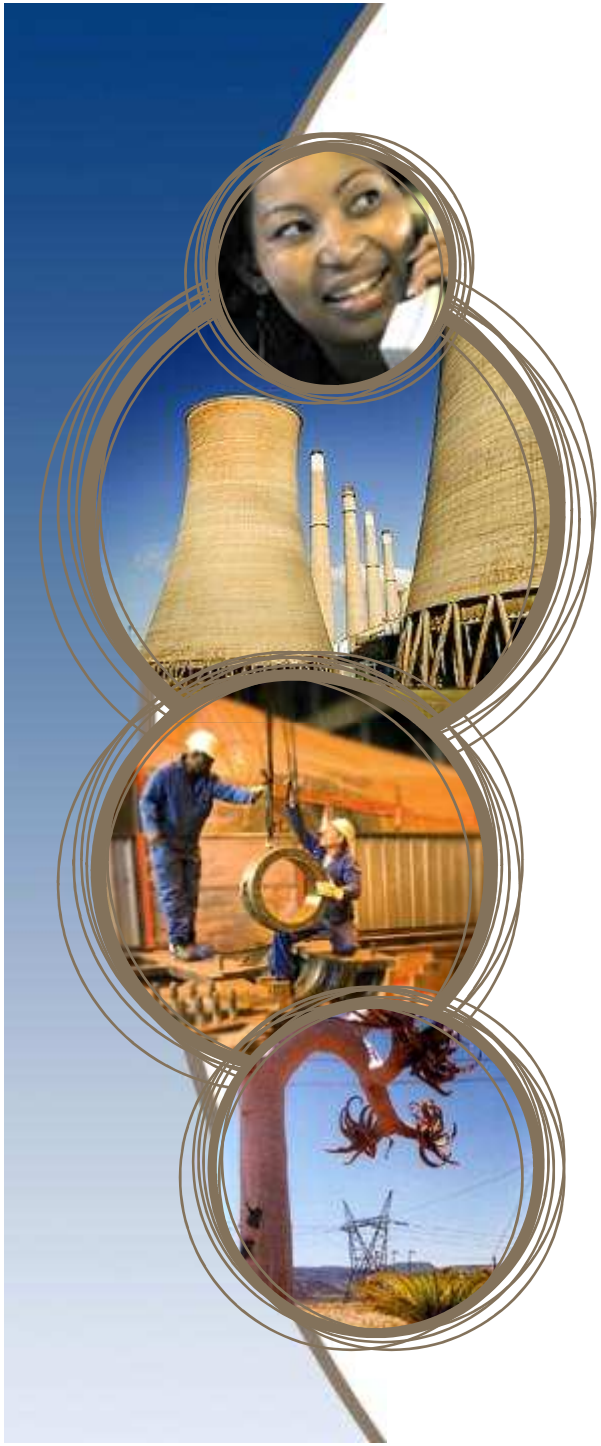


DURBAN INVEST

Presentation by Eskom

14 March 2011

Content

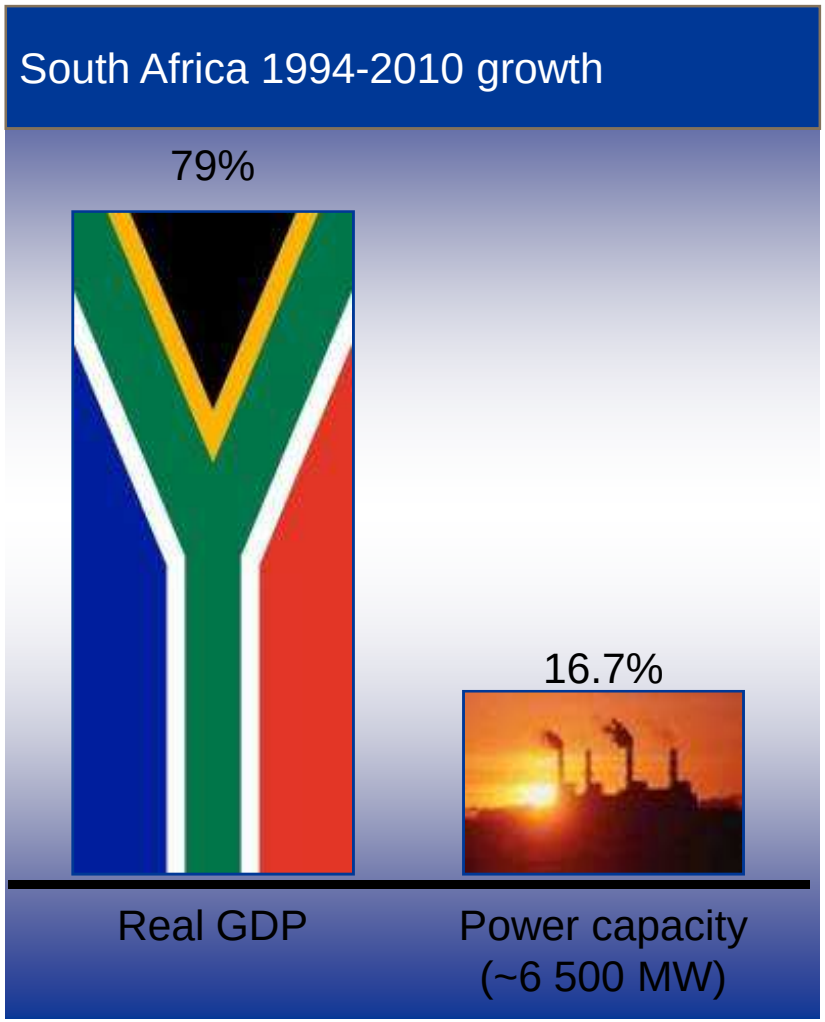
1. Brief overview of Eskom and its future positioning

