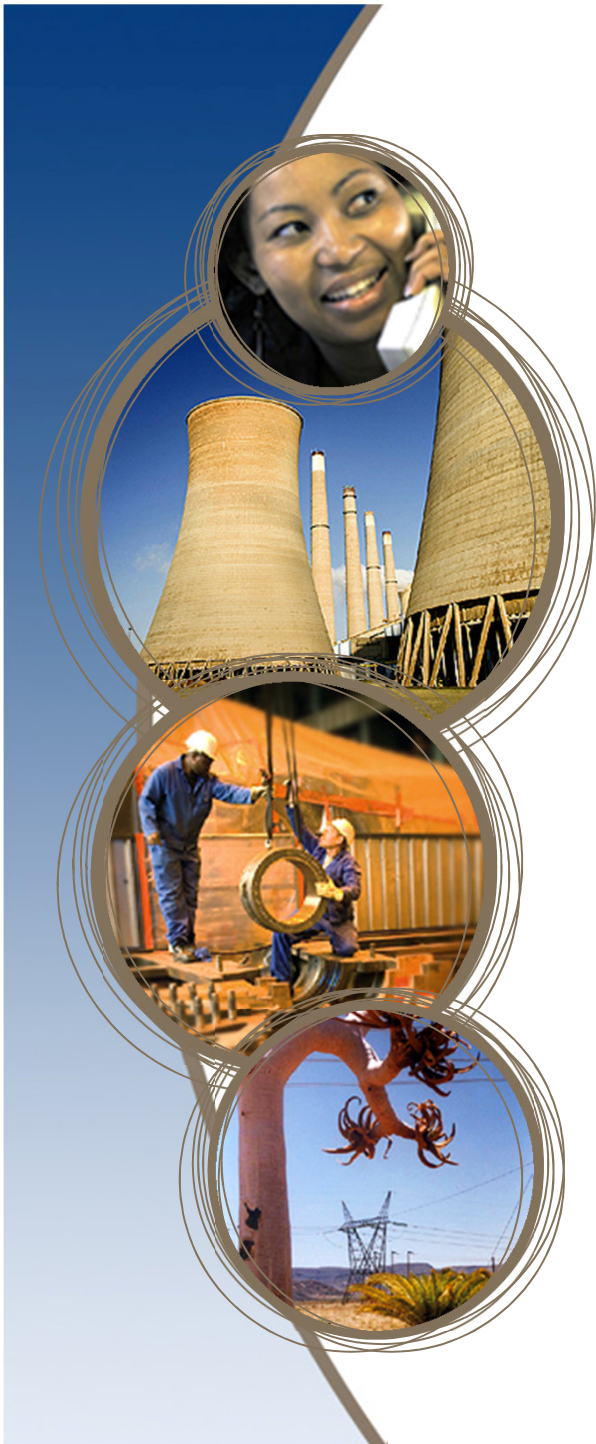


# Climate Change and Electricity a case in point – South Africa

14 June 2011

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*Eskom*



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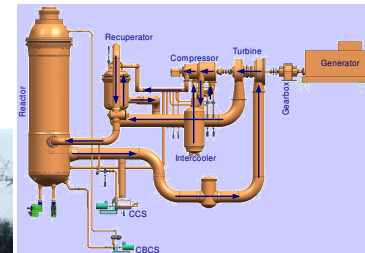
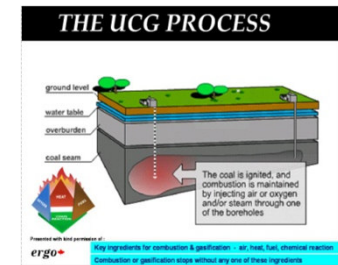
- Eskom's Climate Change Commitment
- Possible Vision of our Energy Future
- Challenges and opportunities
- Electricity Planning
- Conclusions



