

# DEPARTMENT OF ENERGY



## CLEAN ENERGY: NEW AND RENEWABLE ENERGY



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# PRESENTATION OUTLINE

1. Introduction
2. Drivers for Renewable Energy Development in SA
3. RE Governance Framework
4. RE Policy Framework
5. Strategies and Plans developed to support policy implementation
6. RE Legislative/Regulatory Framework
7. Incentives for stimulating the market
8. Other Government Initiatives that impact on the RE sector
9. Conclusion



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# INTRODUCTION

- The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996), as the supreme law in the land, requires government to establish a national energy policy to ensure that national energy resources are adequately tapped & delivered to cater for the needs of the nation.
- Energy is currently a national competency except in the case of electricity reticulation which is a function performed by local government.
- Notwithstanding, the 3 spheres (national, provincial and local governments) work very closely in order to ensure the achievement of national policy priorities and plans. Consequently, provinces are developing their own integrated or sustainable energy strategies.
- Overarching energy policies of the Republic of South Africa are:
  - the White Paper on the Energy Policy (Dec 1998);
  - The White Paper on Renewable Energy Policy (Nov 2003).
- Subsequent to these, Government has passed a number of regulations that govern the energy sector generally which also impact on the RE sector.



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# DRIVERS FOR RE DEVELOPMENT IN SA

- ❑ Widening access to energy services;
- ❑ Enhancing energy security and diversity of supply;
- ❑ Promoting local economic development;
- ❑ Creating employment and 'green economy' opportunities;
- ❑ Maximising use of national resources;
- ❑ Facilitating energy sector transformation; and
- ❑ Limiting future greenhouse gas emissions.



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# RE POLICY FRAMEWORK

- The Energy White Paper (EWP) of the Republic (1998) remains the overarching policy on energy in South Africa.
- It fosters Integrated resource planning (IRP) in the electricity sector.
- Provides for the development of renewable energy technologies (RETs) in the country
- On RE the policy is concerned with:
  - ensuring that **economically feasible technologies and applications** are implemented;
  - ensuring that **an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options; and**
  - addressing **constraints on the development of the renewable industry.**
- Effectively, there is a recognition that renewables are energy sources in their own right therefore cannot be limited to small-scale and remote applications, and that RETs have significant medium and long-term commercial potential.



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# RE POLICY FRAMEWORK

- Renewable Energy White Paper (2003) goes further to articulate government's goal on RE. It sets a target of 10,000 GWh ((or 4%) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass (including landfill gas), wind, solar and small-scale hydro.
  - The renewable energy is to be utilised for power generation and non-electric technologies such as solar water heating and bio-fuels.
- This RE policy document is being reviewed to propose medium to long terms targets.
- At this stage, a draft revised policy document has been produced and is now being consulted with government stakeholders before it is released for public comments.



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# STRATEGIES & PLANS DEVELOPED TO SUPPORT POLICY IMPLEMENTATION

## Renewable Energy Framework (2008)

- Produced to guide implementation of the policy. The RE framework split the 2013 renewable energy target into 2 (60% electricity and 40% non-electric services i.e. solar water heating and biofuels).
- It clarified that both Eskom and Independent Power Producers (IPPs) are expected to assist Government in meeting the 2013 target. However, more weight was given to IPPs as part of Government's commitment to transform the market.
- A target subsequently set for Solar Water Heating is 1 mil units by 2014

## Integrated Resource Planning (IRP):

- There was a determination regarding the IRP 1 and New Generation Capacity (Gazette No. No.32898, 29 January 2010) providing for
  - 1 025 MW of renewable based electricity generation by 2013 to be financed through NERSA's multi-year price determination.
  - IRP 2010 is under development and includes new allocations for RE



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# STRATEGIES & PLANS DEVELOPED TO SUPPORT POLICY IMPLEMENTATION

## Biofuels Industrial Strategy of South Africa (2007)

- Strategy objectives:
  - Rural economic development - promotion of farming in the under-utilised areas (i.e. provide demand to better enable emerging farmer development)
  - Address poverty issues and economic development in rural areas
  - Job creation, sustainable development and BEE facilitation (as per the Liquid Fuels Charter)
  - Contribute to RE target (10 000 GWh RE contribution to final consumption by 2013)
  - Contribute towards reduction of transport sector emissions
- Pronounced targets :
  - 2% biofuels penetration by 2013 c.a. 400 million litres based on 2005 consumption figures. Main focus is on ethanol and biodiesel production and use.
- Prohibited feedstocks:
  - Maize & Jatropha
- Manufacturing plants' incentives:
  - Conditional to meeting the Licensing Criteria
  - Biodiesel: 50% fuel tax exemption & Bioethanol: 100% fuel tax exemption
- Strategy review – expected in 2013 at the end of Pilot Phase



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# STRATEGIES & PLANS DEVELOPED TO SUPPORT POLICY IMPLEMENTATION

- The National SWH Programme to be funded through the fiscus (direct subsidies from government) and electricity tariffs (electricity users) has both Demand Side Management & socio-economic objectives.
- It seeks to reduce energy consumption by installing quality solar water heating systems in residential, commercial and industrial areas; For example
  - A system in middle/upper income sector reduces peak by 0.59 to 0.625 kW, and between 1600 to 2500 kWh per annum dependent on region, number occupants and system size.
  - A system in a low income home that is electrified reduces peak between 0.29 and 0.35 kW, and between 1100 and 1400 kWh per annum dependent on region, number occupants and system size.
- Defer further building of another power station (other than the planned ones);
- Contribute towards SA's Renewable Energy targets (2013)
- Contribute towards socio-economic imperatives (e.g. job creation, improved livelihoods, service delivery, etc.).



