

A Perspective on Eskom's Electrification Programme

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Infrastructure Development in South Africa



The global challenge: To sustain growth and prosperity

South Africa 1994-2010 growth

79%

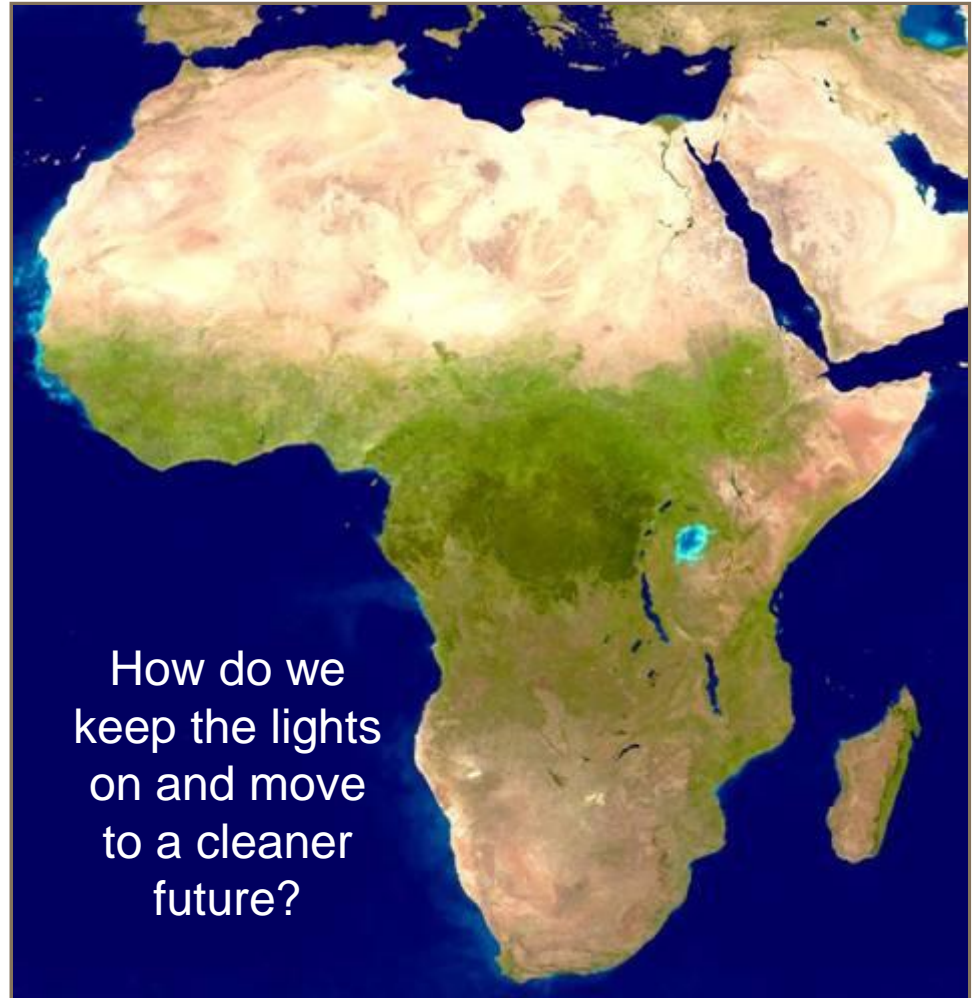


Real GDP

16.7%








Power capacity
(~6 500 MW)



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

Build programme with significant impact on industry, skills, jobs, infrastructure & regional development