# Eskom's 6 point plan on climate change



- **Diversification** of the generation mix to lower carbon emitting technologies
- **Energy efficiency** measures to reduce demand and greenhouse gas and other emissions
- **Innovation** through research, demonstration and development
- **Investment** through carbon market mechanisms
- **Adaptation** to the negative impacts of climate change
- **Progress** through advocacy, partnerships and collaboration



# Possible Vision of our Energy Future



- An adequate supply of energy is inextricably linked to the achievement of the dreams of South Africa where poverty is eradicated and every citizen has the opportunity to make their contribution.
- The secure and sustainable provision of energy will attract investment into the economy and into the sector. There will be confidence in the future of the country and the sector.
- There will be an immense opportunity to create local and regional manufacturing and skills bases to meet global and local climate change mitigation strategies in the areas of solar, nuclear, hydro, clean coal and energy efficiency technologies.
- The stimulation of SADC (Southern African Development Community) energy generation opportunities and its supply thereof will serve as a regional integrator bringing us closer together and creating a common prosperous and sustainable future for our region and ultimately our continent – optimising the collective resources on the sub-continent.
- The strategy for energy provision must deal with the backlog of problems created by inequity and under-investment to ensure that every citizen has access and choice. This must provide opportunities to investors and users at any level of the power system.
- The provision of energy will be done in such a manner as to reduce our resource utilisation footprint over time.



# The Challenge and the Opportunity

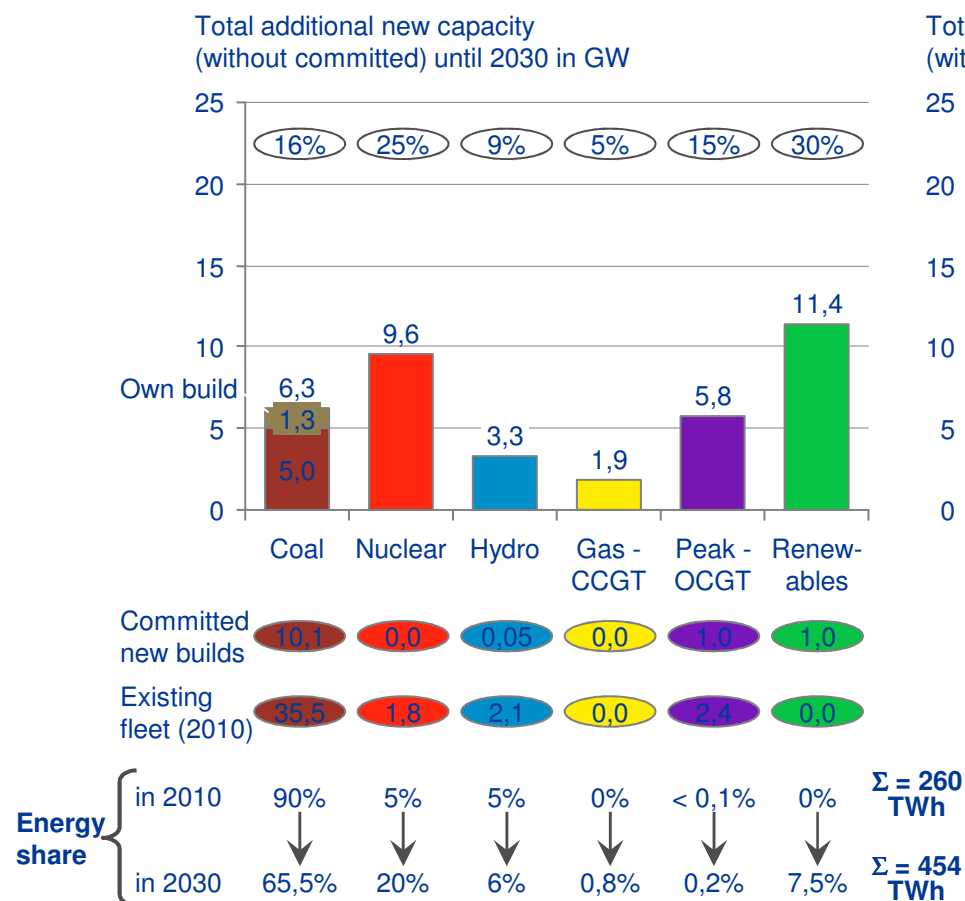
- South Africa needs to create more than 50 GW of new electricity capacity by 2028 – more than doubling the current requirements. This assumes decommissioning of 10 GW of existing capacity.
- In the scenario where the most likely risks realize, there will be two periods in the next 20 years when the risk of supply interruptions significantly increases in South Africa: from 2011-2013, and then again from 2018-2024.
- South Africa needs to take urgent action in 2010 in order to ensure security of supply for the country for the next 20 years.
- This presents the opportunity for South Africa to find the balance between the various challenges we face .
- International Climate Policy process and the DEA's Long Term Mitigation Scenario Process (LTMS)
  - Future policy and penalties
  - Funders requirements



