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# ELECTRICITY SUPPLY INDUSTRY OF SOUTH AFRICA

General Information for Potential Investors



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# INTRODUCTION

South Africa is located on the southern tip of the African continent. Namibia is its neighbour to the north-west and Botswana and Zimbabwe to the north. On the north eastern border lies Mozambique and Swaziland.

South Africa has by far the largest economy in the Southern African region, and as such represents the largest market for electricity. Eskom, its vertically integrated state-owned utility, produces more than half of all the electricity in Africa, while the some of the larger local authority utilities, such as City Power of Johannesburg, is bigger than most national utilities of other countries in the region.

For many years South Africa has had a surplus of generation capacity and exported surpluses to neighboring countries, which to a large extent came to rely on South African supplies. Due to solid regional economic growth this picture is rapidly changing with the result that major new generation capacity is needed. This is already having an impact not only on South Africa, but also on the region, and opens the door for regional investment in electricity generation and associated infrastructure.

## THE REGULATORY ENVIRONMENT

Legislative power is divided between the National Assembly and the National Council of Provinces (NCOP), which is responsible for protecting regional interests. Local authorities have a constitutional mandate to provide services, including electricity, to their citizens.

While energy policy is developed by the Ministry of Minerals and Energy through the Department of Minerals and Energy (DME), the sector is regulated by the National Energy Regulator of South Africa (NERSA), an

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# FACT SHEET



## FACT SHEET: SOUTH AFRICA

**Area:** 1,219,912 km<sup>2</sup>  
**Population:** 43,786,115  
**Life Expectancy:** 42.4 years  
**HIV/AIDS:** 21.5% (2003 est.)  
**Literacy:** 86.4%  
**GDP (PPP):** US\$467.6 billion (2007 est.)  
**GDP Growth Rate:** 5% (2007 est.)  
**GDP per Capita:** US\$10,600 (2007 est.)

**Major Exports:** gold, diamonds, platinum, other metals and minerals, machinery and equipment  
**Major Imports:** machinery and equipment, chemicals, petroleum products, scientific instruments, foodstuffs  
**Currency:** rand (ZAR)  
**Exchange Rate per US\$:** 7.60 (2008)



independent body that is funded through a dedicated levy imposed on electricity generators and recovered from consumers.

The Electricity Regulation Act forbids the generation, transmission, supply, distribution, import or export of electricity except under the authority of a licence. Licences are issued on such conditions as determined by NERSA, although NERSA's discretion is limited within certain parameters set out in the Act. Local authorities have in the past questioned NERSA's infringement on their rights, and this debate is likely to continue as the country runs out of capacity.



# INSTITUTIONS RELATED TO THE ELECTRICITY SUPPLY INDUSTRY

In addition to NERSA and the DME, South Africa has a number of institutions and government agencies that are either directly or indirectly relevant to the electricity supply industry (ESI).

The South African energy policy aims to establish an inviting environment for private investment, and the prospect of coming power shortages in the Southern African region should ensure that current investment incentives remain in place. The major elements of the DME's electricity policy were established in 1998, and include the following:

- Encouraging competition within electricity markets.
- Encouraging diversity of supply sources and energy carriers.
- Permitting access to the transmission system.
- Encouraging private sector participation and investment in the electricity sector.

While all of these goals are laudable, prospective investors should note that the scarcity of private sector investment in the ESI sector has meant that many official ESI policies have not yet been tested in practice. It is also likely to be significantly influenced by the recent cabinet decision that Eskom will be the designated single buyer (and wholesale seller) of electricity in South Africa, which means that all new Independent Power Producers (IPPs) will have no choice but to sell electricity to Eskom and not directly to off-takers.

Government has now agreed to merge the distribution industry into six regional electricity distributors (REDs). This process is driven by Electricity Distribution Industry Holdings (EDIH) – a government owned company. The Municipal Systems Act, 2000, the Municipal Structures Act 1998, and the Municipal Finance Management Act 2003 (MFMA), primarily govern municipal electricity distributors.

The Department of Provincial and Local Government (DPLG) and the National Treasury are involved in restructuring the distribution of electricity.

The Department of Environment and Tourism (DEAT) oversees compliance with national environmental regulations.

The Department of Labor (DOL) monitors compliance with labor laws through the Occupational Health and Safety Inspectorate.

The Competition Commission shares jurisdiction and oversight of the electricity sector with NERSA. The Commission works closely with NERSA to share information regarding competition-related complaints, but the Commission and NERSA review each complaint independently and may reach different judgments.

## **ESKOM**

The dominant entity in the South African electricity landscape is Eskom, a 100% state-owned, vertically integrated utility. In 2002, Parliament converted Eskom to a company, which at the time was seen as a first step toward introducing competition into the electricity generation sector.

Eskom supplies 95% of the country's electricity, which in turn equates to more than half of all the electricity generated on the African continent. Eskom's capacity is primarily coal-fired (34,532 MW), includes one nuclear power at Koeberg (1,930 MW), two gas turbine facilities (342 MW), six conventional hydro-electric plants (600 MW), and two hydro-electric pumped-storage stations (1,400 MW).

