

Summary of Renewable Energy Status - Southern Africa Resources

<input type="checkbox"/> <u>Botswana</u>	1,6m	GDP per capita	\$2,807	Solar potential
<input type="checkbox"/> <u>Lesotho</u>	2,2m	GBP per capita	\$ 699	Hydropower majority grid provider
<input type="checkbox"/> <u>Malawi</u>	10,4m	GDP per capita	\$ 173	Solar, Hydro, Biomass, Biofuels
<input type="checkbox"/> <u>Mozambique</u>	17,6m	GDP per capita	\$ 221	Hydro, Solar & Biomass
<input type="checkbox"/> <u>Namibia</u>	1,7m	GDP per capita	\$1,553	Solar & Wind
<input type="checkbox"/> <u>South Africa</u>	44,4m	GDP per capita	\$2,520	Wind, Solar & Biomass
<input type="checkbox"/> <u>Swaziland</u>	1,0m	GDP per capita	\$ 889	Solar & Biomass
<input type="checkbox"/> <u>Tanzania</u>	34,7m	GDP per capita	\$ 262	Hydro, Geothermal, Biomass, Biofuels
<input type="checkbox"/> <u>Zambia</u>	11,0m	GDP per capita	\$ 345	Hydro, Biomass, Solar

*NB Skew between urban (employed) and rural (unemployed)
 *NB Rural affordability very limited. We must try to link energy provision to revenue stream
 SADC Report 1998. European Intelligence Unit 2001



Summary of Renewable Energy Status - Southern Africa Legislation

- BOTSWANA** National Development Plan - vision 2016 Energy efficiency promoted
- LESOTHO** Danida sponsored national policy development 1999 nearing completion
- MALAWI** Reform policies in place : Privatisation pending. Renewable target set at 7% by 2020. Only 4% of population have electricity
- MOZAMBIQUE** Reform policy in place : Privatisation pending : Energy Efficiency programme in operation
- NAMIBIA** Reform policy in place : Rural electrification program. Nampower strategy for off grid to be followed by regulatory framework
- SOUTH AFRICA** Energy white paper approved. Renewable policy near finalisation
- SWAZILAND** Draft policy in progress
- TANZANIA** Draft policy in progress
- ZAMBIA** Draft policy in progress. ERB formed



Summary of Renewable Energy Status - Southern Africa Projects

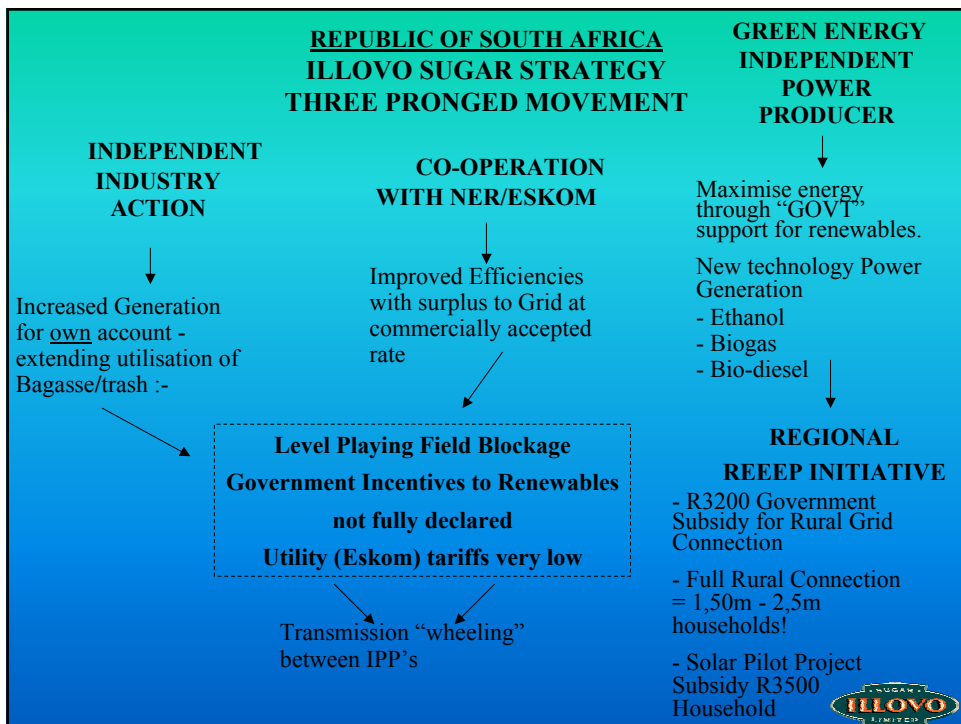
- BOTSWANA** Japanese International Co-operation Agency PV master plan with pilot project
- MALAWI** NGO project and training support. (JICA ; UNDP) Biofuels - ethanol & gelfuel installed. Cogeneration investigated
- MOZAMBIQUE** World Bank/Danida sponsored Solar systems
- NAMIBIA** UNDP/Danida/Spanish Government funding Solar & Biomass projects
- SOUTH AFRICA** Current electricity tariffs a stumbling block. Renewables linked to job creation. Pilot projects implemented - Darling Wind Farm, Durban Solid Waste, Rural PV trials.
- SWAZILAND** GEF Sponsored Energy Efficiency in Government. PCF biomass project in progress
- TANZANIA** Power utility privately managed
- ZAMBIA** Proposal for review of bioethanol. PCF energy efficiency in progress. Biomass cogeneration being investigated._



Republic of South Africa - The Problem

- * Need to develop economy to provide employment *
- * Affordable energy a “key” driver for development *
- Eskom provides one of “cheapest” electricity in the world
 - But - 90% from coal = environmental problems
 - And
 - current capacity will be exhausted 2007 - 2012
 - nuclear power (PBMR) being considered
- SAPP Regional
 - Cahora Bassa (Moz) Inga (D R Congo) Hydro
- Potential
 - Kudo (Nam) Pande (Moz) Natural Gas
- Renewable Energy
 - Relative to Eskom “expensive”
 - Limited in its uses (e.g. Solar)
 - Seen as inferior
 - Biomass possibly least cost - earliest option in short term






REPUBLIC OF SOUTH AFRICA

GREEN ENERGY STATUS

- **World Summit for Sustainable Development - Johannesburg 2002**
 - Green Energy Supply through Citi Power from Independent and the National Power Producers
- **Government Commitment to Kyoto**
 - Increase % energy from renewables from 9% to 14% by 2012
- **Potential sources for future Green Energy objectives**
 - Bio Mass
 - Solar Power
 - Wind power
 - Small Hydro
 - Waste to Energy
- **White paper on the promotion of renewable energy and clean energy development - August 2002 - Part I**
 - ? 2003 - Part II - Clean Energy Development



REPUBLIC OF SOUTH AFRICA
SUGAR INDUSTRY REVIEW - RENEWABLE ENERGY

- **Total Installed Capacity RSA** **246,7 MW**
 - Illovo Sugar - RSA 98,8 MW
 - Rest of Africa 48,8 MW
- **Total Bagasse RSA** **3,0 MT**
 - “Excess” Potential 0,6
 - Additional Cane Tops 0,3
- **Energy Potential with Improved Technology**
 - **High Pressure Boilers** x 4
 - **Big - CC Technology** x 1,6
- **Ethanol Potential**
 - **Molasses Production** **800,000 Tons**
 - Equivalent Ethanol 200,000 kilolitres
 - **Biogas - Methane**