2. Eskom Build program

3. Opportunities in SADC

4. Conclusion

The global challenge: To sustain growth and prosperity



This requires vast investments in power generation capacity; affordable and universal access to electricity; move to a cleaner future

Eskom purpose

To provide sustainable electricity solutions to grow the economy and improve the quality of life of the people of South Africa and the region

Eskom Generation Resources: Balance demand with Supply

Supply Side overview

- 27 operational power stations
- ~40,7GW of operational capacity
- Just over 80% coal-fired. Mix of nuclear, open cycle gas turbines, hydro and pumped storage plant in remaining 20%
- Imports of about 1500MW
- Returning 2 mothballed coal-fired stations, building 2 coal-fired and a pump storage station
- Country capacity of ~43,5GW

Eskom Power Stations

Demand Side overview

- 29% of South Africa's energy demand provided by electricity
- Forecast of about 37GW peak demand in 2010 and over 240TWhrs of energy demand in 2010/11
- Largest 138 customers consume nearly 40% of the energy
- Largest 40 000 customers consume nearly 75% of the energy
- Approximately 8 million customers consume about 20 to 25% of the energy

Consistent tight supply-demand balance with a very extended electricity transport system

Eskom & Transnet will invest significantly to strengthen the energy sector

New build programs
- Medupi
- Kusile
- Ingula
- Networks
- Gas
- Nuclear

> R 300bn

Growth of renewable energy
- Biomass
- Solar[2]
- Wind
- Waste

> R 7bn (2010-15)

Support solar geyser program
> R 3bn (2010-15)

Accelerating universal access
> R 15bn (2010-15)

* Funding still to be found

Strengthen existing asset base
- Boilers
- Turbines
- T&D networks
- IT

> R 40bn (2010-2015)

Support IPPs

R&D
- UCG

> R 500m

Growth related to mining
- Coal mining projects
- Water pipeline
- Road maintenance
- Majuba rail link (> R 4bn)
- Mpumalanga rail development
- Waterberg link

Electricity Infrastructure Investment Supports the New Growth Path

- Eskom will drive within the energy sector, the New Growth Path Initiative. This initiative is aimed at providing an economic policy framework for a labour intensive growth strategy
- Central to the development growth path is the enhancement of labour absorbing capacity of the economy, and connecting knowledge and innovation to the challenge of jobs and growth;
- With a young population (31% of population 14 years old or less) and a vast pool of workers South Africa has still a lot of room for growth.
- Eskom's new build project has to give effect to South African job creation objective , in:
  - Direct local construction activity and jobs
  - Local manufacturing
  - Local skills development
  - Local engineering capability

The Eskom build programme will have significant impact on local industry, skills, jobs, infrastructure and regional development

① Local content

>50% of local content directly benefiting the SA economy

② Local skills development

Rapid growth in SA's skills pool

③ Jobs

~40 000 jobs created, directly and indirectly

④ Infrastructure

Development of roads and railways

⑤ Regional development

Spend and invest-ment in local areas

In addition to the jobs created, 6 130 individuals are undergoing, or have completed, formal training (skills development)