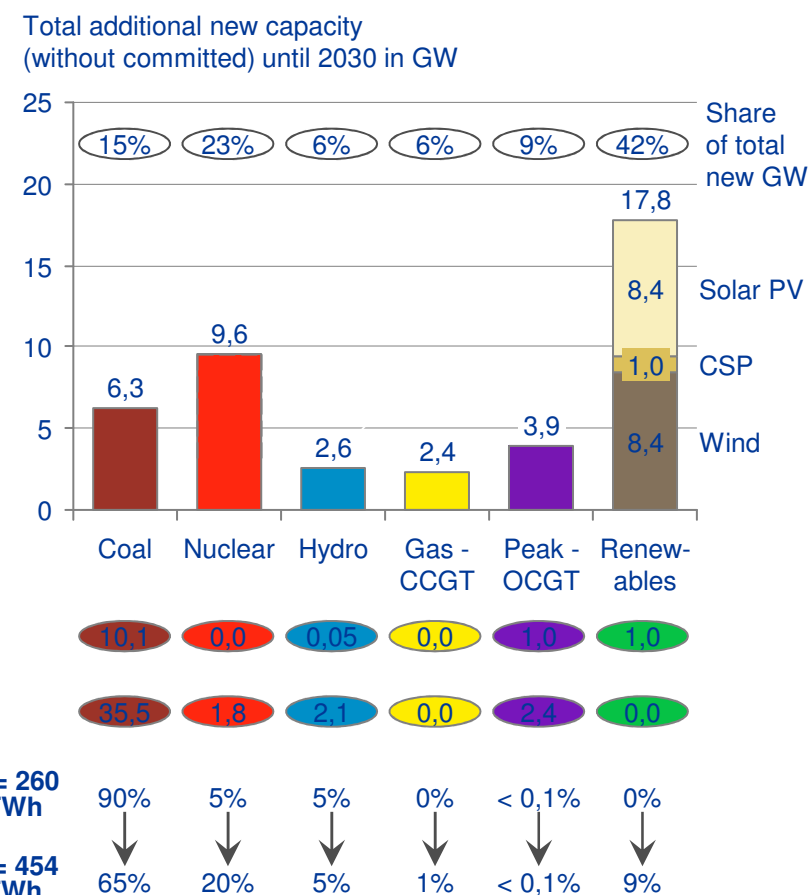
- “**Living plan**”: updated on an ongoing basis to reflect the changing needs of South Africa and to learn from the inevitable changes in our economical, social and technological environment. Next iteration expected 2012
- First IRP that government directed **finding a balance** between competing government objectives:
  - ❑ **Affordability**
  - ❑ **Reducing carbon emissions**
  - ❑ **Water conservation**
  - ❑ **Localization and,**
  - ❑ **Regional development**