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# STRATEGIES & PLANS DEVELOPED TO SUPPORT POLICY IMPLEMENTATION

## The Working for Energy Programme

- Basic principle behind the programme is to develop & implement energy programme aligned with working for water & other related programmes
- Focus is on labour intensive options
- Opportunities will be offered to previously marginalized individuals & groups
- Identified projects include:
  - Biomass from invasive alien plants & bush encroachments
  - Biogas for rural energy access
  - Commercial biogas: generation from waste
  - Biogas from municipal waste
  - Biofuels development & implementation in rural applications
  - Small scale co-generation facilities
  - Energy audits & energy management planning for schools, homes & businesses
  - Development of biomass ceiling materials
- To be funded through fiscus and other external means



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# RENEWABLE ENERGY GOVERNANCE FRAMEWORK

- These are segregated according to what is directly within the mandate of the department of Energy
  - ✓ Petroleum Products Amendment Act, 2003 (Act No. 58 of 2003)
  - ✓ National Energy Regulator Act, 2004 (Act No. 40 of 2004)
  - ✓ Electricity Regulation Act, 2006 (Act No. 04 of 2006) and the Electricity Regulation Amendment Act, 2007 (Act No. 28 of 2007)
  - ✓ Biofuels Industrial Strategy (December 2007)
  - ✓ Energy Act, 2008 (Act No. 34 of 2008)
  - ✓ Renewable Energy Framework (2008)
  - ✓ Regulation on New Generation Capacity (August 2009)
  - ✓ Renewable Energy Feed-in Tariffs: Phases I & II (2009)
  - ✓ Integrated Resource Plan 1 (January 2010)
- And others within government but driven outside the Department of Energy. These are equally important because while energy impacts on other sectors it is also impacted upon by developments in other sectors. For example,
  - climate change policy (under development) including the Long-Term Mitigation Scenarios (2007) and
  - Industrial Policy Action Plan for 2010/11 – 2012/13 (February 2008)



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# RE LEGISLATIVE /REGULATORY FRAMEWORK

- Energy Act:
  - This is the primary legislative instrument that governs the evolution and transformation of the South African energy economy.
  - It seeks to ensure that diverse energy resources are available in sustainable quantities and at affordable prices to the South African economy in support of economic growth and poverty alleviation. In this instance, renewables have an enormous role to play.
- Petroleum Products Amendment Act:
  - Created a framework for the establishment of a licensing regime in the liquid fuels industry (including biofuels).
- Electricity Regulation Act as Amended:
  - One of the objectives of this Act is to “promote the use of diverse energy sources and energy efficiency”.
  - It has a provision for new generation capacity which states “The Minister may, in consultation with the Regulator determine
    - that new generation capacity is needed to ensure the continued uninterrupted supply of electricity.
    - the types of energy sources from which electricity must be generated, and the percentages of electricity that must be generated from such sources.”



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# RE LEGISLATIVE /REGULATORY FRAMEWORK (2)

## Electricity Regulations on New Generation Capacity:

- These regulations apply to all types of generation technology including RE generation and are aimed at, among other things, regulating entry by a buyer and an IPP into a power purchase agreement .
- According to s7 (1) of these regulations, “the Minister may determine that the REFIT programme must be used to meet the required new generation capacity
  - In line with the determination by the Minister under section 34 of the Act, the buyer must purchase all the RE generation & cogeneration capacity procured in terms of regulation 7.”

## National Energy Regulator Act:

- establishes a single regulator, the National Energy Regulator of South Africa (NERSA), to regulate the electricity, piped gas and petroleum pipeline industries in terms of the Electricity Regulation Act, 2006 (Act No. 4 of 2006), Gas Act, 2001 (Act No. 48 of 2001) and Petroleum Pipelines Act, 2003 (Act No. 60 of 2003).