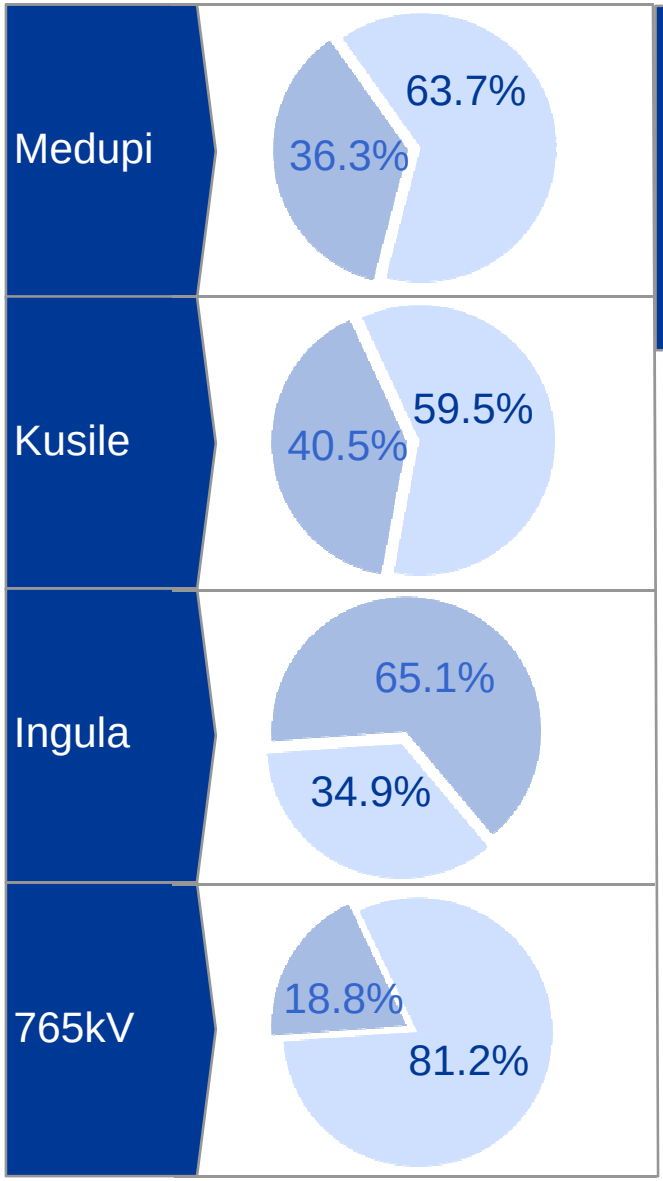
An integral part of an Eskom contract is a commitment by suppliers to invest in the training and development of the South African skills base

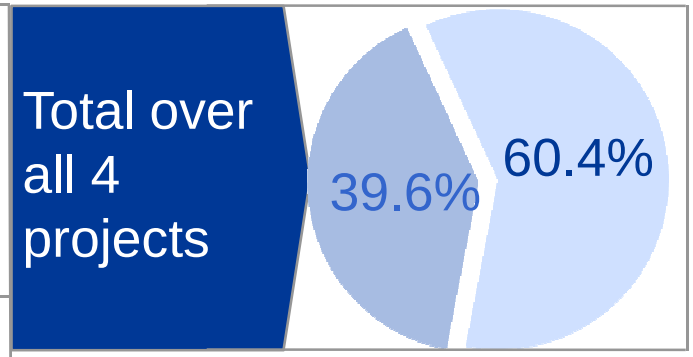
Area	Committed numbers	In training	Training completed
Medupi	2178	1299	284
Kusile	2234	792	626
Ingula	137	16	5
Power Delivery	1382		1002
Plant and Equipment	199	38	1137
Total	**6130**	**2145**	**3054**

Majority of training takes place in the following disciplines: coded welders, boilermakers, riggers, fitters, technicians, laboratory technicians and quantity surveyors

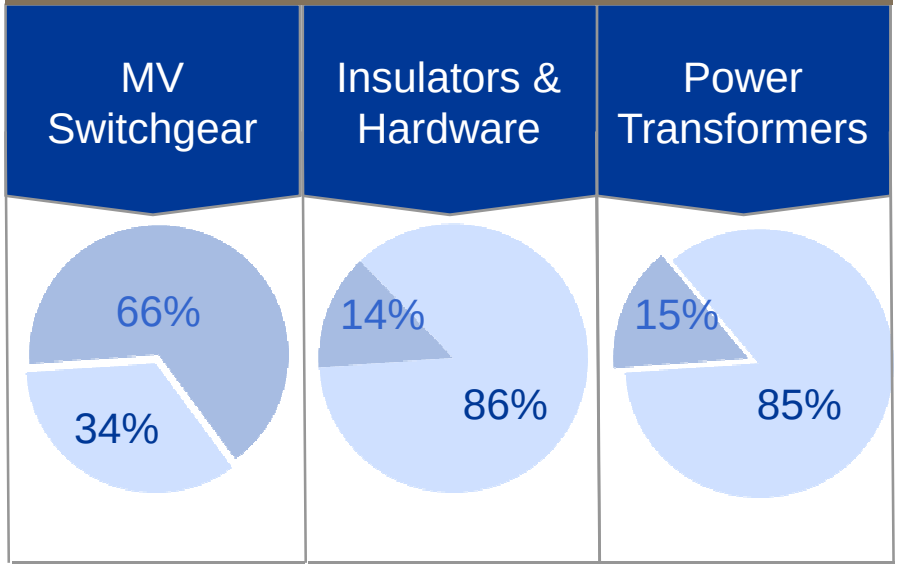
SOURCE: CSDP 4th quarter 2009 report, supplier reports

