

# Energy Research in South Africa

## Energy NCP

Dr. Phindile C. Masangane

[phindilem@saneri.org.za](mailto:phindilem@saneri.org.za)

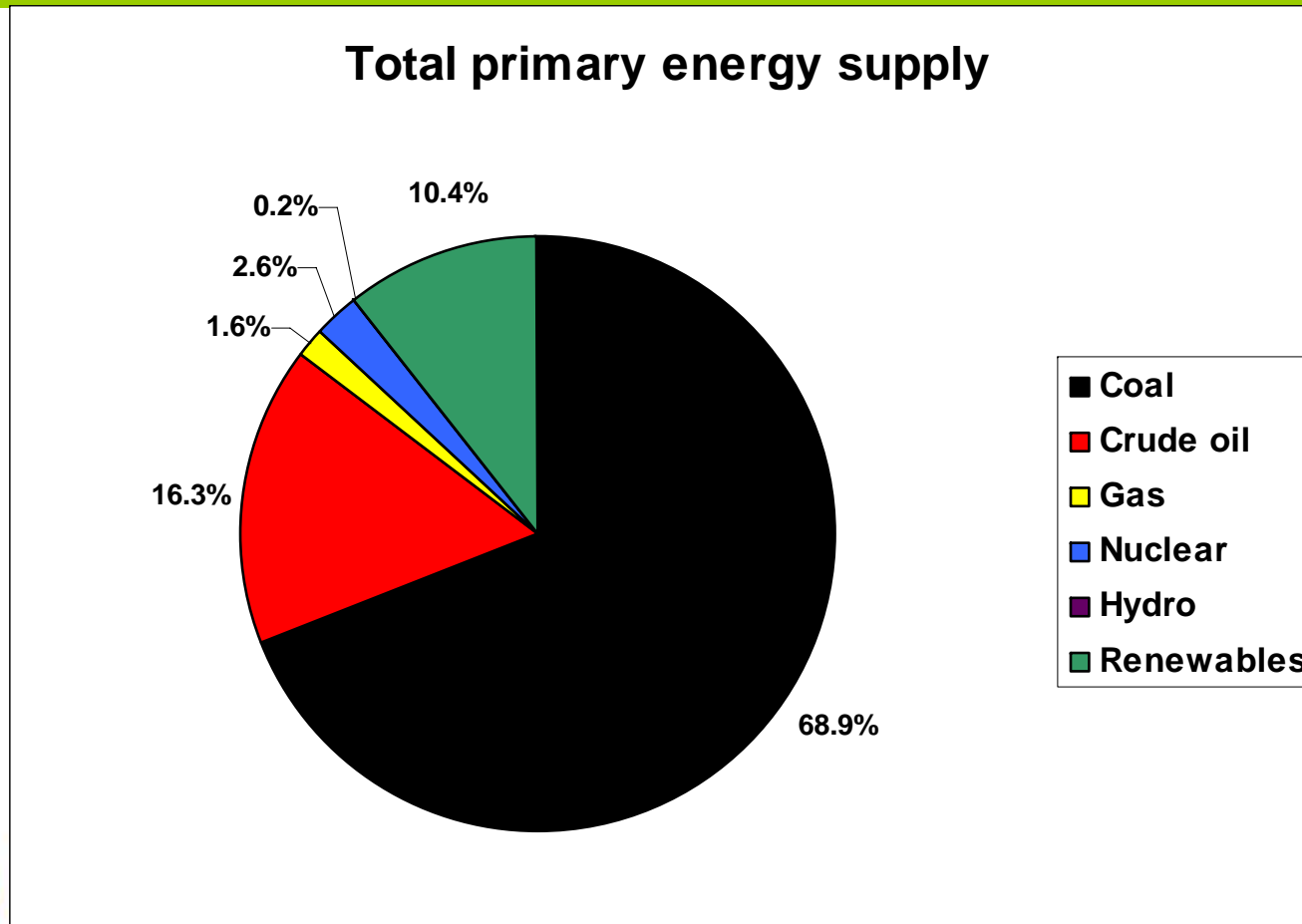


# Presentation Outline

- The SA Energy Mix
- Energy Policies in SA
- Drivers of PIER&D in SA
- SA Energy R&D Strategy
- Priority areas for International Cooperation



# The South Africa Energy Mix



Coal used for electricity generation as well as CTL process to supply 40% of SA liquid fuels demand

# Energy Policies in South Africa

- 2003 White Paper on Renewable Energy, has a target of 10,000 GWh contribution from RE to final energy consumption by 2013.
  - Progress in 2003 RE target to be reviewed this year, 2008
  - Process for introducing the SA feed-in-tarriff is advanced
- Energy Efficiency Strategy, 12% reduction in energy use by 2013.
- The Biofuels strategy has been finalised.
  - No use of food material as feedstock in 1<sup>st</sup> phase (ending 2013)
- The Department of Science & Technology has identified energy security as 1 of its 5 grand challenges in the 10 Year Innovation Plan.



# Drivers behind SA PIER&D

- Security of supply through primary mix diversification
- Electricity supply expansion programme
- Environmental issues: >75% of SA green house gas emissions result from energy generation and use
- Energy equity: 1/3 of SA population still does not have access to reliable sources of energy
- Retain our cheap electricity status, to attract localisation of manufacturing activities



# Current SA Energy R&D Themes

- Renewable Energy
- Alternative Energy (incl. nuclear and the development of the hydrogen economy)
- Energy Efficiency & DSM
- Understanding the impact of energy use on the environment
- The role of energy in stimulating socio-economic development
- Cleaner Fossil Fuel Development, (incl. clean coal technologies)
- Energy Infrastructure Optimisation
- Energy Planning and Modelling; and
- Energy Policy Research



# Priority Areas for international collaboration

## Clean Coal Technologies

- Establishing South Africa's potential geological storage sites for CO<sub>2</sub>
- Skills development for Carbon Sequestration Technologies

## RE Technologies

- 2<sup>nd</sup> Generation Biofuels
- Concentrating Solar Power (PV & Thermal)
- Resource Mapping for wind & ocean energy

## Energy Infrastructure

- Superconductors
- Solid State Transformers

# Funding

- Public Energy Research Funding through SANERI
  - Research Chairs Programme
    - SA would like to host international experts in key areas to help accelerate skills development
  - Centres of Excellency
  - Bursary Funding
    - SA is looking at offering SA students funds to study abroad for those areas where no faculty or infrastructure is yet in place locally e.g. carbon capture and storage
  - Research Project Funding
    - € equivalent of funding very small but can help SA participation in international projects.



# Examples of some flagship research projects in SA & targeted topics in the open call

- 2<sup>nd</sup> Generation Biofuels Research at Stellenbosch
  - Enzymes for biological treatment of cellulosic plant material
  - Mechanical treatment of plant biomass to make biofuels
- Biofuels characterization at Wits University
- Concentrating solar PV at NMMU
- Enerkey for the JET cities (partnership with Germany)
- Fuel Cell research at UCT, CSIR & Mintek
- CSP project
- Biofuels project



# Thank you!

*More information*  
***[www.esastap.org.za](http://www.esastap.org.za)***

***[phindilem@saneri.org.za](mailto:phindilem@saneri.org.za)***  
***[www.saneri.org.za](http://www.saneri.org.za)***

