from coal, maintains coal liquefaction plants located at Secunda (oil) and Sasolburg (petrochemicals). Privatized in 1979, Sasol expanded its Secunda facilities to reduce costs and to help it remain competitive in 2001. A September 2004 explosion at the Sasol ethylene plant in Secunda killed six people and injured over 100. Sasol workers went on strike several days later until management agreed to allow their union to launch an investigation into the causes of the explosion.

Under the belief that partially replacing coal with natural gas as the synthetic-fuel feedstock would reduce investment expenditures in coal mining operations, Sasol began importing gas from Mozambique in 2004. Mozambique's Temane gas field came onstream in February 2004 through a 536-mile transport pipeline, owned by a joint venture between Sasol, South African government, and the government of Mozambique. A pipeline carries gas from the Mozambican fields Temane and Pande, estimated to hold reserves of 3.2 Tcf, to Sasol's Secunda facility. Sasol is considering the possibility of constructing a gas-to-liquids (GTL) facility in Secunda to boost fuel output by 10%. In June 2004, President Thabo Mbeki and Mozambican President Joachim Chissano inaugurated a \$1.2 billion scheme in which Mozambique would supply South Africa with natural gas to replace coal-based feedstock at Sasol's Infrachem chemicals facility in Sasolburg. Pande will be brought online when the pressures of the Temane reservoir drop to a level equivalent to those of the Pande field, approximately three years after the commencement of Temane production.

State-owned PetroSA began synfuel production in 1993. The PetroSA plant receives feedstocks of natural gas and condensate from the FA, EM, and EBF gas fields in Mossel Bay through a pair of 56-mile pipelines and can process up to 8,000 bbl/d of imported condensate. PetroSA converts the gas into a variety of liquid fuels including motor gasoline, distillates, kerosene, alcohols and liquefied petroleum gas (LPG).

In November 2004, Sasol announced the creation of Uhambo, a joint-venture fuel refining and marketing company. Uhambo will combine Sasol's Liquid Fuels Business with Petronas' Engen, while Tschwarisano and LFB Investment and Africa Energy Resources (SER) will also have stake in its ownership. Sasol has proposed implementation of a black economic empowerment (BEE) program to guarantee that black groups have a 25% stake in Uhambo.

OIL AND NATURAL GAS

South Africa imports the majority of its crude oil from the Middle East, with [Saudi Arabia](#) and [Iran](#) as its chief suppliers. Because South Africa is trying to diversify its [sources of imported crude](#) and reduce its dependence on Iranian oil imports, Nigeria is now the third largest supplier of imported oil to South Africa. Other major oil sources include [Kuwait](#), [Russia](#) and [Angola](#), and Equatorial Guinea.

In December 2001, oil companies including BP, Caltex, Shell and Total signed the [Oil Industry Charter for Transformation](#), a BEE mandate, which aims to have black-controlled companies owning 25% of the oil sector by 2011. Similarly, the government aims to reserve 10% of new natural gas exploration licenses for BEE companies.

Exploration

PetroSA, the national oil company, has made several discoveries on Block 9 within the Bredasdorp Basin. Three significant fields have been found on Block 9 including the Oribi, Oryx and Sable fields. In February 2001, PetroSA and Pioneer Natural Resources' (Pioneer) Boomslang discovery tested at a combined rate of 3,120 bbl/d of oil, 26 million cubic feet of natural gas per day (Mmcf/d), and 300 bbl/d of condensate. EBB, discovered in 1991, originally tested at 46 Mmcf/d of natural gas and 1,830 bbl/d of condensate. Both PetroSA and Pioneer plan to drill additional appraisal wells on Boomslang and the EBB discovery.

Two existing natural gas discoveries are located on Block 11A, which lies east of Block 9. PetroSA's Ga-A find, discovered in 1969, had an initial flow rate of 24 Mmcf/d. The Ga-Q field was discovered in 1983 and had an initial test flow rate of 11.4 Mmcf/d. Additional appraisal drilling is planned on Block 11A as well.

An offshore natural gas discovery was made off South Africa 's border with [Namibia](#) in Block 2A in March 2000. US-based companies Forest Oil Corporation (Forest) and Anschutz, along with BEE Company Mvelaphanda, are exploring the Ibhubezi field (15 Tcf). In August 2003, PetroSA purchased a 30% share in the Ibhubezi Gas Field project. PetroSA hopes that Ibhubezi gas, along with gas from Namibia and Mozambique , can be used at its 45,000 bbl/d Mossel Bay GTL plant, where reserves may be depleted by 2007. Exploration drilling will be completed in late 2004, and the consortium hopes to begin production in 2006. Gas produced will be supplied to PetroSA for used in a 150-MW plant and piped to Cape Town for domestic and industrial use.