Across all major builds, Eskom's localisation content in most cases exceeds 50% as at the end of 2009/2010 (localisation)





Since inception of Competitive Supplier Development Programme (CSDP) some of the following fleet procurement and localisation was achieved



New local supply chains for parts have already been created, benefiting local businesses and addressing SA's industrialisation agenda (industrialisation)

Hitachi is investing ~R900m in facilities and training in South Africa

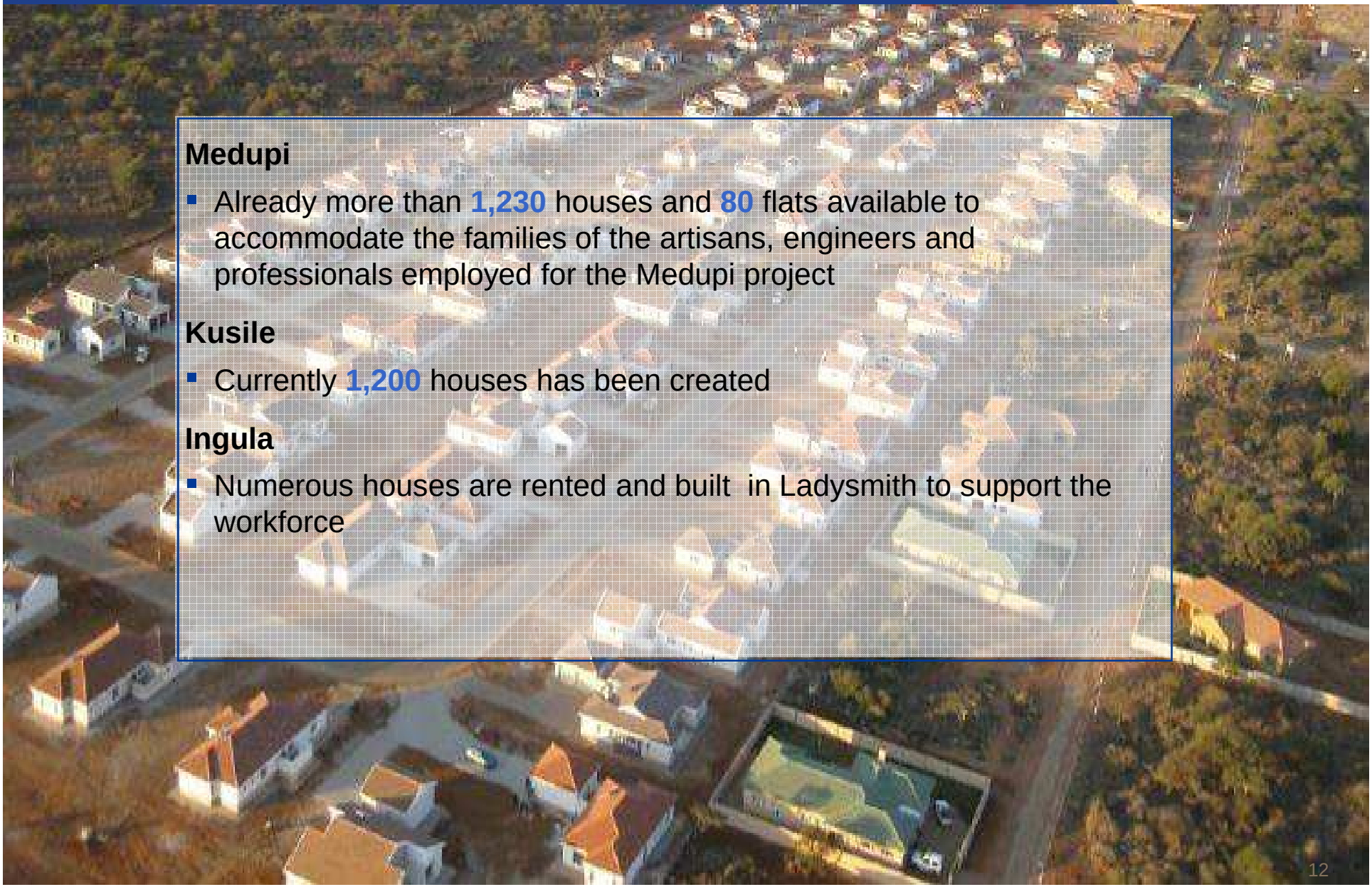
Actom committed to an investment of R84m in local facilities

