

South Africa

The Republic of South Africa¹ with its capital city Pretoria (525.583 inhabitants, 1991) comprises an area of 1.219.080 km² and a total population of 41,40 million. The population density is 34 inhabitants per km² while urban population is at 50 percent.

The continent's most southern country is bordered by the Atlantic Ocean on the west and by the Indian Ocean on the south and east. Neighbours are Namibia, Zimbabwe, Botswana, Mozambique and Swaziland. South Africa's southernmost point is Cape Agulhas, located in the Western Cape Province, Southeast of the Cape of Good Hope. South Africa has a varied landscape with deserts, mountains, grassland and large areas of almost untouched areas. The country is well known for its National Parks, especially for the Kruger National Park in Northeast of the country.

South Africa was invaded by settlers in 1806 and the country's natural wealth like diamonds and gold were exploited. The native inhabitants were subjugated and maltreated by the conquerors. A war from 1899 to 1902 resulted in the Union of South Africa, which was operated under a policy of apartheid. Finally the 1990s brought an end to the apartheid and created a black majority rule.

Nowadays, South Africa is a middle-income, emerging economy with an abundant supply of resources, and well-developed financial, legal, energy, and transport sectors. South Africa's stock exchange ranks among the 10 largest in the world, and a modern infrastructure supporting an efficient distribution of goods to major urban centres throughout the region. However, the recent economic growth has not been strong enough to cut the 30 percent unemployment rate, and remaining economic problems from the apartheid era. Further problems are crime, corruption, and HIV. The current government is promoting economic growth, foreign investment, increased privatisation, the reduction of poverty and the improvement of human security. South Africa is a prominent member of the Organization of African Unity (OAU), the Southern Africa Development Community (SADC), and the Southern Africa Customs Union (SACU).

South Africa's electricity company Eskom, one of the largest utilities in the world, generates approximately 95 percent of the country's electricity. The overall consumption of 172 million MWh in 2000 was primarily covered by coal-fired plants which contributed a share of 92,7 percent. Nuclear Power was utilised with an share of 6,9 percent while the 0,4 percent remainder was covered by hydropower. Eskom's generating capacity of almost 40 GW includes coal-fired plants (35.627 MW), one nuclear power station at Koeberg (1.840 MW), two gas turbine facilities (342 MW), six conventional hydroelectric plants (661 MW), and two hydroelectric pumped-storage stations (1.400 MW). Eskom also has about 3.500 MW of coal-fired plants which are currently offline.²

South Africa's National Electricity Regulation (NER) which is responsible for the licensing of electricity generation, transmission and distribution, has made plans on restructuring the electricity supply industry. In accordance with the country's Energy Policy White Paper and existing legislation, the government is continuing its electrification program which should increase the electrification rate of rural areas.

¹ As there are besides the English language ten additional official languages, the English state name is given here only.

² WEC 2002, <http://www.eskom.co.za>.

The Republic of South Africa is the continent's largest energy consumer and a major producer and exporter of coal. According to data from the South Africa's Department of Mineral and Energy Affairs (DME), the country's coal reserves are estimated at 55 milliard metric tons while the production of 225 million metric tons totally covered the consumption of 155 million tons in 2000. The remaining 70 million tons of the mined coal were exported to Europe, Asia and South America.

South Africa has recently begun to develop and exploit its oil reserves which are estimated at 29,4 million barrels. The country's oil production of 81,7 million barrels was insufficient to cover the consumption of 175,9 million barrels in 2000. Therefore the country has to import oil from Saudi Arabia and Iran. South Africa has been trying to diversify its sources of imported oil and therefore has also started to import oil from Nigeria. The country's natural gas reserves are estimated at 23,4 milliard cubic metres and the production of 1,5 milliard cubic metres was sufficient to cover consumption.³

South Africa is involved in the international discussion on renewable energy, not only because it hosted the Johannesburg Summit 2002 – the World Summit on Sustainable Development. The main obstacle for South Africa in pushing forward the use of renewable energy and mainly the utilisation of biomass for energy purposes is, that the country's conventional energy sector is quite modern and distinctive. Therefore the influx of renewable energy is seen as more expensive compared to conventional power generation.⁴The country's potential ethanol production from agricultural residues like bagasse, sorghum straw and dung was estimated at 5,7 milliard litres with an total heat energy value of 115,8 PJ. The biogas potential of municipal solid and half-liquid waste as well as the sugar cane bagasse is sufficient for a total electricity generating capacity of 20 MW.⁵

³ Energy data contain information of EIA 2002.

⁴ Dingley 2002: 2.

⁵ Bioenergy potentials taken from WEC 2002.