

Department of Minerals and Energy

ETSAP WORKSHOP

30 JUNE 2006

CLIMATE CHANGE, PROMOTION OF
CLEAN ENERGY AND GLOBAL
SUSTAINABLE DEVELOPMENT



the dme

Department:
Minerals and Energy
REPUBLIC OF SOUTH AFRICA

CLIMATE CHANGE

- Climate change caused by human activities is considered the most significant global environmental issue facing humanity today
- The concentration of GHG in the atmosphere is mainly caused by the generation and consumption of energy
- South Africa is dependent on coal-driven energy sources
- South Africa is energy intensive
- South Africa has an extremely high carbon emission level per unit of GDP compared to the rest of the world



Energy Sector Carbon emissions, 1999

Area	Population	CO ₂ /p	GDP (\$bns)	CO ₂ / GDP (kg/\$bn)	CO ₂ (kg)/GDP pop
RSA	42	8.22	164	2.11	0.0501
Africa	775	1.49	569	1.28	0.0016
USA	273	20.46	8588	0.65	0.0002
OECD	1116	10.96	26446	0.46	0.0004
World	5921	3.88	32445	0.71	0.0001

KEY RISKS FOR SOUTH AFRICA OF CLIMATE CHANGE

- A continental warming of between 1 and 3 °C
- Broad reductions in rainfall of about 5-10%
- Increased summer rainfall in the northeast and the southwest, but reduction in the duration of the summer rains in the northeast
- Nominal increases in rainfall in the northeast during the winter season
- Increased daily max temp in summer and autumn in the western half of the country
- An extension of the summer season characteristics

KEY OPPORTUNITIES FOR SOUTH AFRICA: CLIMATE CHANGE

- Growing awareness to find more sustainable production and consumption processes
- Reduce high per capita emissions
- Financial benefits from the Clean Development Mechanism
- More robust farming methods



PROMOTION OF CLEAN ENERGY: OIL

- Imported oil accounts for between 16% and 20% of South Africa's energy needs – around 70% comes from coal and the remainder from biomass
- Economic growth rate will be constrained by oil prices (Reserve Bank)
- Key industrial sectors such as chemicals, plastics, materials, agriculture, tourism and construction are at risk of being undermined



OPPORTUNITIES FOR SOUTH AFRICA: OIL

- Investments in a wide range of renewable energy technology options e.g. solar, wind, biomass, hydrogen
- Now financially competitive
- Production of bio-fuels and re-use of waste outputs as fuels
- Emergence of an entirely new energy sector with decentralised businesses trading in a variety of energy products

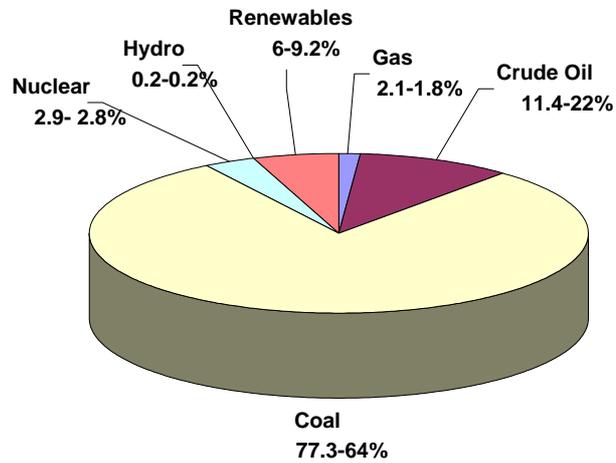


PROMOTION OF CLEAN ENERGY: OPPORTUNITIES

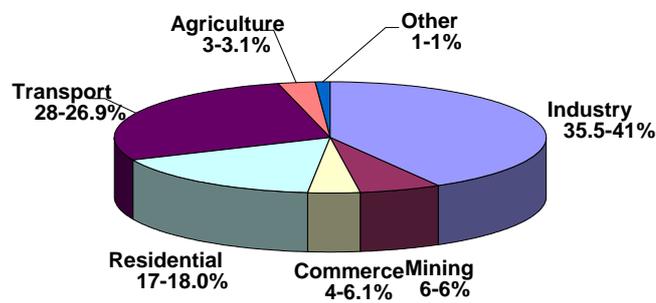
- Wide range of new investment and employment opportunities for RE in 4 markets
 - Power generation
 - Hot water and space heating
 - Transportation fuels
 - Rural off grid supplies
- Extensive R&D initiatives to support RE and EE
- PBMR