Local content	Local skills development	Jobs	Infrastructure	Regional development
<p>Localisation content exceeds 50% across all major builds</p>	<p>Rapid growth in SA's skills pool</p>	<p>Major builds create ~40'000 direct and indirect jobs</p>	<p>Development of competitive, world-class technology</p>	<p>Spend & investment in local areas</p>
 <ul style="list-style-type: none"> • Transmission project achieves almost 80% of local content • Foreign OEMs committed to significant investments in local production and skill development 	 <ul style="list-style-type: none"> • 6'130 individuals currently undergoing training in build programme • Training in multiple technical disciplines (e.g. coded welders, boilermakers) 	 <ul style="list-style-type: none"> • Significant share of new positions will remain permanently on site • 160'000 people benefit indirectly from created jobs at construction sites 	 <ul style="list-style-type: none"> • Kusile & Medupi will be 3rd and 4th largest coal-fired power plant globally • Peripheral infrastructure will benefit from strong investments 	 <ul style="list-style-type: none"> • Already more than 1,230 houses and 80 flats available in Medupi • Construction and operation of plants will secure economic income in affected regions

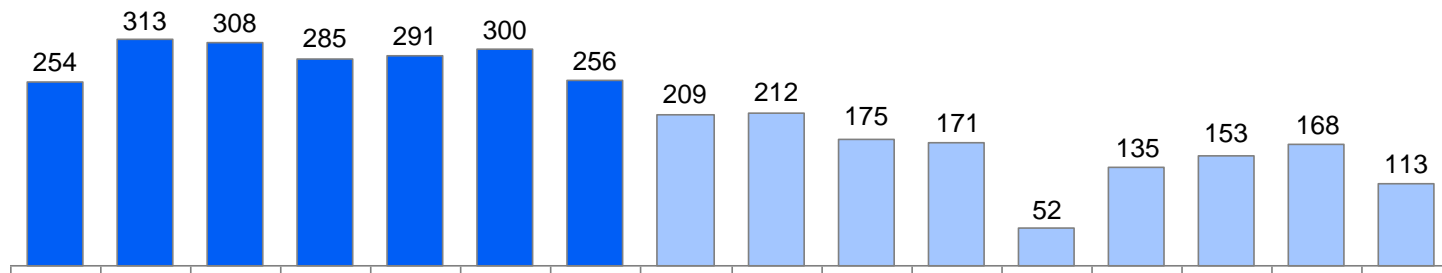


Eskom's Electrification Program

a subset of the overall infrastructure program

There have been two distinct eras of installation: pre-2000 and post-2000

Number of annual grid connections
Thousand



Cost per connection
'000 R
(2010 Rand)



Pre 2000

- Eskom exceeded the government's target of 1.75M connections between 1994 and 2000
- Connection every 30 seconds, pole every 10 seconds, 200M cable every minute
- Connection costs steadily came down