Sulzer SA, a local manufacturer of feed pumps, has grown significantly

Pfisterer investment of R25m in plant in KZN

Powertech committed an investment of R22m

Significant housing is being constructed in towns close to the building sites



Medupi

- Already more than **1,230** houses and **80** flats available to accommodate the families of the artisans, engineers and professionals employed for the Medupi project

Kusile

- Currently **1,200** houses has been created

Ingula

- Numerous houses are rented and built in Ladysmith to support the workforce

Eskom's Medupi, Kusile and Ingula power stations alone are projected to create ~40 000 direct and indirect jobs that will impact ~160 000 people in total (employment)

Direct	Medupi	Kusile	Ingula
On site construction	8 300	7 200	4 100
Supporting project staff	2 200	2 000	300
Coal mine expansion	2 100	2 000	
Transmission expansion	2 700	200	
Crocodile River expansion	3 000		
Ongoing operations	700	600	100
Subtotal	19 000	11 800	4 500
Indirect			
Social services + local business	1 700	1 700	1 100
Total employed	20 700	13 500	5 600
x family multiplier (4/family)	x 4		
People directly impacted by Medupi, Kusile & Ingula	~160 000		

Other projects such as 765kV and Return To Service (RTS) provide ~ 11 000 direct employment opportunities during construction and a further ~1 700 during operation

SOURCE: Eskom CSDP 1Q 2009 report, published in June 2009

Kusile and Medupi will be the third and fourth largest coal-fired power plant in the world, respectively,…

Higher than Sandton City Towers

~113m

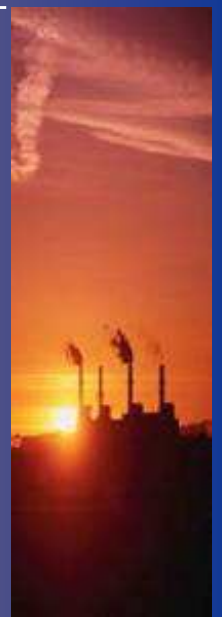
Coal-fired power plants (MW)

1. Taichung (Taiwan, 7 100[1])
2. Waigaoqiao (China, 5 000)
3. Kusile (South Africa, 4 800)
4. Medupi (South Africa, 4 764)
5. Zouxian (China, 4 540)
6. Kendal (South Africa, 4 374)
7. …
8. …

4x more investment than Gautrain

4x

GAUTRAIN



Medupi

1 = 5 500 existing + 1 600 planned

…requiring huge amounts of materials and large transport effort in their construction

Characteristics of Medupi/ Kusile

Concrete…

- **… to build 4 Greenpoint stadiums** will be used per plant

Parts and cement…

- **…weighing the same as 14 super tankers** will be transported over land

Steel…

- **…to build one of the world's tallest buildings** (The Burj Khalifa) will be used

Transport…

- **…**of materials to site is equivalent to at least **40 times around the world**

Opportunities in the Southern African Development Community (SADC)

Top 20 Electricity Generation Countries in Africa

Eskom

Electricity data for selected African countries (2009)

Rank	Country	Electricity Generation (Billion kWh)	Percent of Total (Africa)	% of World Generation	Per Capita Generation (kWh per person per year)	Population (Million)	% of African Population
1	South Africa	240.3	42.43%	1.08%	4904	49	4.9%
2	Egypt	118.4	20.91%	0.53%	1470	80.5	8.1%
3	Algeria	34.98	6.18%	0.16%	1013	34.5	3.5%
4	Libya	23.98	4.23%	0.11%	3746	6.4	0.6%
5	Nigeria	21.92	3.87%	0.10%	144	152.2	15.2%
6	Morocco	19.78	3.49%	0.09%	625	31.6	3.2%
7	Mozambique	15.91	2.81%	0.07%	723	22	2.2%
8	Tunisia	11.08	1.96%	0.05%	1045	10.6	1.1%
9	Zambia	9.752	1.72%	0.04%	812	12	1.2%
10	Zimbabwe	8.89	1.57%	0.04%	759	11.7	1.2%
11	DRC	8.217	1.45%	0.04%	102	80	8.0%
12	Ghana	6.746	1.19%	0.03%	277	24.3	2.4%
13	Cameroon	5.601	0.99%	0.03%	291	19.2	1.9%
14	Kenya	5.223	0.92%	0.02%	130	40	4.0%
15	Sudan	4.341	0.77%	0.02%	103	41.9	4.2%
16	Tanzania	3.786	0.67%	0.02%	90	41.8	4.2%
17	Angola	3.722	0.66%	0.02%	286	13	1.3%
18	Ethiopia	3.46	0.61%	0.02%	39	88	8.8%
19	Mauritius	2.321	0.41%	0.01%	725	3.2	0.3%
20	Uganda	2.256	0.40%	0.01%	67	33.4	3.3%
Total		550.665	97.23%	2.47%	-	795.3	79.5%
→	Austria	61.9	2.0% (of EU-27)	0.03%	7505	8.21	1.6%