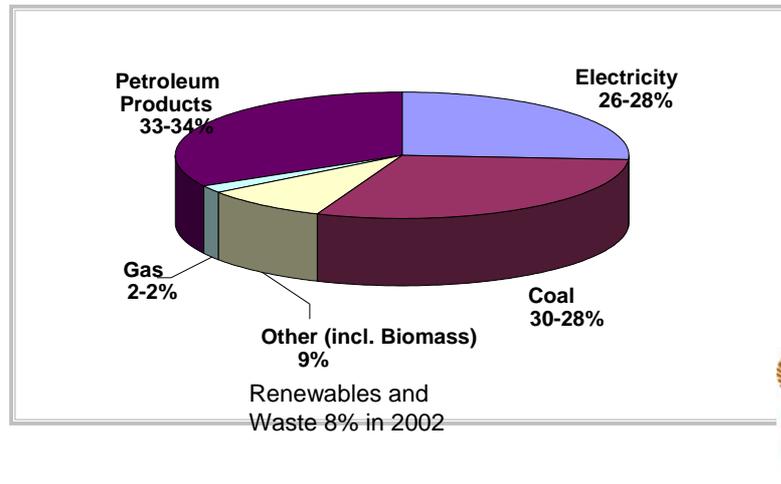
Baseline Statistics: Primary Energy Supply changes from 2001 to 2002



Sectoral usage changes from 2001 - 2002



Final energy use by carrier from 2001 to 2002



KEY CONSIDERATIONS FOR ENERGY

- Reduce the dependence on fossil fuels by energy efficiency, renewable energy, basa njengo magogo, new technologies
- Invest in clean coal production technologies including carbon sequestration and storage and or reusing CO₂
- Ensure that there is a balance between private sector investments in the energy sector
- Renewable energy generation and coal-based generation, reduce energy intensity, incentivise alternative energy generation
- Transport of goods to move to rail
- 50% of CO₂ is in the buildings

GLOBAL SUSTAINABLE DEVELOPMENT

- The UN Commission for Sustainable Development had its 14th session in New York in May 2006
- **Energy for Sustainable Development:**
 - Access to energy for the poor and poverty alleviation in developing countries, participation of all stakeholders in long-term energy strategies in support of sustainable development, the impacts of increasing energy prices; and the need for energy diversification; and incentives for providing clean energy services



GLOBAL SUSTAINABLE DEVELOPMENT

- **Industrial Development:**
 - The need for industrial development in Africa, fossil fuel subsidies as barriers to the adoption of RE; the cost of advanced technologies; and deficiencies in developing countries' infrastructure
- **Air Pollution / Atmosphere:**
 - The harmful impact of air pollution on human health, and the importance of energy efficiency and renewable energy in reducing air pollution and GHG emissions



GLOBAL SUSTAINABLE DEVELOPMENT

•Climate Change:

- A long term, predictable policy framework to help countries move to be low carbon societies; adaptation to and mitigation of climate change for achieving sustainable development goals and the MDG's; and inter-linkages between the four themes to complement the efforts of the UNFCCC

•Cross cutting issues:

- A balanced and integrated treatment of themes, good governance, greater use of national sustainable development strategies; effectiveness of UN agencies operating in developing countries; and development cooperation and public private partnerships



GLOBAL SUSTAINABLE DEVELOPMENT

•Private Sector:

- Environmental performance as a competitive factor; small and medium sized enterprise financing for cleaner production methods; mobilising private sector resources; planning for the long life span of industrial plants and equipment, and sustainable consumption and production patterns

•Investment:

- Additional resources and more flexible and predictable aid flows to developing countries; and innovative financing mechanisms and technology transfer



ENERGY EFFICIENCY PROGRAMMES OF GOVERNMENT: PUBLIC BUILDINGS

- Savings in this sector could exceed 25%
- DME in the process to sign MOU with other line departments to employ an energy manager and include energy management in its policies
- Close cooperation with Dept of Public Works 145 000 government buildings
- SANS 204 standard for commercial buildings with SABS and the dti
- Unit standards for building audits and energy management
- Housing standard
- Eskom and NERSA: M&V and funding



ENERGY EFFICIENCY PROGRAMMES OF GOVERNMENT: INDUSTRY AND LARGE BUSINESS

- Savings in this sector could be as much as 50%
- Minister signed EE accord with 32 mining and industrial companies. Voluntary agreement to achieve targets
- A Technical Committee has been established with the assistance of NBI where process, progress and reporting mechanisms are being addressed
- 3 Industrial standards: AC motors, boilers and thermal insulation of pipes
- State Owned Enterprises requested to make EE part of their shareholders compact
- M&V Eskom, NERSA



ENERGY EFFICIENCY PROGRAMMES OF GOVERNMENT: RESIDENTIAL SECTOR

- Awareness raising, education and interchange of information on energy efficiency
- DME, Eskom and NERSA – Energy Efficiency Awareness Campaign with schools competitions, street theatre, special promotions and exhibitions, radio, TV and printed media
- Promotion of Renewable Energy that can replace the use of fossil fuels
- The development of more unit standards e.g. energy strategist for careers in energy efficiency
- The establishment of the Energy Efficiency Agency



CONCLUSION

- RSA is one of a few countries in the world with an Energy Efficiency Strategy and a Renewable Energy Strategy
- Integrated Energy Plan, National Integrated Resource Plan (electricity), Eskom, BHP Billiton, etc.
- Climate change is a real threat and we should do everything in our power to mitigate and adapt against it
- South Africa can make technology jumps in terms of the promotion of clean energy
- South Africa is on track with the world in terms of global sustainable development
- All the citizens of the global village will have to work together to accomplish these goals