Rights to exploration in other blocks belong to various companies. Sasol will hold the rights to Blocks 3A and 4A until 2011. In June 2002, Anglo-Australian BHP-Billiton took control of 90% of the sublease for Block 3B/4B, the formal rights to which are owned by Colorado-based Global Energy Holdings (GEH).

In January 2002, Petroleum Geo-Services (PGS) and Petroleum Agency SA (PASA) announced a joint cooperation agreement to promote deepwater exploration acreage in Block 2B and acreage west of Blocks 5 and 6. In December 2002, a consortium of Jebco Seismic, PetroSA, and Global Exploration Services identified a petroleum system off the east coast of South Africa in the Tugela Cone.

Although the South African government began to downplay the probability of finding large oil and gas reserves in June 2004, it has provided \$213 million to fund exploration in fields off Mossel Bay , specifically the E-M field, to extend the lifespan of the gas-to-liquids project.

Production

Total oil production in South Africa currently accounts for approximately 10% of domestic needs. PetroSA and Energy Africa began South Africa 's first oil production at the Oribi oil field in 1997 using a floating production, storage and offloading vessel (FPSO). PetroSA estimates that production could reach 25,000 bbl/d, but the find is not expected to last much beyond the end of 2004. The Oryx oil field, which lies 3.7 miles from the Oribi field, began production in May 2000 and produces 12,000 bbl/d. In May 2004, Ireland 's Tullow Oil offered US\$500 million to Engen for the purchase of Energy Africa, a partner in the Oribi oil field.

Development of the Sable Field, located approximately 60 miles from the southern coast, commenced in August 2003. The project, a partnership between PetroSA and Pioneer, has six subsea wells connected to a FPSO with the capacity to process 60,000 bbl/d of oil, re-inject 80 Mmcf/d of natural gas and recover natural gas liquids. Initial output was 30,000 to 40,000 bbl/d, with total recoverable oil reserves estimated at 25 million barrels. Associated gas, which will be re-injected to improve liquids recovery, may also be recovered as part of a planned natural gas development project. PetroSA, who currently owns a 60% interest in Sable, is expected to sell a 9% stake in the field to BEE companies.

The production platform at the FA natural gas field, from which nine production wells have been drilled, is one of the largest structures ever constructed in South Africa . Four production wells on the FAR and FAH satellite gas fields are linked to the platform by subsea systems. Production wells on the EM and EBF gas fields are connected to the FA platform by a 32-mile pipeline designed for the future tie-in of other gas fields.

In September 2003, the South African National Assembly passed the [Petroleum Pipelines Bill](#), which plans for privatization of oil and gas pipelines and guarantees the future oil supply of the

Natref refinery. Similarly, the [Petroleum Products Amendment Bill](#), currently awaiting passage by the National Assembly, seeks to improve transparency in the sector, govern fuel specifications, and allocate retail sites.

Refining and Downstream Oil Activities

South Africa has the second largest refining capacity in Africa (519,547 bbl/d), surpassed only by [Egypt](#). Its refined products are both sold in the local market and exported, mainly within Southern Africa, but also into both the Indian and Atlantic basin markets. Major refineries include Sapref (172,000 bbl/d) and Enref (150,000 bbl/d) in Durban, Calref (110,000 bbl/d) in Cape Town, and Natref (87,547 bbl/d) at Sasolburg.

Multinational companies, including BP, Shell, Caltex (ChevronTexaco), Engen, and Total, are major participants in South Africa's downstream petroleum markets. Several domestic firms are also involved, including black-owned firms Naledi Petroleum and Afric Oil. Worldwide Africa Investment Holdings (WAIH), the largest black-owned oil group, owns 55% of Afric Oil, 51% of South African Zenex, and 20% of Engen.

Shell and BP plan to invest \$100 million in the Sapref facility (172,000 bbl/d), South Africa's largest refinery. The investment, intended primarily to reduce emissions, will occur over the next five years. In accordance with BEE mandates, Shell is expected to sell a 25% stake in the Sapref refinery to a black-owned partner. In March 2003, Engen announced the expansion of its 125,000-bbl/d facility, Durban's other refinery.

