South Africa Sustainability Backgrounder

Energy Supply/Demand/Mix:

Due to its massive natural reserves, South Africa currently runs on coal (67% of total energy supply) and imported oil (20% of total energy supply). (Because the country lacks commercially exploitable crude oil, it imports and refines crude petroleum.) Gas (3%), renewables (8%), nuclear power (2%), and hydroelectricity (0.1%) make up the balance of the energy mix. The recent establishment of a gas pipeline from Mozambique and the discovery of local reserves should lead to a small shift toward the use of natural gas in industry. Currently the top sectors by energy demand are: industry (36%), transport (26%) and residential (18%), though the residential sector alone is responsible for 35% of the peak demand crisis, and its share is growing.

Electricity Supply:

About 93% of South Africa's electricity is supplied cheaply from coal, 5% from nuclear, and 2% from renewable power sources. Eskom, the country's state-owned electricity producer, supplies most of South Africa's electricity needs. Domestic and regional customers have risen steadily over the last 15 years, but because Eskom did not invest adequately in electricity-generating capacity during this time, energy supply has not kept pace with demand. As a result, electricity shortages began in 2007. In 2008 Eskom announced a major 5-year investment program to build new power stations and raise the capacity of the distribution and transmission network.

Energy Tariffs in support of RE:

In spring of 2009, South Africa's National Energy Regulator introduced feed-in tariffs designed to produce 10 TWh of electricity per year by 2013. These tariffs are higher than the current tariff that government and large industry pay for coal-generated electricity, which is roughly 15 c/kWh to 25 c/kWh. The government's goal is to increase electricity generation from renewable sources to 10 TWh per year by 2013. The table below includes supported technologies. Note that the government may include more technologies, such as solar PV, by end of 2009.

Technology	Tariff	Tenor
Wind	1.25 ZAR/kWh ($0.14 USD/kWh)	20 years
Concentrated Solar	2.10 ZAR/kWh ($0.23/kWh)	20 years
Hydro	0.94 ZAR/kWh ($0.10 kWh)	20 years
Landfill Gas	0.90 ZAR/kWh ($0.10/kWh)	20 years

Potential for RE Development:

Despite South Africa's potential to produce electricity using Renewable Energy (RE), to date RE projects have been largely limited to off-grid, small-scale delivery models and the country's RE sector earned revenues of US$28.4 million in 2008. Despite the global credit crisis, private equity investment companies continue to invest in sustainable energy project portfolios, with more than US$1 billion currently dedicated to financing RE projects in Southern Africa. Industry estimates project an increase of nearly tenfold by 2015, to US$262.3 million. This will include solar photovoltaic, solar thermal, wind power and biomass projects. Joint ventures between project developers (preferably those with strong local knowledge) and private equity investment firms that are supported by original equipment manufacturers - will drive this growth, particularly in wind power and large-scale solar concentrating projects. However, small-scale hydropower projects (up to 10MW) have great potential, but to date have been hard to implement due to the lack of feed-in tariffs. (One small South African hydropower scheme took over 5 years to build.)

Source: *Southern African Renewable Energy Equipment Marke*t

Current Renewable Energy Contributions (total grid electricity data provided for comparison)							
	Existing Mixed Grid Production	Hydro	Solar Water Heating	PV	Wind	Biomass	Biomass for Power Generation
Capacity (MW)	39,493	661	652	12.1	29	N/A	200
Annual Production (GWh)	207,000	1,057	1,377	21	60	106,000	700

Source: Dieter Holm, Sustainable Energy Society of Southern Africa (SESSA) International Solar Energy Society (ISES)

Gaps/Market Barriers:

- A mindset among stakeholders with respect to energy generation projects that has typically focused on the supply-side, partial energy costing, and low (indirectly subsidized) energy prices;
- The influence of state-controlled monopolies and vested interests as well as a shortage of qualified project implementers and financiers;
- Lack of cooperation between FIs and project developers on the proper financial approach for sustainable energy projects;
- Access to finance is difficult for project developers/ESCOs and there is no recognizable EE or RE product available on the market; most funding is ad hoc, in the form of corporate loans or project finance for larger projects;
- For Africa overall, overt and covert subsidies to non-renewables could be a growth obstacle for the RE sector going forward (e.g. over US$ 60 billion are projected to subsidize fossil power plants in the developing world until 2030 (UNDP, 2000). The World Bank is often the financier in these cases.

Resources and Contacts:

South Africa Department of Minerals and Energy (DME) Website : www.dme.gov.za

South Africa National Energy Development Institute (SANEDI) Website: www.engineeringnews.co.za

National Energy Regulator (NERSA) Website: www.nersa.org.za

Eskom Website: www.eskom.co.za

National Business Initiative (NBI): a voluntary group of national and multi-national companies working for sustainable growth and development in South Africa. Website: www.nbi.org.za

Energy Intensive Users Group of South Africa (EIUG): a voluntary, non-profit association of large, high intensity energy consumers whose members account for approximately 44% of the electrical energy consumed in South Africa, committed to promoting the interests of high quantity energy users in South African Industry. Website: www.eiug.co.za