# Comparison between RBS and IRP

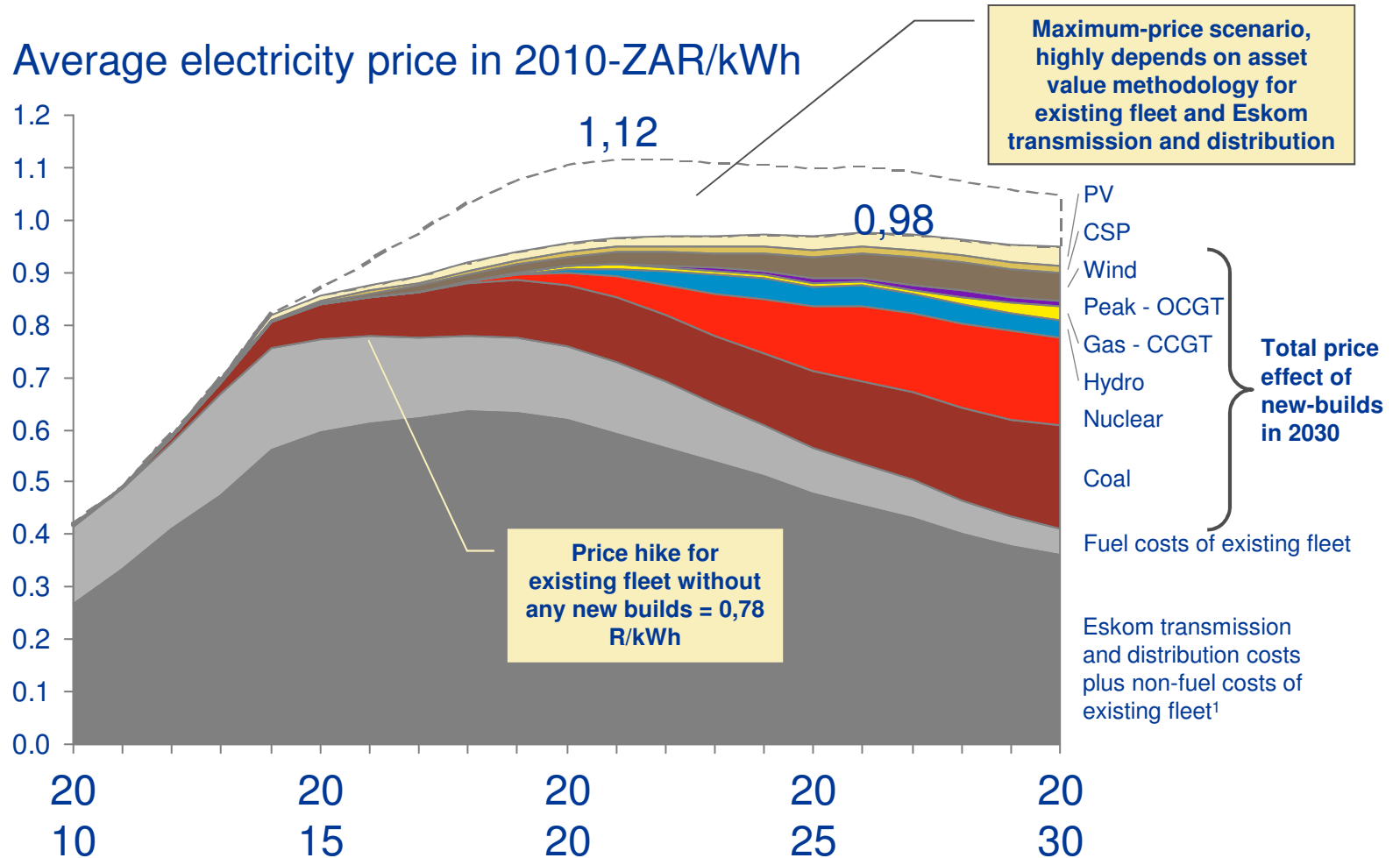
## Before consultation process: Revised Balanced Scenario (RBS)