In April 2003, a new petroleum pricing mechanism, the Basic Fuel Price (BFP) formula, replaced the In-Bond-Landed-Cost (IBLC) the pump price, established in the 1950s. An investigation by the Department of Materials and Energy (DME) and the South African Petroleum Industry Association (SAPIA) concluding that the previous formula was outdated initiated the change. Under the BFP method, domestic retail prices will be linked to international crude oil prices using a new benchmark based on spot prices published by *Platts*.

Sasol launched a retail chain of gasoline stations in December 2003, investing \$135 million for the construction of 100 to 200 new stations. An agreement with the country's oil sector prevented Sasol from operating a retail network until December 2003. As a result, Sasol leased its gas stations to other companies until the expiration of the agreement. In December 2003, South Africa's Competition Commission approved the proposed merger of Sasol and Exel Petroleum (Exel), a black-owned company. As a result, Sasol gained control of Exel's network of 189 service stations throughout South Africa. In February 2004, Sasol announced plans to merge with Engen, a subsidiary of Malaysia's Petronas. Each company will own a 35% stake in a new company, while 25% will be divided between each member's BEE partners.

The first privatization in South Africa's gas distribution sector was completed in August 2000, when a consortium led by U.S.-based Cinergy and black empowerment group, Egoli Empowerment Holdings, purchased [Johannesburg's](#) Metro Gas Company. Renamed Egoli Gas, the consortium announced in September 2000 the signing of a 20-year contract with Sasol Gas to provide the Johannesburg area with 2.5 million cubic feet of gas per year and an option to increase the supply up to seven million cubic feet of gas per year. Egoli Gas plans to increase its customer base to 100,000 customers by 2010.

Although Shell withdrew from the project in August 2002, negotiations continue between the South African government and operators of Namibia's offshore Kudu gas field (1.3 Tcf). ChevronTexaco

replaced Shell, but withdrew from the project in November 2003. Although Energy Africa assumed full interest in the project and planned to pursue its development unilaterally, it did not have adequate funding to do so and sold a 10% stake to Namcor, the Namibian national oil company (NOC). Initial plans call for gas to be piped from the Kudu field to Cape Town, where it will supply fuel for a power station. PetroSA has expressed interest in becoming a partner on the Kudu field, and the government wants to extend the pipeline to the PetroSA synfuel facilities at Mossel Bay.

ELECTRICITY

Parastatal company Eskom, one of the largest utilities in the world, generates nearly all of South Africa's electricity. Eskom's 35,060 megawatts (MW) of nominal generating capacity, which is primarily coal-fired (34,532 MW), includes one [nuclear power](#) station at Koeberg (1,930 MW), two gas turbine facilities (342 MW), six conventional hydroelectric plants (600 MW), and two hydroelectric pumped-storage stations (1,400 MW). Although Eskom has three mothballed coal-fired facilities (3,800 MW), it produces adequate electricity for domestic use and exports power to Botswana, Lesotho, Mozambique, Namibia, Swaziland, and Zimbabwe. Eskom has asked for government permission to sell three coal-fired plants (1,460 MW) that would otherwise be scrapped. Given the prospect of reaching its peak capacity in 2007, Eskom announced in June 2004 plans to bring its three mothballed power stations back into service at a cost of \$1.96 billion. The company, which has little experience in the recommissioning of stations, is looking for a partner to assist in the effort. South African municipalities own and operate 2,436 MW of generating capacity, and an additional 836 MW of generating capacity is privately held.

South Africa's [National Electricity Regulator](#) (NER), which handles licensing of electricity generators, transmitters, and distributors in the country, licensed Eskom as the national distributor. NER oversees the restructuring of South Africa's electricity supply industry (ESI) in accordance with existing legislation and the Energy Policy [White Paper](#), both of which are crucial to the government's continuing [electrification](#) program. Montraco, a private company, is licensed to provide transmission service from the National Transmission System to specific points in Mozambique and Swaziland.

South Africa's excess electricity capacity will likely be exhausted by 2011; if the country's economy grows at a higher rate than expected, capacity may be exhausted by 2007. In 2004, fears that electricity was becoming unaffordable for the poor forced the NER to stop charging inflated electricity rates to generate income into new generation initiatives. The 2004 tariff rate of 2.5% was set below the rate of inflation to ensure that electricity is affordable for everyone.