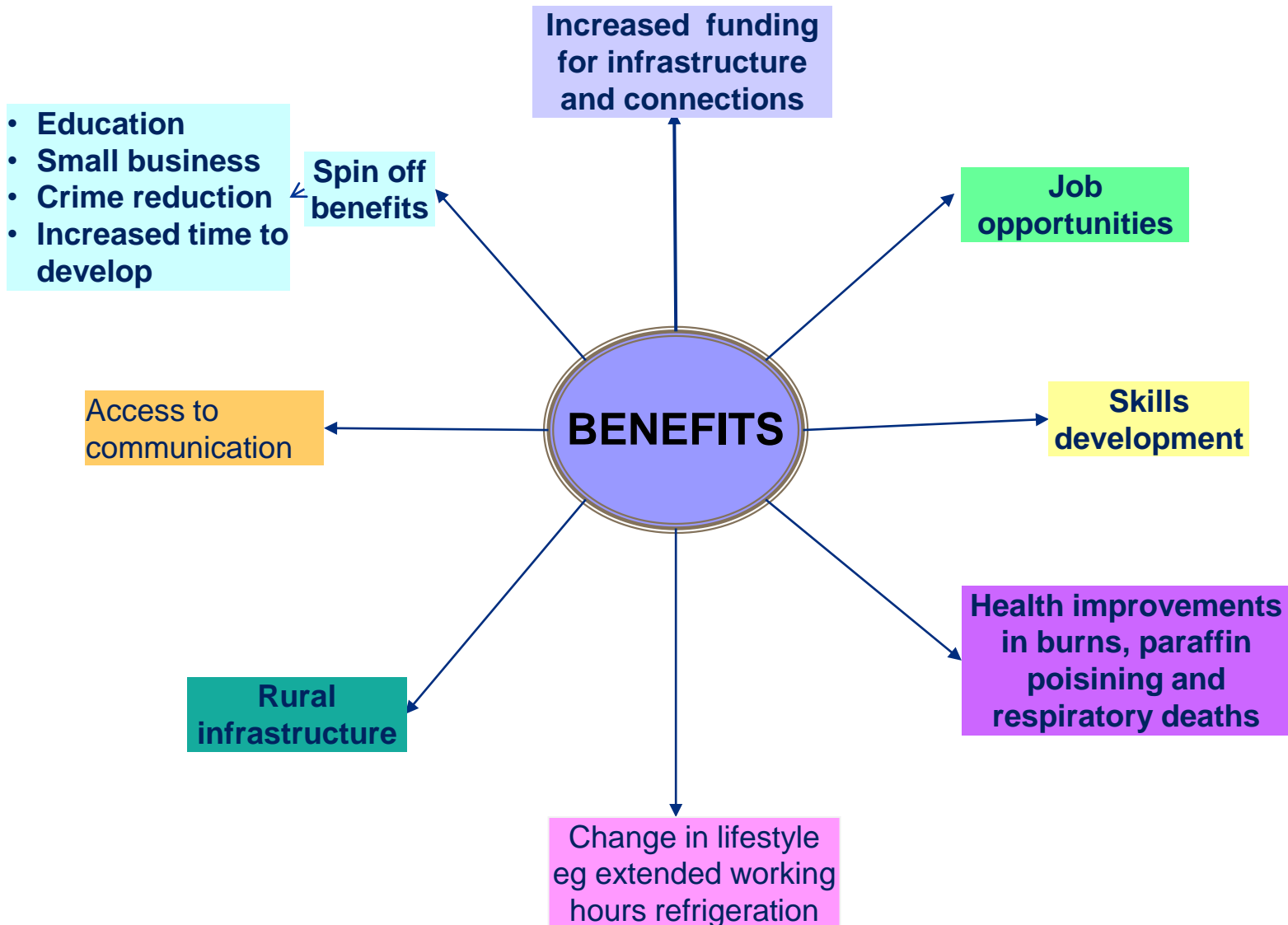
Post 2000

- The numbers of annual connections by Eskom have dropped, partly due to
 - Funding , ability to re-allocate money between municipalities
 - Increased investment in infrastructure
 - Ability to execute



Anticipated and realised benefits of electrification to date

Anticipated benefits of electrification programme



The following energy usage trends have emerged according to census data for houses already electrified since 1995:

Lighting increased from 60-80%

Cooking increased from 55-65%

Using paraffin or wood for cooking decreased from 40% to 30%

A positive trend which indicates a decrease in the use of fossil fuels in the home

But the data quality and capturing needs to be improved. This is a key lesson for the next wave of electrification.

Establishing a Contractors Academy



Emerging contractor training programme mainly in the Distribution Division

Trained 245 out 248 contractors

- 115 (47%) are youth
- 76 (31%) are female

20 Graduating Groups

Groups are currently in the Limpopo, KZN, Eastern Cape and Western Cape provinces

Planning for all provinces over next 3 years

Safety performance of the contractors is a key concern and is the focus of an intense Eskom systems-wide improvement plan

EPWP aims at creating **5 million jobs** over the next **5 years**, especially in infrastructure

A National Government Programme that can:

- Draw significant **numbers** of the **unemployed** into productive work
- Allow **workers** to gain **skills** while they work
- Increase their capacity to **earn an income**