## After consultation process: Policy-Adjusted IRP



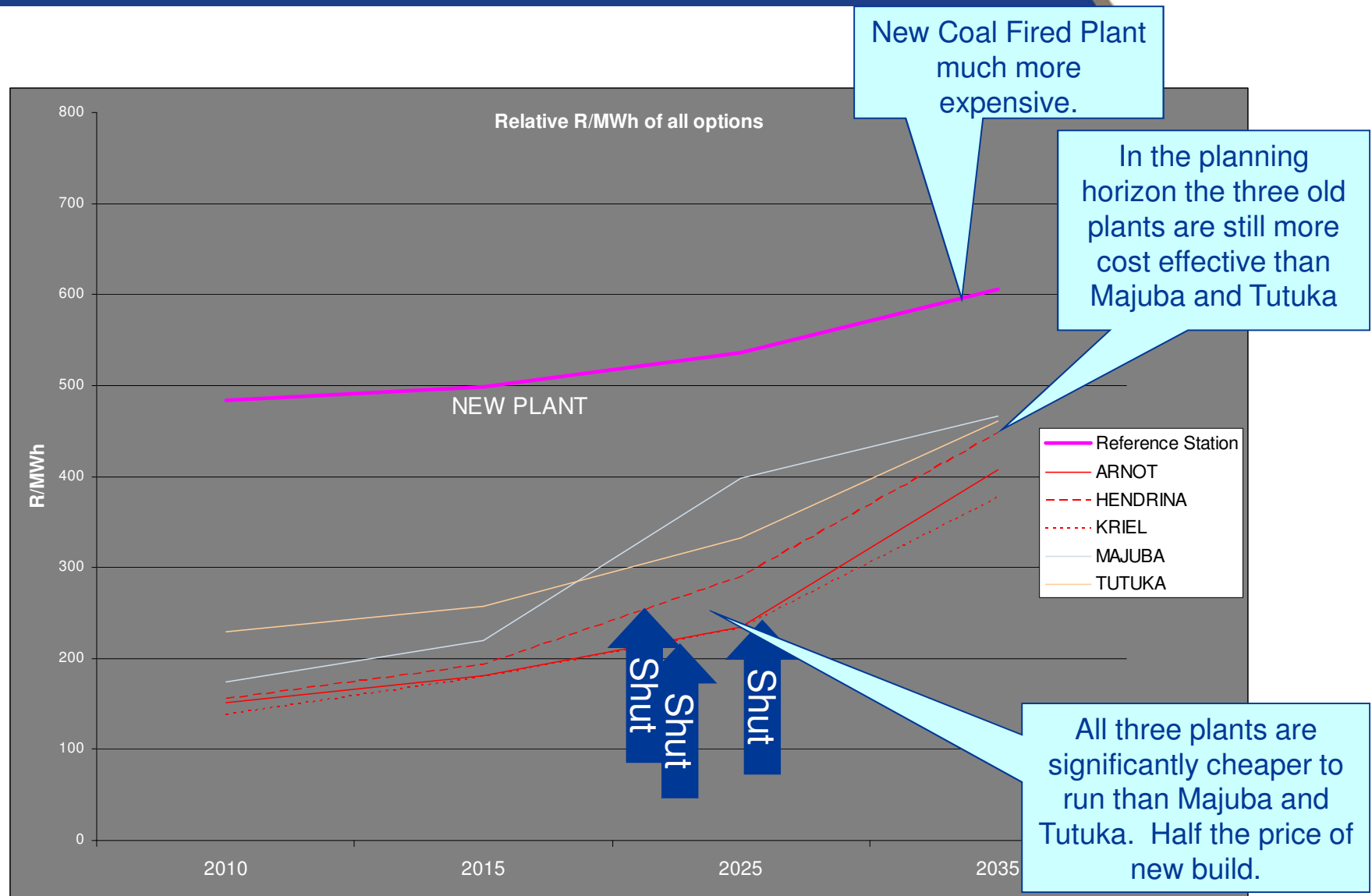
# Asset valuation of existing Eskom assets key contribution to expected price increases



