



# Department of Energy

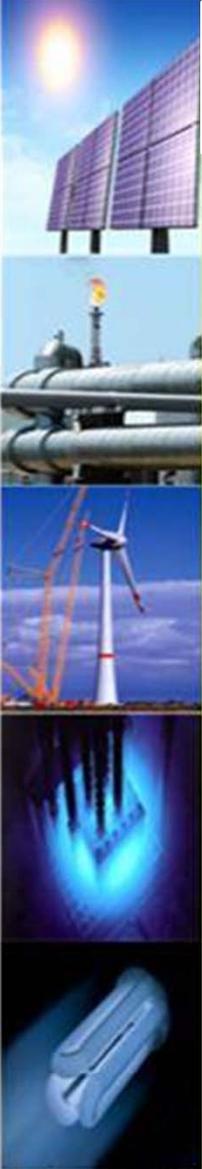
## SOUTH AFRICAN ENERGY SECTOR

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# Presenting the South African Energy Sector

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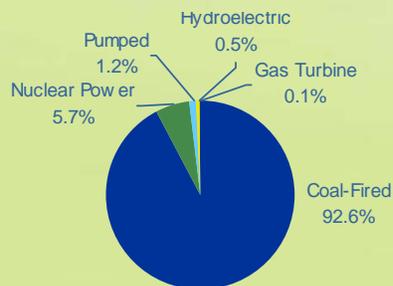
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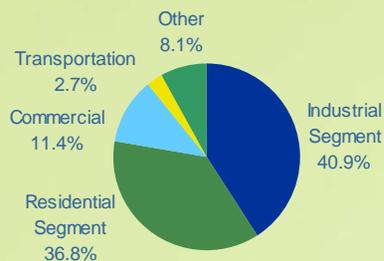
# Overview of the South African Energy Sector

## Sources of power

### Electricity production



### Electricity consumption



### Overview

- Electricity market grew by \$1.4bn in 2009 to reach \$5.6bn
- Electricity generation dominated by state-owned power company Eskom, which currently produces over 96.7% of the power used in the country
- Eskom has a current nominal installed capacity of 44,175MW
- Government addressing electricity supply issues with Eskom and Independent Power Producers (“IPPs”)
- South Africa needs over 40,000 MW new generation capacity by 2025
- Eskom is part of Southern African Power Pool, a group of utilities in the region aiming to create a common market for electricity in the region

### Transmission and Distribution Overview

- Currently, the transmission of electricity in South Africa is undertaken by Eskom
  - The company has over 28,000km of transmission lines spanning the entire country
- Electricity distribution is the final stage in the delivery of electricity to end users, currently undertaken by Eskom, together with 187 municipalities



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# New and Renewable Energy

- SA has a relatively infant but growing renewable energy industry.
- Renewable energy will contribute a total of 18.2 GW by 2030 (about 42% of the new build):
  - Wind – 8.4 GW
  - Solar PV – 8.4 GW
  - CSP – 1 GW
  - Other – 0.4 GW
- Minister made a determination for procurement of 3,625 MW across different technologies.
- RE Independent Power Producers were invited to submit bids.

*“Government is committed to diversifying its energy mix and this include the introduction of renewable energy at a large scale”*



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# New and Renewable Energy (cont'd)

	Allocation to Preferred Bidders: Window 1		Allocation per Determination Still Available		MW allocation per Determination
	MW	Percentage	MW	Percentage	
Solar PV	631.53	43.6%	818.47	56.4%	1450.00
Solar CSP	150.00	75.0%	50.00	25.0%	200.00
Wind	633.99	34.3%	1216.01	65.7%	1850.00
Biomass	0.00	0.0%	12.50	100.0%	12.50
Biogas	0.00	0.0%	12.50	100.0%	12.50
Landfill gas	0.00	0.0%	25.00	100.0%	25.00
Small Hydro	0.00	0.0%	75.00	100.0%	75.00
<b>Total MW</b>	<b>1415.52</b>	<b>39.0%</b>	<b>2209.48</b>	<b>61.0%</b>	<b>3625.00</b>
Total Capacity - Bids Received	<b>2127.66</b>				
Percentage Preferred Bidders	66.5%				
Number of Passing Bids	28				