Improvements are being made to the South African electricity infrastructure. In October 2004, the South African government announced that it would spend \$26 billion on its power and transport sector over the next five years. In August 2004, City Power, Johannesburg's local power utility, pledged \$316 million to decrease power shortages attributed to the dilapidated distribution network, 70% of which is estimated to be between 20 and 40 years old. As part of its rural electrification program, South Africa invited bids to provide 40,000 rooftop solar power systems to rural areas in June 2004. Financing for the project (\$19.4 million) was provided by a German development bank, KfW Bankengruppe.

Although government efforts to initiate competition in the electricity sector have mandated that Eskom be 30% privatized by 2006, Eskom management has proposed a plan to integrate BEE companies and other private sector firms without privatizing the firm itself. NER's electricity distribution scheme, revised in 2003 with a new draft Electricity Distribution Industry Restructuring Bill, aims to merge Eskom's distribution assets with the country's municipal distributors to form six

regional electricity distributors (REDS). Eskom will not hold a stake in the REDS; rather they come under the umbrella of a government-controlled holding structure called EDI Holdings (EDI). The South African government will own EDI, envisioned to have a life span of 3-5 years. EDI will hold a percentage of shares (representing Eskom's contribution of net assets) in the REDS and serve as project manager and advisor, overseeing and coordinating the REDS' implementation REDS and reporting progress to the South African government. After a transitional period, EDI will dissolve, leaving a number of nominally independent REDS, with their shareholders being the South African government and the various municipalities that contributed net assets. In May 2004, President Thabo Mbeki announced that the first REDS would be ready for operation by June 2005.

In December 2001, US-based AES completed its purchase of the 600-MW Kelvin (AES Kelvin) coal-fired power plant from the Greater Johannesburg Metropolitan Council (GJMC). GJMC will retain a 50% interest in AES Kelvin with shareholder rights limited to protecting the employment of workers for three years. After that time, AES will own 95% of the facility, and its local empowerment partner, Global African Power (GAP), will hold the remaining 5%. AES Kelvin made plans to sell its entire output to City Power Johannesburg, the distribution company for Johannesburg, under a 20-year power purchase agreement. In December 2002, however, AES sold its 95% interest in the Kelvin facility to CDC Globeleq. CDC Globeleq will complete the \$25 million investment being made to refurbish the plant and is scheduled to receive its full interest in the project in December 2004.

Cape Town is looking for independent power producers (IPP) and public/private partnerships to take over the operations of its Athlone generating facility. The Elitheni Coal proposal, which will give Athlone a generating capacity of 890 MW and utilize offshore natural gas reserves for peak-hour electricity generation, is one of many plans being considered.

The Western Power Corridor Project (WESTCO), a proposal to construct a 3,500-MW hydropower station at Inga Dam in the Democratic Republic of the Congo (DRC) and interconnected power lines to supply power to its signatories, was signed by South Africa, the DRC, Namibia, Angola, and Botswana in October 2004. Eskom and similar power utilities in each signatory nation will contribute \$100 million, while the remainder of the funding will likely come from the World Bank, the European Development Fund, and private sources. The signing of a memorandum of understanding (MOU) was seen as crucial in attracting needed private sector support.

A government decision regarding a proposed 125-165-MW pebble bed modular reactor (PBMR) demonstration unit at Koeberg is expected by the end of 2004. The PBMR creates less spent fuel than the pressurized water reactors (PWR) being used at the current Koeberg facility. The Eskom-led project, delayed for over a year due to a lack of investors, needs approximately \$1.3 billion for construction of a demonstration plant and a pilot fuel production plant. Proponents of the PBMR hope that government-owned entities will take a larger share than they have at present; entry of the Nuclear Energy Corporation of South Africa (NECSA) is another possibility. If the PBMR at Koeberg is successful, Eskom plans to build up to ten PBMR plants to provide power to coastal regions.

ENVIRONMENT

In 2002, 74% of total **energy** consumption in South Africa came from coal. Because coal is a highly carbon-intensive fossil fuel, overreliance on it for energy needs can have negative environmental impacts, including air **pollution** due to coal combustion, groundwater pollution due to mining, and disruption of ecosystems.

Laws are currently being developed and implemented to lessen environmental damage and

pollution. The use of leaded gasoline will end in 2006, and all motor fuels (diesel and gasoline) will be required to contain less than 500 parts per million (ppm) of sulfur by that time. Motor fuel sulfur content will further be reduced to 50 ppm by 2010. The South African Petroleum Industry Association (SAPIA) estimates that the refining industry will need to invest \$950 million to reach these new fuel specifications. Many petroleum retailers in South Africa switched from lead to MMT (a manganese-based additive) to boost octane. Because manganese is also a toxic metal, BP introduced South Africa's first unleaded fuel that is free of heavy metals in September 2003. In June 2004, BP opened the first lead-free station in South Africa.