A total of 2,053MW will be added by the open cycle gas turbines at Atlantis (Ankerlig power station) and Mossel Bay (Gourikwa power station).

Eskom has accelerated its expansion program in line with Government's drive to boost economic growth to 6% by 2010, and investment decisions will be based on this growth target. It is estimated that this will result in average growth in demand of 4.4% per annum, requiring approximately 47,252MW of new capacity – more than double the total existing capacity – to satisfy new demand. It aims to build this between 2005 and 2025, which equates to roughly 2,000MW of new generation per annum.





# PRIVATE INVESTMENT CONSIDERATIONS

The biggest constraint to private sector investment in South African electricity generation may be the prevailing tariff prices and that Eskom is designated as a single buyer. The price of electricity charged by Eskom is amongst the lowest in the world. The good news for potential participants are that electricity prices are expected to rise in the coming years, as Eskom invests in new, more costly generation capacity. In addition, the economic and regulatory environment in South Africa has created the opportunity for two additional types of electricity investments.

First, some South African municipalities have committed to using a greater proportion of renewable, environmentally friendly power. For example, Cape Town has signed a long-term purchase agreement with an IPP that will produce electricity from wind power at the Darling Wind Farm. Cape Town has agreed to pay higher prices for this electricity as part of its commitment to environmental protection.

Second, the electricity shortage in the region may lead more municipalities to sign agreements on favorable terms with IPPs supplying electricity from traditional sources. A notable example is the agreement between Kelvin Ltd. and the city of Johannesburg, which gave Kelvin the rights to refurbish a decommissioned power plant. Interestingly, municipalities have a constitutional right (and obligation) to supply services to its citizens, and the potential conflict between this right and Eskom's single buyer status still needs to be resolved.

The Department of Minerals and Energy is developing an Energy Bill that would allow the Minister to mandate the uptake of renewable energy, thereby forcing suppliers of electricity such as municipalities and REDs, to purchase certain amounts of electricity, from renewable energy sources. Needless to say, such a move would bode well for investments into renewable energy generation projects.

## INVESTMENT OPPORTUNITIES

Government has declared that the private sector will be involved in new major generation projects in South Africa. Given that Eskom is now designated as the single buyer for electricity in the country, private sector participation for large scale projects would need to closely involve Eskom. Hence it can be expected that Eskom will need to play a large role in such IPP activities, either directly or indirectly. Nevertheless it should remain attractive for investors as some 2,000MW of new generation is needed per year.

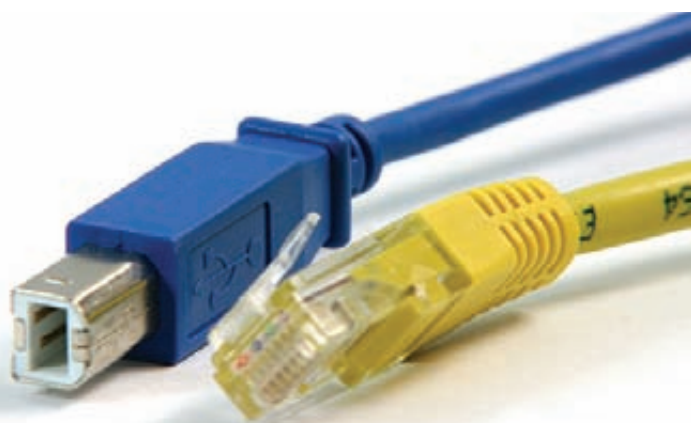
Embedded generation options or co-generation options also remain attractive. Given the constitutional mandate of municipalities, imports of electricity may also be a possibility, not only to Eskom, but potentially also to larger customers such as City Power, for example via SAPP into the South African system.

Renewable energy options are also attractive with increased emphasis on environmentally friendly alternatives.

The following projects have been identified as possible:

<b>Project &amp; Capacity (MW)</b>	<b>Project Description &amp; Status</b>	<b>Expected Date</b>	<b>Project Sponsors &amp; Funders</b>
Ankerlig (750MW) and Gourikwa (300MW) Both Open Cycle Gas Turbine (OCGT)	Peaking gas plant with 10% capacity factor. Feasibility being done: US\$300 million and US\$ 120 million respectively.	2008	Eskom/ Public-Private Partnership (PPP)
Open Cycle Gas Turbine (OCGT) (IPP) (1,050MW)	Peaking gas plant with 10% capacity factor. Feasibility being done: US\$400 million.	2009	DME/IPP

<b>Project &amp; Capacity (MW)</b>	<b>Project Description &amp; Status</b>	<b>Expected Date</b>	<b>Project Sponsors &amp; Funders</b>
Medupi (2,250MW)	3x750MW coal fired plant. Prefeasibility done and EIA: US\$5 billion.	2011	Eskom
Ingula (1,332MW)	4x333MW pumped storage plant for peaking power at Bramhoek: US\$1.4 billion.	2012-13	Eskom
Eskom North Coal Plant 3 (4,500MW)	6x750MW coal fired units at pre-engineering phase: US\$10.2 billion.	2012-16	Eskom
Eskom North East pumped storage (1,520MW)	4x380MW pumped storage scheme for peaking power at pre-engineering phase US\$1.6 billion.	2015	Eskom





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