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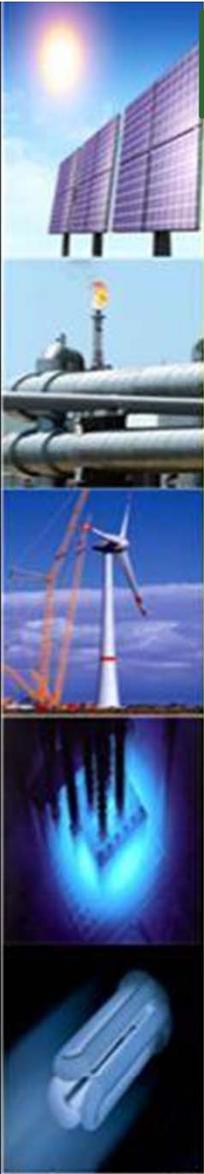
## Natural Gas

- South Africa has very limited natural gas resources.
- Natural gas accounts for 3% of energy consumption.
- Awaiting outcome of the assessment of shale gas potential estimated to be approximately 485 trillion cubic feet by the USA Energy Information Administration.
- Petro SA efforts to source gas for its Gas-to-Liquids facility in Mossel Bay from other African Countries.
- IRP 2010 -2030 expects the imported gas to meet 6% of all new generation capacity and OCGTs to meet 8%



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# Clean Coal

- South Africa is committed to the management of efficient use of its coal through employment of Clean Coal Technologies such as Carbon Capture Storage (CCS) and the stabilization of CO<sub>2</sub> emissions.
- CCS development roadmap:
  - 2009 – Launch of the South African Centre for Carbon Capture and Storage under South Africa Energy Development Institute (SANEDI).
  - 2010 – Launch of Atlas on Geological Storage of in CO<sub>2</sub> South Africa.
  - 2011 – Regulatory Framework Development included in work plan.
  - 2016 – conduct a test injection experiment by end of 2016.
  - 2020 – commission a demonstration plant.
  - 2025 – commission a commercial scale plant.



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# Nuclear Programme

- Only one nuclear power station (Koeberg), a base-load station with a nominal installed capacity of 1,930 MW (c.5%).
  - Construction for the plant began in 1976 and full operations in 1985.
  - Produced 12,806 GWh electricity in year ended 31 March 2010.
- It is intended that nuclear will comprises 17% of South Africa's base load energy mix by 2030.
- 9,600 MW will be added by 2030.



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# Energy Efficiency Programmes

- Energy Efficiency target is to reduce final energy demand by 12% by 2015.
- Targeted sectors – industry and mining, power generation, commercial and public sector buildings, residential sector & transport sector.
- Industrial energy efficiency programme is underway and tax incentives and rebates are used to encourage sustainable energy sector development and energy use through efficient practices.
- Appliance labelling programme is currently underway – companies are encouraged to manufacture and sell appliances which are energy efficient i.e. Samsung and Phillips have already signed the voluntary accord and other companies are following suit.
- Implementing a fiscus programme where municipalities and Eskom are implementing energy efficiency technologies on streetlights, buildings and installation of Solar Water Geysers (1 million SWHs to be installed by 2015).



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# Incentives and Policies

## ➤ Incentives:

- Rebates for installation of energy efficiency and demand side management interventions.
- Tax credits for deploying energy efficiency interventions.
- Tax credits for investing in Green field projects.
- Government allocated R 20 billion to Industrial Development Corporation (IDC) to invest in Green Projects.

## ➤ Policies:

- Renewable Energy White Paper 2003.
- Energy Efficiency Strategy 2005.
- Regulations on Energy Savings Allowance 2011.
- An Integrated Resource Plan 2010 – 2030.
- New Generation Capacity Regulations 2009.

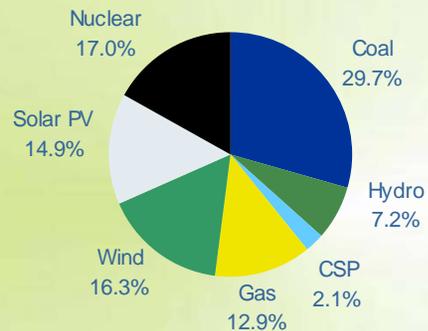


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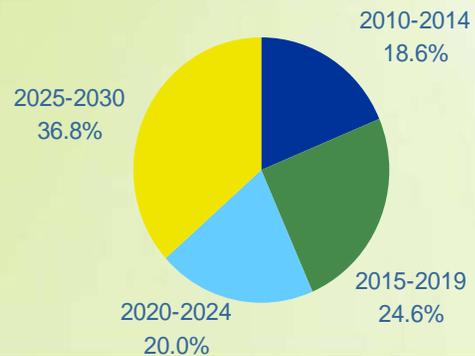
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# Summary of the Policy-Adjusted IRP Plans for South Africa's generation mix

## Planned New Generation Mix 2030<sup>(1)</sup>



## Time Schedule New Power Generation Building



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**THANK YOU....**



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