The National Environmental Management Air Quality Bill (NEMAQ) provides for the Department of Environmental Affairs and Tourism's (DEAT) establishment of national norms and standards for ambient air quality, emissions, air quality monitoring and air quality information management.

In recent years, a growing environmental movement in South Africa has challenged strip-mining operations in a sensitive wetland area, drawn international attention to pollution and conditions at the country's refineries, and legally challenged the establishment of South Africa's pebble-bed modular reactor (PBMR) program in Koeberg. Environmentalists oppose development of the PBMR, insisting that the scheme's environmental impact assessment is flawed. In June 2004, the South African government confirmed that the country would be forced to rely on nuclear power in the near future, encouraging environmental groups to focus on positive aspects of the project, including a reduction in carbon dioxide emissions.

Sources for this report include: Africa Energy Intelligence; African Energy; Afroil; AFX News; Agence France Presse; AllAfrica.com; Associated Press; Business Day (South Africa); Business Wire; CIA World Factbook 2004; Coal Week International; Department of Minerals and Energy; Economist Intelligence Unit ViewsWire; Eskom; Factiva; Financial Times; Hart's Africa Oil and Gas; International Monetary Fund; Inter Press Service; McCloskey Coal News; Mining Journal; National Electricity Regulator Electricity Supply Statistics: 2001; Oil and Gas Journal; The Oil Daily; Petroleum Argus; Petroleum Intelligence Weekly; Reuters; South African Chamber of Mines; South African Petroleum Industry Association (SAPIA); South African Press Association; U.S. Energy Information Administration; World Bank; World Gas Intelligence; Xinhua

COUNTRY OVERVIEW

President: Thabo Mbeki (since June 1999)

Deputy President: Jacob Zuma (since June 1999)

Independence: May 31, 1910 (from United Kingdom)

Population (2004E): 42,718,530

Location/Size: Southern Africa/1.2 million square kilometers (471,445 square miles, nearly twice the size of Texas)

Major Cities: Pretoria (capital), Johannesburg, Durban, Cape Town

Languages (official): Afrikaans, English, Ndebele, Northern Sotho, Pedi, Southern Sotho, Swazi, Tsonga, Tswana, Venda, Xhosa, Zulu

Ethnic Groups: Black (75.2%), White (13.6%), mixed race (Colored) (8.6%), Asian (2.6%)

Religions: Christian (Dutch reformed, other Protestant and Catholic denominations) (68%), Muslim (2%), Hindu (1.5%), indigenous beliefs (28.5%)

ECONOMIC OVERVIEW

Minister of Finance: Trevor Manuel

Minister of Trade and Industry: Mandisi Mphahlele

Currency: 1 rand (R) = 100 cents

Market Exchange Rate (1/7/05): US\$1 = 6.11 R

Nominal Gross Domestic Product (2004E): \$196.5 billion
Real GDP Growth Rate (2003E): 1.9% **(2004E):** 2.6% **(2005F):** 3.2%
Inflation Rate (consumer prices) (2003E): 5.9% **(2004E):** 1.4% **(2005F):** 3.0%
Merchandise Exports (2004E): \$41.5 billion
Merchandise Imports (2004E): \$37.1 billion
Merchandise Trade Balance (2004E): \$4.4 billion
Major Exports (2004): Gold, diamonds, other metals and minerals, machinery and equipment
Major Imports (2004): Machinery, foodstuffs and equipment, chemicals, petroleum products, scientific instruments
Major Trading Partners: European Union, United States, Japan, China
Current Account Balance (2004E): -\$3.9 billion

ENERGY OVERVIEW

Minister of Mineral and Energy Affairs: Phumzile Mlambo-Ngcuka
Proven Oil Reserves (*Oil and Gas Journal*; 1/1/05E): 15.7 million barrels (bbl)
Oil Production (2003E): 194,600 barrels per day (bbl/d), of which about 165,000 bbl/d is synthetic

