

ECONOMIC OFFICE
SOUTH AFRICAN CONSULATE-GENERAL, MILAN

RENEWABLE ENERGY

SECTOR REPORT & OPPORTUNITIES, JAN 2011

I. THE SOUTH AFRICAN ENERGY SECTOR

A few years ago, *Eskom* (South Africa's electricity parastatal) boasted the cheapest power in the world. In 1997 the Government published a white paper warning of a power shortage that actually materialized in December 2007. It became clear that electricity supply was not keeping up with demand. The problem, however, is long term and demands both the upgrading and expansion of present capacity. The country relies on coal for about 90% of its annual energy production of almost 40,000 MW.

A wider policy framework was created by the Department of Energy (DoE) in October 2010 under the Integrated Resource Plan (IRP), which details how South Africa will use renewable and non-renewable energy to ensure a reliable power supply up to 2030. The final IRP 2010, as it is known, is expected to be published in early 2011. Other important documents of reference are the White Paper on Energy Policy of 1998, which addresses the need to provide alternative sources of energy including renewable, and the White Paper on Renewable Energy Policy of 2003, which fosters the uptake of renewable energy in the economy. This Paper set a target of 10,000 GWh to be generated from renewable energy by 2013. The target was reviewed during the renewable energy summit of 2009 held in Pretoria. In 2008 the Energy Act was enacted. The purpose of the act is to ensure that diverse energy resources are available in sustainable quantities and at affordable prices among other things.

South Africa is the 13th producer of CO₂ emissions in the world. The country is bound by non-tariff barriers to high carbon or CO₂ emitting exports in accordance with international agreements of the Group of 20 and the 2010 Copenhagen climate accords. In its IRP, the Government has committed to cutting CO₂ emissions by 34% over the next 15 years. Among the policy instruments that give effect to renewable energy legislations and objectives are the Renewable Energy Feed-In Tariffs (REFIT), a mechanism that promotes and obliges specific entities to purchase power output from qualifying renewable energy generators at predetermined prices. The exclusive buyer of power under the REFIT programme is *Eskom's* "Single Buyer Office" that will be appointed as the Renewable Energy Purchasing Agency (REPA).

The Biofuels Industrial Strategy aims to achieve a biofuels average market penetration of 4.5% of liquid road transport fuels (petrol and diesel) by 2013, which is achievable by using surplus agricultural capacity.

Plans for several Pebble Bed Modulator Reactor nuclear plants (PBMRs), which provide pollution-free power, have been put on hold because of costs. Nuclear options are still on

the cards for the future, but to cope with the immediate shortage, two peak-power gas turbines are operating and two giant coal 'base-load plants' have been commissioned for use from 2015 onwards. Old coal-fired plants have been re-commissioned and a peak-power hydro pump station has been designed to produce 1,300 MW in a few years time. *Eskom* will also buy 70% of the output of a nuclear plant being built in neighbouring Botswana.

Sasol's oil-from-coal technology was developed three generations ago. Established as a government enterprise, it now is a public company. *Sasol's* oil-from-coal process provides South Africa with nearly 40% of its petrol. *Sasol* is the main provider of natural gas in the African sub-continent, supplying 140 gigajoules a year through a pipeline from its central Mozambique gasfields.

Insufficient investment and outdated oil refineries in South Africa have led to two things: rising imports of costly refined oil and a move by *PetroSA* to consider building a 400,000 barrel-a-day refinery at the new 'free port' of Coega in the Eastern Cape, with terminals and upgrades at Cape Town, Mossel Bay, Port Elizabeth, Durban and in Gauteng. Meanwhile, *Transnet* is building a new oil pipeline from Durban to Johannesburg that should be ready by the end of 2010.

II. OPPORTUNITIES IN THE RENEWABLE ENERGY SECTOR

Dramatic changes lie ahead globally on the energy front driven by the joint impact of climate change, environmental concept and depleting resources of fossil fuels. These changes will impact on institutions like *Eskom* and local authorities in South Africa, which are currently almost solely responsible for the generation and distribution of electricity. This will create new opportunities.

South Africa offers attractive incentives to build renewable energy facilities. Under the Renewable Energy Feed-in Tariffs (REFIT), rolled out after the 2007 power crisis, providers of concentrated solar power (CSP) can qualify to sell energy back to *Eskom*. The REFIT also offers special tariffs for independently produced wind, biomass and hydroelectric power. This should lessen the nation's reliance on coal and create a reserve of extra power by incentivising business to build. The REFIT still has a lot of bureaucratic problems to be resolved but the most prominent change at hand will be the entry of private sector electricity producers into the market, even beyond the question of REFIT for the private renewable energy sector.

Industrial users of power in South Africa are becoming independent power producers, a term usually applied to energy companies. Foreign investments in the sector will also help develop the sector to meet the growing demand of the market and guarantee production sustainability. At the same time, the energy produced in SA will always more easily be exported to neighbouring countries thanks to the *Caprivi* high tension connection between Namibia, Zambia, Botswana and Zimbabwe inaugurated a few months ago. The interest of Italian companies is mainly in the photovoltaic and wind sectors. At the moment, the Italian presence in South Africa's renewable energy sector is weak but interest has been shown and should be further encouraged.

Despite the economic crisis, the global market for renewable energy has continued to grow and a further development is expected due to the growing demand, with or without incentives. This will increase competition between suppliers and reduce prices increasing the pressure on less competitive producers. All these factors will further consolidate the market and the positions conquered by the main operators.

Some Provincial Projects and Opportunities

- A 2009 report on the concentrated solar power (CSP) industry names the Northern Cape as one of the two best places in the world to generate CSP. The region provides almost 3,000 kilowatt hours per square metre of potential solar power, according to the report.
- There are currently 29 renewable energy opportunities that could generate 2310MW in the Eastern Cape thus presenting significant manufacturing opportunities for renewable technologies.
- Upington in the Northern Cape is set to become a solar capital. There are plans for the creation of a 5,000 MW Solar Park due to the: high radiation; flat and sparsely-populated land; ability to connect to the electricity grid; water available from the Orange River; a developed highway system and the airport. A full feasibility study is currently being conducted.
- The COEGA Development Corporation (CDC) is working on various renewable energy projects which, if successful, will contribute 480 MW to the national grid by 2013. The projects will be based in the COEGA Industrial Development Zone (IDZ) which is operated by the CDC. These include three wind, two biodiesel and four photovoltaic projects. One biomass project is already in operation.
- The South African National Energy Research Institute (Saneri) has issued a tender inviting proposals for the supply, installation and commissioning of a 400 KW solar power plant for Robben Island. The initiative forms part of the “Greening Robben Island Project” which proposes to reduce the island’s dependence on fossil fuels. The island is today a World Heritage Site and museum and one of South Africa’s most popular tourist destinations.
- The Green Cape initiative is a government-funded, industry-led initiative to support development of renewable energy in the Western Cape. The Province has set itself a target to achieve a 15% shift to renewable energy generation by 2014. The Province has two thirds of the wind resources and good solar and biomass potential.

JANUARY, 2011

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