Eskom's electrification project assisted

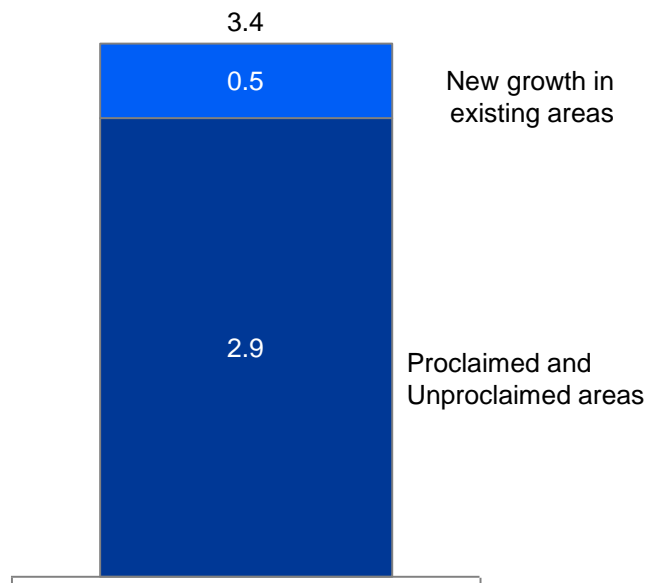
The journey to Universal Access



3.4M households without access ...

Number of households nationally without access to electricity¹

Millions, 2011

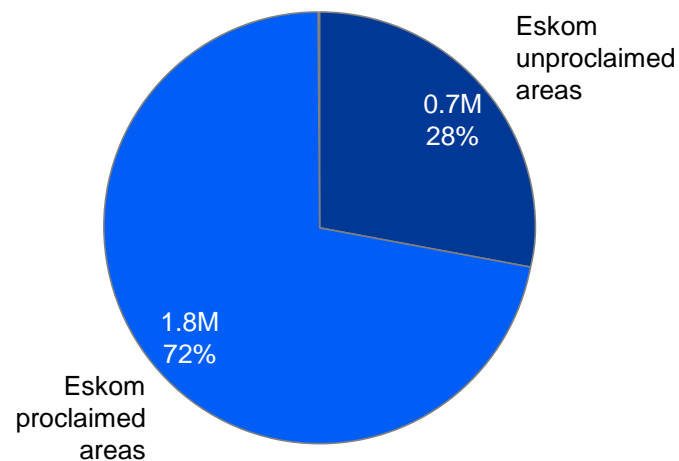


... whereof Eskom has the following

Breakdown of households without access to electricity by area¹

%, 2011

Total: 2.5–2.9M



1. The figure is based on an assumed increase in households without access at a rate of between 2–5% per annum, from 2.3M in 2006. It is also in Eskom's areas of supply. The certainty in these figures is low and checks will have to be done in the pre-engineering
Source: Eskom

Lessons from our energy efficiency program

Affordability constraints need to be addressed whilst still providing the lifestyle benefits of modern energy services

- Energy efficiency
- Free Basic Electricity

Job creation and localisation is critical to support governments aims in the new growth path and encourage economic growth

- Support for SME development needs to continue and increase

2011/12/22





Efficient Lighting

- Rollout of 47m CFL's in the residential sector nationally,
- bringing about demand savings of 1,958 MW
- Over 30,000 temporary jobs created



Solar Water Heating

- More than 38 000 high pressure and 84 000 low pressure systems have been rolled out
- Energy savings of approximately 60GWh/annum.
- 20 suppliers in 1997 to more than 400 suppliers in 2011.

Given the projected growth in housing requirements, the current level of funding and a rate of 150 000 connections per year, it is projected that universal electrical access in South Africa will only be achieved post 2035's

An opportunity exists to leverage the electrification program and significantly change this trajectory.

- By changing the contracting regime to ensure longevity of the contracting company and hence improve their management systems
- More direct jobs could be created now as it is estimated that the density of customers have decreased from 500 customers per km to 70 customers per km as we move from the urban to rural electrification areas
- The intersection between the access to clean energy and the energy efficiency program .

Conclusions



The electrification programme focus started with energy access and small scale contractor development and a public works program.

Increasing electricity tariffs raise the affordability concerns

The convergence of energy efficiency programmes and affordability constraints as a means to solving carbon reduction programs and improving quality of life is a welcome development.

The lessons learnt in sustainable contractor development can help lead to permanent job creation

This program requires a step change



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