Austria in the EU as comparison

World energy outlook 2010 - IEA

African Electricity Overview

- The demand for primary energy in Africa is rapidly increasing with overall demand over 3% per annum with huge demand from mining and industrial clients
- This has resulted in severe pressure on existing infrastructure and hence large scale projects are currently underway
- South Africa leads in this regard with an expected >R 300billion to be invested in electricity projects over the next 7 years
- As in all continents the energy mix is dominated by oil, coal and gas and hence urgent steps are needed to become more sustainable and harness renewable resources in a larger scale

Top Indicators (Africa), 2005 - 2030

Key Continent Indicators (2005-2030) % Per Annum	
Electricity Demand Growth	3.1%
Coal Demand Growth	1.1%
Liquids Demand Growth	1.6%
Gas Demand Growth	3.5%
Nuclear Demand Growth	2.0%

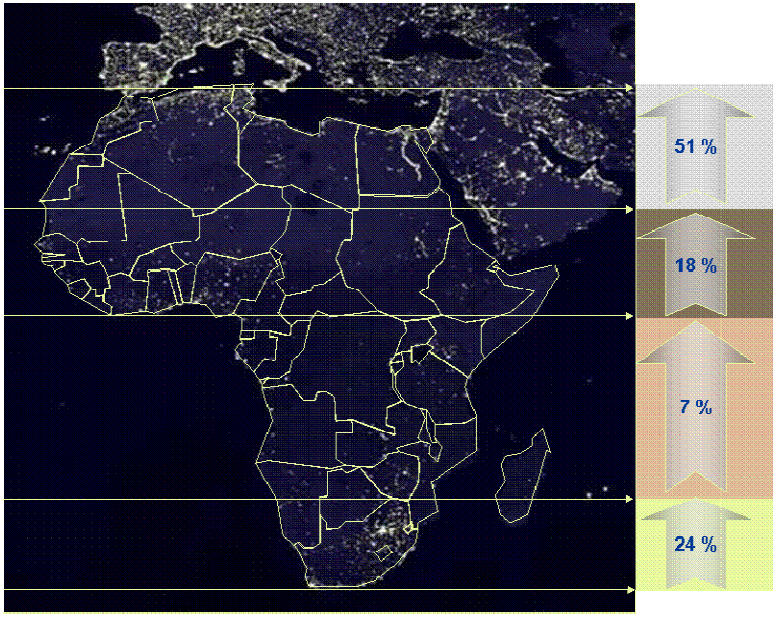
World energy outlook 2010 - IEA

Key Challenges Facing the African Electricity Industry

- **Policy Reform**
  - Often drives long term investments
  - Creates a level playing field for all players
  - Attract private capital into the industry
- **Investments and Funding**
  - About 75% of investments in the electricity industry between 1995 and 2008 in Africa was in North Africa (51%) and South Africa (24%)
  - International investors often places a high risk premium (mostly in excess of 30%) on investments
- **Availability of skills**
  - At some African utilities more than 30% of critical positions cannot be filled
  - Over the last 10 years a large numbers of public utility employees have moved to the private sector

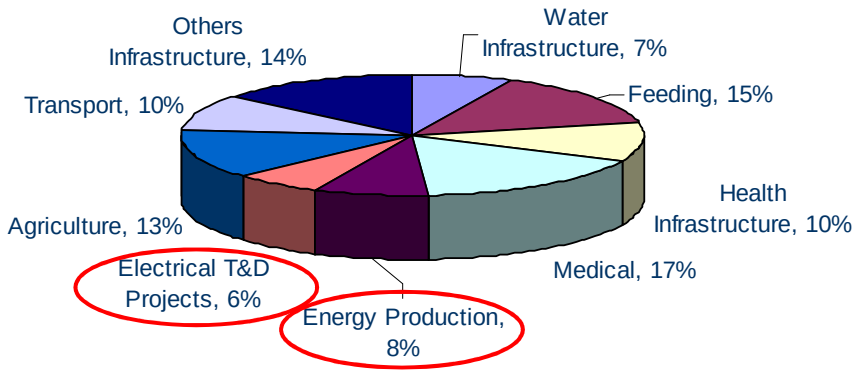
World energy outlook 2010 - IEA

Average Distribution of Investment (1995-2008)