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# INCENTIVES FOR STIMULATING THE MARKET

- **REFIT I & II (2009):**

- Government saw a need to establish an appropriate market mechanism in order to contribute towards the attainment of the 2013 RE target, socio-economic and environmentally sustainable growth as well as to stimulate the RE industry in SA.
- Of the available financing mechanisms, the REFIT was the most preferred option for scaling up investment in the sector and a process of developing this mechanism was initiated in June 2007.
- Approved tariffs for REFIT I & II were subsequently published by the National Energy Regulator of South Africa (NERSA) in March 2009 and October 2009 respectively.
- These tariffs which have been widely perceived to be attractive are based on the Levelised Costs of Electricity (LCOE).
- The term for the REFIT power purchase agreement is 20 years
- The published REFITs catalysed local and international private sector interest to invest in RE on a massive scale



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# INCENTIVES FOR STIMULATING THE MARKET

- **REFIT** qualifying technologies as well as the approved tariffs (**Phases I & II**)
- A standard PPA aimed at facilitating these RETs is being finalised

Technology	Unit	Refit
Landfill gas	R/kWh	0.90
Small Hydro	R/kWh	0.94
Wind	R/kWh	1.25
Concentrated solar (parabolic trough)	R/kWh	2.10
Biogas	R/kWh	0.96
Biomass solid	R/kWh	1.18
CSP Tower with storage of 6hrs/day	R/kWh	2.31
CSP Trough without storage	R/kWh	3.14
Large-scale grid connected PV systems ( $\geq 1$ MW)	R/kWh	3.94

energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# OTHER GOVERNMENT INITIATIVES THAT IMPACT ON THE RE SECTOR (1)

## Industrial Policy Action Plan driven by Trade and Industry (the dti):

- Key labour-absorbing industries (incl. biofuels & the “green/energy-saving industries”) have been identified to drive industrialisation
- Various key action programmes selected which include:
  - Developing and strengthening the South African National Standards to support the creation/resuscitation of specific industries such as solar water heaters, biofuels, wind energy turbines, etc.
- Government plans to:
  - develop a phased approach to SWH production to increase local market size and allow sufficient lead times for manufacturers to up-scale. Aim is to increase installations from 35,000 units per annum to 250,000 units per annum over the next three years & increase manufacturing from 20,000 units per annum to 200,000 units per annum.
  - Set up a plant to demonstrate viability of Concentrated Solar Thermal as a major RE generation source & subsequently unpack rollout and manufacturing opportunities.
  - Develop a wind energy generation strategy & action plan. A pre-feasibility has been completed.
  - Construct a R4 billion investment in a biodiesel refinery for exports and imports as well as replacement of imports of animal feed-grade protein concentrates.



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# OTHER GOVERNMENT INITIATIVES THAT IMPACT ON THE RE SECTOR (2)

- Government commitment to reduce carbon emissions has given further impetus to RE development
- Long-Term Mitigation Scenarios (LTMS):
  - The LTMS investigates two scenarios, namely, “Growth Without Constraints” and “Required by Science”.
  - The “**Required by Science Scenario**” sees a SA in 2050 vastly different to the one we know today. New technologies dominate the electricity generation and transport sectors, and the renewable and nuclear technologies are taken up much earlier, and at a much larger scale.
  - It is assumed that large-scale investment in new technologies across the globe will have substantially reduced the unit costs of technologies, for example renewables.
  - Energy supply sees a move away from coal-fired electricity, with renewables, nuclear and cleaner coal each providing 27% of electricity generated by 2050.
  - The “**Growth Without Constraints Scenario**” sees very few renewables entering the electricity mix. No electricity is generated from solar, thermal, or wind, with the only significant addition being 70 MW of landfill gas.



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# CONCLUSION

Some ongoing policy developments and other related processes

- Renewable Energy White Paper - draft revised policy document under consultation
- A Climate Change Policy - draft policy under development
- An Integrated Energy Plan - planning at initial stages
- The IRP 2010 - A 20 year (2010 – 2030) draft plan, which takes IRP1 into consideration, has now been developed and is out for public comments.
- New Generation Capacity Regulations - draft regulations to be released for public comments soon
- Independent System & Market Operator Bill - draft Bill developed and now taken through internal government processes
- REFIT Procurement Documents - These will be finalised once a Transactional Advisor has been appointed.
- DTI's New Building & Home Upgrades Regulations - will mandate that a certain percentage of a households hot water demand be met by using non-conventional energy sources (e.g. SWHs, Heat Pumps, etc.)



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

# CONCLUSION

- Increasing concerns in relation to carbon emissions and climate change will have a profound impact on our economic landscape, introducing both threats and opportunities.
- It is for this reason that SA is determined to move with global trends regarding the deployment of clean energy technologies & where possible, become a leader in the market within sub Saharan Africa
- To this end, national targets have been set for RE, implementation strategies and plans are either developed or being developed
- There is active involvement by government & state owned enterprises in facilitating implementation – e.g. SWH
- Various incentives are on offer to stimulate the market e.g. REFIT, capital subsidies, rebates
- International and local partnerships essential for fast tracking the large scale implementation of the renewable energy programme in South Africa, in order to realise the diverse benefits inherent in this sector e.g. jobs, new industries, secure energy supply.



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA



**THANK YOU...**

[nomawethu.qase@energy.gov.za](mailto:nomawethu.qase@energy.gov.za)



**energy**

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA