



South Africa

Emissions targets and implications for business

Emissions estimated to be within a range of 398 and 614 MtCO₂e by 2025-30. Emissions will peak, plateau and decline (PPD) between 2020 and 2030

What is South Africa's contribution...

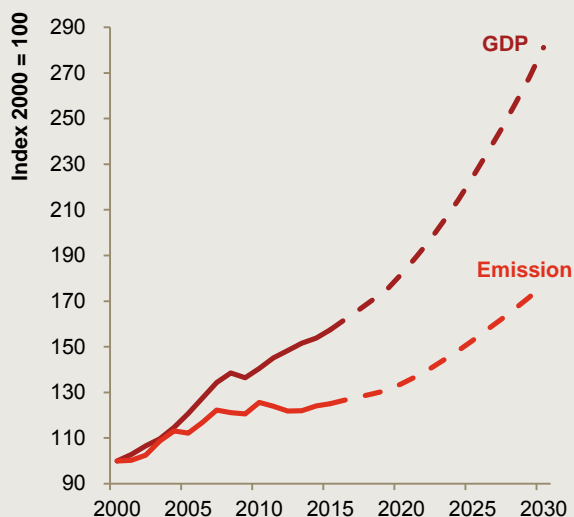
1. The Integrated Resource Plan envisages additional capacity of **10GW of nuclear and 2GW from gas by 2030** to help decarbonise the energy mix.
2. Existing inefficient fleet of ageing coal-fired power plants will be replaced with **renewable energy and high efficiency coal plants.**
3. **6GW of renewable energy capacity** is being considered under REI4P.
4. **Energy intensive sectors may pay a carbon tax of \$1 - \$3.50 per tonne of CO₂ in the near future** (compensation and reliefs bring the price down from an initial prices of \$9).
5. **Company level carbon budgets** are being drafted, termed Desired Emission Reduction Outcomes (DEROs).
6. **Reporting on emissions will be mandatory** by South African businesses emitting over 100 thousand tonnes of CO₂. The Draft National Greenhouse Gas Emission Reporting Regulations (No. 38857 of 2015) under the Air Quality Act was submitted by consultation in May this year.
7. Investment is estimated for key adaptation programmes: Working for Water, Working for Fire, Working on Wetlands, Water Conservation and Water Demand Management, and LandCare.

...and what are the implications for business

- The INDC proposes significant investments that require international support up to 2030, for example:
 - Over **\$40bn per year would be required in next generation vehicles**, split three quarters for hybrid electric vehicles and one quarter electric vehicles. Just under half a billion per year would also be required for public transport infrastructure.
 - \$8bn per year would be needed in renewables and nuclear**, including beyond 2030.
 - the estimated **cost to expand REI4P is \$3bn per year**.
- Renewable power capacity equivalent to all of the offshore wind turbines in Europe today is expected** from the Renewable Energy Independent Power Producers Procurement Programme (REI4P) launched in 2011 by the Department for Energy, the National Energy Regulator of South Africa and Eskom.
- The **SA Green Fund received a \$66m initial injection**, set-up by the Development Bank of South Africa (DBSA) on behalf of Department of Environmental Affairs.
- 284 companies and investors have committed to low-carbon initiatives as part of the 'We Mean Business' initiative.
- Adaptation programmes require nearly \$7bn of short term investment** over the next five years, for example:
 - Water Conservation and Water Demand Management estimated: \$5.3bn
 - Working for Water (WfW) and Working on Fire: \$1.2bn
 - Working on Wetlands: \$0.12bn
 - LandCare: \$0.07bn

GDP, energy and related emissions

GDP forecast: 3.8% per year
Emissions forecast: 2.3% per year



Our absolute emissions trend is based on combining the GDP forecast above with the average decarbonisation rate so far this century



GDP: South Africa's GDP in 2014 was US\$704bn having grown by 54% since 2000. On average the economy grew at 3.1% per year with only one year of decline; 1.5% in the 2009 recession. Looking forward, South Africa is forecast to grow faster averaging 3.8% growth annually to 2030.



Renewable energy: Wind and solar contributed half a Mtoe or just under half a percent to South Africa's energy mix in 2014, and the same came from hydro and geothermal.



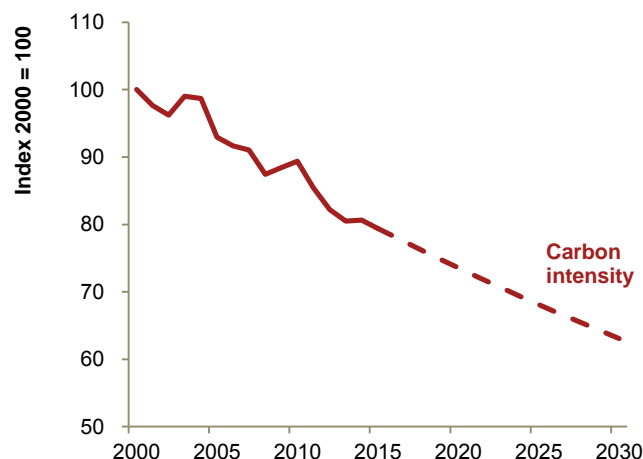
Energy: South Africa's energy consumption of 127 Mtoe in 2014 is comparable to fellow coal giant Australia's 123 Mtoe and only one seventh of India's. The mix of fuels has been roughly stable for a while: 71% coal, 23% oil and 3% each for gas and nuclear.



Emissions: By Sector, Power contributed 59% of emissions in 2012, Industry 22%, Transport 12% and Buildings 7%.

Carbon intensity

Carbon intensity forecast: -1.5% per year



- South Africa's has decarbonised at an average of 1.5% since the turn of the century, similar to that of India.
- It may be one of the most carbon intensive country, more so than China and India, but in absolute terms its emissions are twenty times smaller than China and five times smaller than India.
- Its carbon intensity follows an erratic pattern ranging most abruptly between 2003 and 2005 where it increased by 2.3% and then fell 5.8%. This is pattern is influenced more by emissions than GDP.
- We use the average since the turn of the century, 1.5%, for our business as usual forecast opposite and below.

How ambitious is South Africa's PPD target?

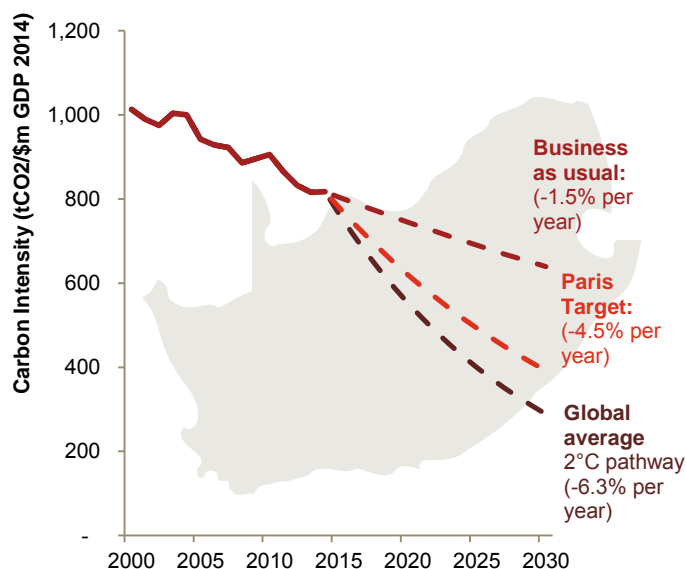
The range of 398 and 614 MtCO₂e by 2025-2030 is a wide one, so its implied decarbonisation rate could be anything between 3.3% to 5.9% a year. This could bring some uncertainty to businesses in South Africa expecting carbon regulations, as the room for manoeuvre is significant.

Notwithstanding the uncertainty, the more ambitious target of 398 MtCO₂ would mean a decarbonisation rate close to the global rate required of 6.3%, making **South Africa's INDC an ambitious one, but even at 3.3% it will be decarbonising marginally faster than the average of the INDC targets we have examined.** In our chart we have illustrated the Paris target as the average of this range by 2030.

But it is starting from a very high base (the highest of the G20). As a result, the ambitious rate of change would only take South Africa from its current carbon intensity to just **above India's carbon intensity today.**

This is challenging but also present an opportunity, particularly in the power sector as the current fleet of coal plants gets replaced by renewable energy or other low carbon technology.

How ambitious is South Africa's PPD target?



Sources:

Historic GDP: World Bank, 2014

GDP Forecasts: PwC World in 2050, 2015

Energy data: BP, Statistical Review of World Energy, 2015

Emissions by sector: International Energy Agency World Energy Outlook, 2014

Government of the Republic of South Africa, 2011, National Climate Change Response White Paper

Department of Energy, 2011. Integrated Resource Plan for Electricity 2010 to 2030

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