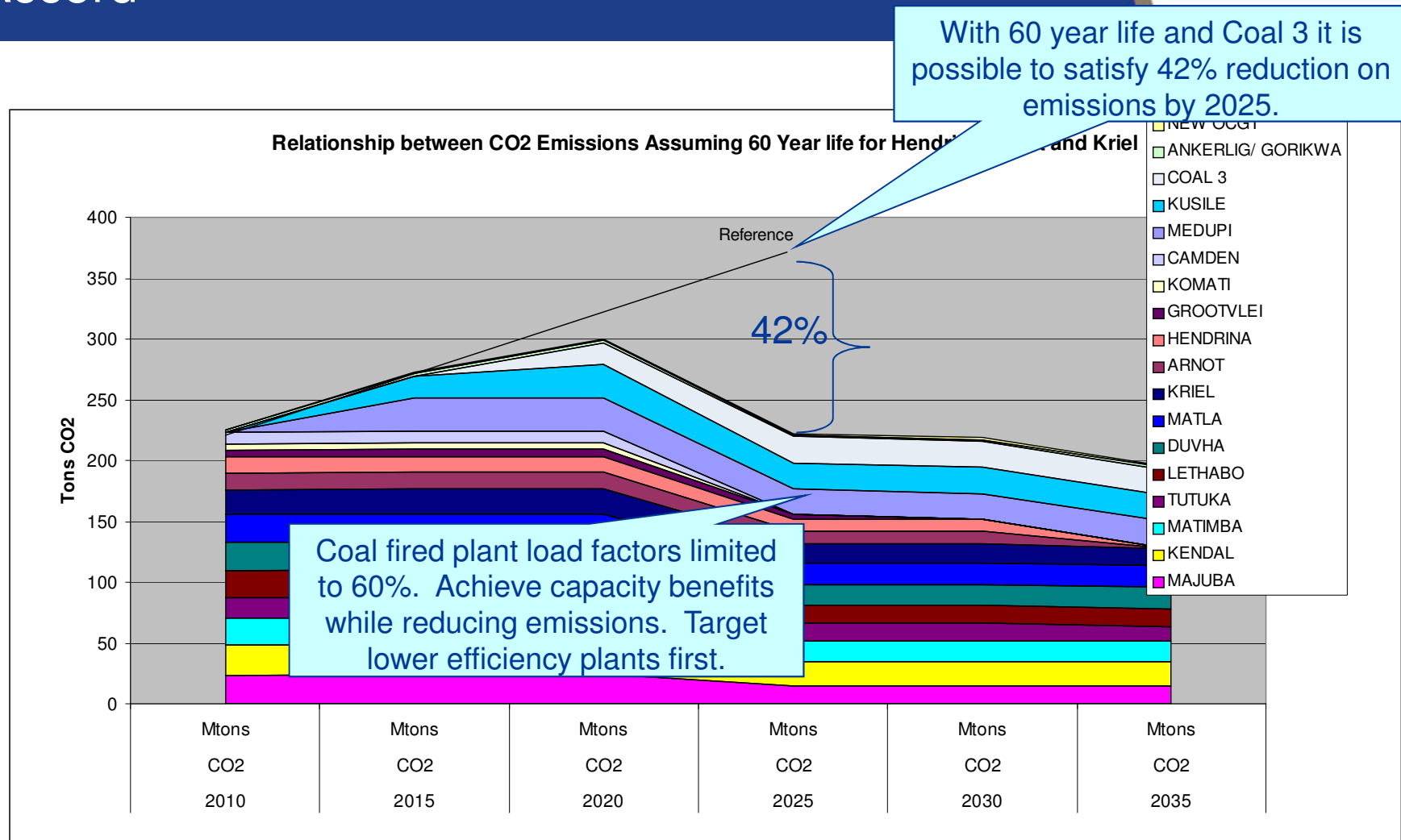
1. Does not include costs of non-Eskom distribution network



Considering all factors the stations are still very cost effective in the 2025 to 2035 window