Source: Frost & Sullivan: Photo - NASA

African Infrastructrure Loans Distribution



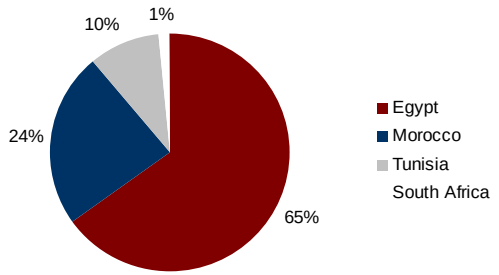
Key Challenges Facing the African Electricity Industry (cont.)

- **Sufficient Generation Capacity**
  - 9 out of 12 countries in the Southern African Power Pool cannot meet current Peak Demand and is dependent on electricity imports
- **Environmental sustainability**
  - The need for environmentally sustainable investment is driven from developed countries
  - However, the drive for renewable energy is taking shape across the continent
  - Examples include a very attractive feed-in tariff in South Africa and large scale wind investment in North Africa

SAPP Capacity and Demand (2009)

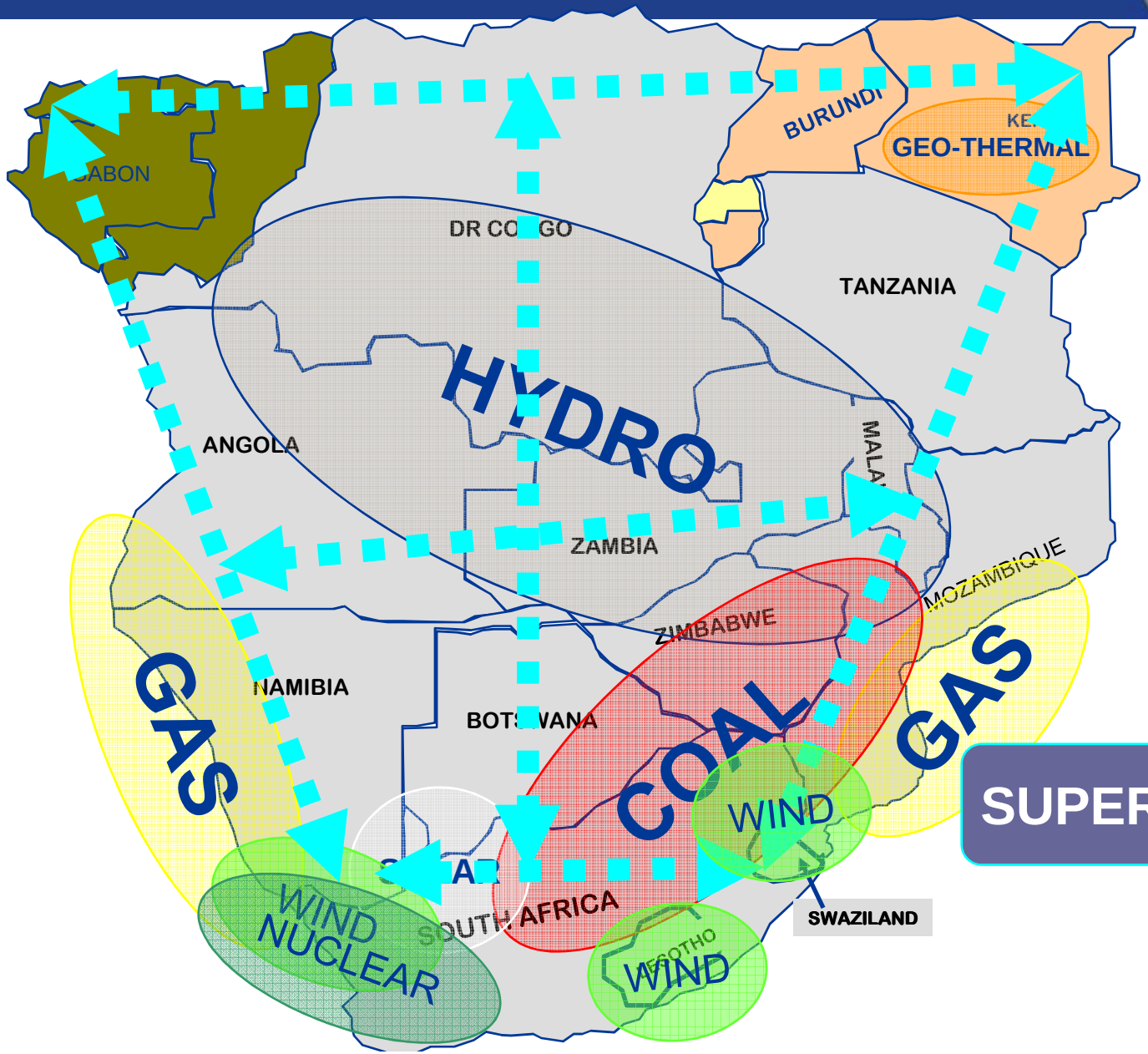
Country	Installed Capacity (MW)	Available Capacity (MW)	2009 Peak Demand (MW)
Angola	1187	930	668
Botswana	132	90	553
DRC	2442	1170	1,028
Lesotho	72	70	116
Malawi	287	267	260
Mozambique	233	174	435
Namibia	393	360	451
South Africa	44170	40503	35850
Swaziland	70.6	70	200
Tanzania	1008	680	705
Zambia	1812	1200	1483
Zimbabwe	2045	1080	1714
Total SAPP	55927	48649	43463
Total Interconnected	53445	46772	41830