Oil Consumption (2003E): 469,000 bbl/d
Net Oil Imports (2003E): 274,400 bbl/d
Crude Refining Capacity (*Oil and Gas Journal*; 1/1/05E): 519,547 bbl/d
Natural Gas Reserves (*Oil and Gas Journal*; 1/1/05E): 1 billion cubic feet (Bcf)
Natural Gas Production/Consumption (South African Department of Minerals and Energy ; 2003E): 1.3 trillion cubic feet (Tcf)
Recoverable Coal Reserves (2002E): 54.6 billion short tons (Bst)
Coal Production (2002E): 245.3 million short tons (mmst)
Coal Consumption (2002E): 171.6 mmst
Net Coal Exports (2002E): 73.7 mmst
Electricity Generation Capacity (2002E): 40.5 gigawatts (GW) operational, with an additional 3.8 GW mothballed
Electricity Generation (2002E): 202.6 billion kilowatthours (bkwh), of which 188.3 bkwh was thermal, 12.0 bkwh nuclear and 2.4 bkwh hydroelectric
Electricity Consumption (2002E): 189.4 bkwh

ENVIRONMENTAL OVERVIEW

Minister of Environmental Affairs and Tourism: Marthinus Van Schalkwyk
Total Energy Consumption (2002E): 4.5 quadrillion Btu* (1.11% of world total energy consumption)
Energy-Related Carbon Dioxide Emissions (2002E): 377.6 million metric tons of carbon dioxide (1.5% of world carbon dioxide emissions)
Per Capita Energy Consumption (2002E): 101.5 million Btu (vs. U.S. value of 339.1 million Btu)
Per Capita Carbon Dioxide Emissions (2002E): 2.3 metric tons of carbon dioxide (vs. U.S. value of 5.5 metric tons of carbon)
Energy Intensity (2002E): 9,853 Btu/\$1995 (vs. U.S. value of 10,619 Btu/\$1995)**
Carbon Dioxide Intensity (2002E): 0.81 metric tons of carbon dioxide/thousand \$1995 (vs. U.S. value of 0.63 metric tons/thousand \$1995)**
Fuel Share of Energy Consumption (2002E): Coal (74.0%), Oil (20.9%), Nuclear (2.7%), Natural Gas (1.9%), Hydroelectricity (0.5%)
Fuel Share of Carbon Emissions (Includes Natural Gas Flaring; 2002E): Coal (81.1%), Oil (17.6%), Natural Gas (1.3%)
Major Environmental Issues: Lack of important arterial rivers or lakes requires extensive water

conservation and control measures; growth in water usage threatens to outpace supply; pollution of rivers from agricultural runoff and urban discharge; air pollution resulting in acid rain; soil erosion; desertification.

Major International Environmental Agreements: A party to the Antarctic-Environmental Protocol, Antarctic-Marine Living Resources, Antarctic Seals, Antarctic Treaty, Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Endangered Species, Hazardous Wastes, Law of the Sea, Marine Dumping, Marine Life Conservation, Ozone Layer Protection, Ship Pollution, Wetlands and Whaling.

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar and wind electric power.

**GDP based on OECD Purchasing Power Parity (PPP) figures for 2002

ENERGY INDUSTRY

Organization: *Anglo Coal, Ingwe Coal, Eyesizwe Coal, Energy Africa, Kumba Resources, Sasol Mining, Xstrata Coal South Africa (XCSA)* - major private coal producers; *Eskom* - parastatal electric power company; *Sasol* - coal-to-liquid synthetic fuels & chemicals group (privatized in 1979); *Petronet* - petroleum pipelines and tank farm; *Petroleum Oil and Gas Corporation of South Africa (PetroSA)* - gas-to-synthetic fuels plant; oil and gas exploration/development; *Strategic Fuels Fund* - strategic oil storage facility and state oil imports

Major Coal Fields: Waterberg, Witbank, Highveld

Major Coal Ports: Richards Bay Coal Terminal, Durban

Oil Refineries (*Oil and Gas Journal*; 1/1/04E Capacity): Shell/BP - Durban (172,000 bbl/d); Caltex - Cape Town (110,000 bbl/d); Engen - Durban (150,000 bbl/d); National Petroleum - Sasolburg (87,547 bbl/d)

LINKS

For more information from EIA on South Africa , please see:

[EIA - Country Information on South Africa](#)

Links to other U.S. government sites:

[CIA World Factbook - South Africa](#)

[U.S. Department of Energy's Office of Fossil Energy's International section - South Africa](#)

[U.S. State Department's Consular Information Sheet - South Africa](#)

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[Department of Environmental Affairs and Tourism \(DEAT\)](#)

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