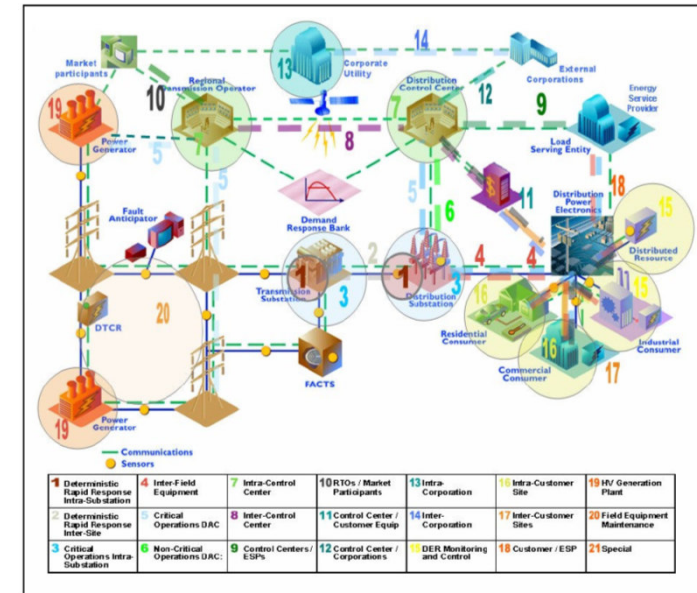
# CO<sub>2</sub> Emissions Related to Copenhagen Accord



By keeping the stations in commission but reducing load factor on the plants across the fleet the net effect will be positive to capacity requirements while still being able to achieve the emissions limitations, as defined at the time.

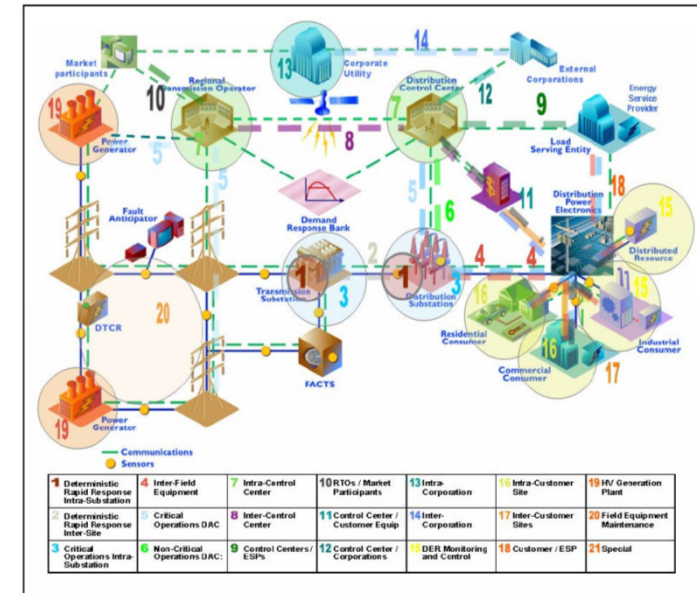
# Conclusion (1)

- **Our vision of success is the following:**
  - South Africa has a clear energy vision that includes a low carbon future and sustainable development - and has made the necessary decisions to ensure an adequate number of options are being developed to achieve that vision.
  - South Africa has moved on to a culture of energy efficiency.
  - There is no silver bullet for South Africa – technology choices are limited and we need them all – coal, renewables, nuclear
  - South Africa's economic growth is not constrained due to electricity shortages.
  - There is sustainable and universal access to various energy carriers at an affordable price.



# Conclusion (2)

- **Life extension of coal plant:**
- **KEY:** Lifex enables you to operate old coal plants at a lower capacity factor, hence supporting non-firm technologies like wind and enabling overall emissions reductions.
- **KEY:** In addition lifex, gives breathing space for new technologies to mature.
- **KEY:** As a developing country cost is key – Plant on the ground is more cost favourable than building new plant.
- Bottom line you need to take a systems approach and not just look at specific plants







# THANK YOU

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