Wind Turbine Market: Top Four Countries by Installed Wind Capacity (Africa), 2008



World energy outlook 2010 - IEA

Potential Energy Future – 2030!

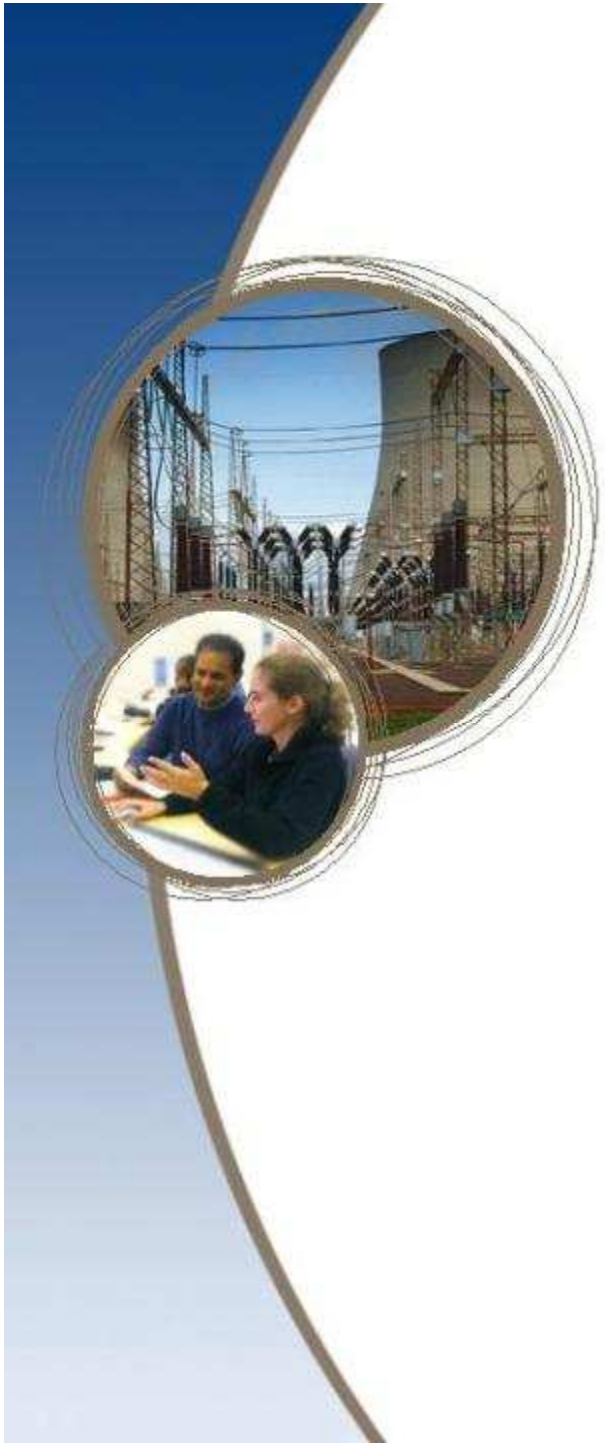


The SADC region offers significant avenues for growth and cleaner sources of power

Significant demand growth and constrained capacity represent an investment opportunity

Conclusion

- **Eskom has a clear strategic direction and is central to drive capacity expansion, whilst:**
  - **Maintaining competitiveness of the economy**
  - **Reducing energy intensity in the economy**
  - **Providing universal access to electricity**
  - **Driving job creation**
  - **Developing skills**
  - **Enhancing local manufacturing**
- **Keeping the lights on is a priority**
- **SA is creating a conducive environment for economic development. But SA cannot grow in isolation from the rest of the region.**
- **Eskom see immense opportunities in SADC.**



Thank you