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FACTSHEET: A Deadly Clash between Climate Science and Coal-3

On 27th September 2013, the first working group (WG1) of the Intergovernmental Panel on Climate Change (IPCC) will launch their summary report on the physical science basis of climate change. The full WG1 report will be released on 30th September. The WG1 report forms one of four parts of the IPCC's fifth assessment report (AR5), which is the product of two years of work with a total of 831 authors and review editors.¹

On 22nd August 2013, the South African cabinet announced their decision to build Coal-3, a 4.8GW coal-fired power plant. The mega plant will emit 36 million tons (Mt) of carbon dioxide emissions (CO₂) per year. The Coal-3 project comes after the building of two other mega coal plants, Medupi and Kusile, each with 4.8GW of generating capacity and emitting in total 55-60Mt CO₂ per year.

Who is the IPCC?

The IPCC is a United Nations body which produces regular assessments on the state of knowledge on the climate that have become the basis for decisions at international climate negotiations.² Their work represents a combination of efforts between scientists and governments with thousands of scientific publications cited in the report, which is then agreed to by up to 195 countries. The process is robust but the conclusions are likely more conservative than other scientific assessments that don't have to go through a multilateral process.

Each successive report has provided more compelling evidence on the extent to which the climate is changing and greater certainty on the human cause of climate change. Based on the AR4, the 2007 climate negotiations in Bali³ concluded that climate change action is urgent, and that delaying emission reductions will increase the risk of greater impacts. The IPCC has therefore called for deep and urgent global carbon emission cuts of 25-40% by 2020 and 80-90% by 2050 at 1990 levels.

What does the latest climate science say?

Reaching 400ppm – Earlier this year, we reached CO₂ levels of 400 parts per million in the atmosphere which is a level unseen for three million years.⁴ Given the devastating effects of climate change that we are already seeing in the form of extreme weather events, melting ice caps, and sea level rise, passing 400ppm is an ominous sign of what might come next. The goal of stabilising at 450 ppm – still well above the 'safe' limit of 350ppm – now looks impossible.

Beyond 2 degrees – The 2 degree global limit that has been endorsed at international negotiations⁵ is now considered to be off the table. We are currently on track for an almost 6 degree temperature rise.⁶ If we plan for a 4 degree world, which means taking some action but nowhere near what we should be doing, by 2100 we will see a sea level rise of between at least 0.9-1.8 metres, drought over 40% of inhabited land, hundreds of millions of refugees, and half of all known species extinct.⁷ Positive feedbacks could render this situation much worse. Basically, we are looking towards a future that scientist Professor Kevin Anderson says is "incompatible with an organised global community."⁸ Every year we delay acting, we add R4.8 trillion to the tab for dealing with the effects.

What does coal have to do with all of this?

In order to prevent two degrees warming, a key scientific study⁹ says that only 50% of total fossil fuel reserves (oil, natural gas and coal) can be burnt to 2050. A more recent study¹⁰ puts this figure at 80%. Coal plants are a leading source of carbon emissions globally. Switching away from coal globally is therefore a necessary first step to achieving the kinds of emissions reductions required.

Headline message: If we want to avoid a world that will create climate catastrophe and make human life unbearable we need to KEEP THE COAL IN THE HOLE!

Why Coal-3 does not make sense!

Climate impacts: 95% of South Africa's electricity comes from coal – making the country the twelfth largest CO₂ emitter in the world. As part of its global commitments and its Constitutional requirement to ensure a safe and healthy environment for all citizens, the government has put an upper, worst-case limit on carbon emissions of 618Mt of CO₂ equivalent (CO₂-eq¹¹) and put a cap on the electricity sector of 275Mt of CO₂-eq. Government's ideal peak emissions in 2025 would stand at 398Mt CO₂-eq. Our 2010 emissions stood at 547Mt of CO₂-eq, and Eskom produced 231.9Mt of CO₂ last year. Eskom's overall damage to the climate in 2010/2011 is estimated to cost between R1.3 billion and R188billion. Medupi and Kusile will emit 55-60Mt of CO₂ per year which puts us above the electricity cap. The estimated damage to the climate of both these power stations is between R6.3 billion and R10.7 billion per year.¹² 7 years of this combined damage cost could generate 10.1TWh of electricity from biomass from municipal solid waste. It would take the combined costs of 38 years to generate 1.9TWh from concentrated solar PV.¹³ Coal plants last 40-60 years. So any new coal development will lock us into a high carbon trajectory to near the turn of the century. There is simply no more room in South Africa's carbon budget for any new coal-fired power stations let alone another 60Mt/4.8GW new power station.

Water impacts: Eskom is looking to develop Coal- 3 in the dry Waterberg¹⁴ region, situated to the north west of the country in Limpopo Province. Coal plants require a lot of water for the boilers and even more water if clean air technology such as flue-gas desulphurisation is installed. But it is highly doubtful that there is enough water in the region as Eskom is already complaining that there is not enough water for Medupi. Eskom proposes to pipe water in from the Crocodile River, a big infrastructure spend, or/and reallocate water from the Mokolo Dam, both of which will impact on the supply of water for humans and agriculture for people in Limpopo and in Botswana.

Air and health impacts: The Waterberg is being pegged as the new coalfields because the Witbank coal field is near depletion due to the rapid rate at which coal is being mined¹⁵. Additionally Witbank is now so polluted it has been declared a 'pollution hotspot' because of almost constant serious air pollution and health problems amongst local communities. Despite this, KiPower is planning a 600MW plant in the area. Acid Mine Drainage has also polluted the water supply in the Witbank area (as with other mining areas such as the Highveld) which has led to contaminated water surfacing and killing aquatic life. With 40% of remaining coal reserves nationally, 40 new mines are being planned as feeders to the new plants such as Coal-3. The mines will undertake a combination of deep mining and open cast mining, the latter of which contributes immensely to harmful atmospheric pollutants. The Waterberg already has the Matimba and Medupi power stations and the multi-nationals Exxaro and Vedanta are planning to build two 600MW coal-fired power stations to service their own needs. Coal-3 will spew additional pollutants into the air. Long term exposure to fumes from coal plants – which contain particulate matter, sulphur dioxide, and nitrogen oxides –causelong problems such as asthma and lung cancer and heart problems such as congestive heart failure. Therefore, Coal-3 will add a significant health risk and health cost to residents in the Waterberg and in neighbouring Botswana which the taxpayer will ultimately have to pay for.

Eskom says it is committed to technology to reducing its noxious fumes from Coal-3. However, the power utility is currently applying for exemptions from national air quality regulations – standards that have been legislated in order to prevent unnecessary deaths and illnesses – and wants to delay the

installation of FGD at Medupi. It is now questionable whether Eskom will obey the regulations for Coal-3 if they are attempting to violate regulations now for its current new build.

Financial implications: Eskom will need to raise R200bn for Coal-3. Eskom is already spending about R240bn on Medupi and Kusile out of a R300bn budget to expand its generation capacity over the next 10 years. Both stations are now delayed by three years from the initial April 2011 commissioning date. Taxpayers got slapped with an electricity tariff hike of 8% earlier this year to finance these plants, on top of another hike a year earlier. Eskom asked for 16% this time but the regulator only approved half. The utility is also saying that when the carbon tax is implemented, which will help to constrain carbon emissions, it will pass the costs down to consumers. Getting financing for those plants was difficult, and will be even more difficult and costly in the future. Eskom's credit rating is poor making borrowing expensive and international finance institutions are moving out of financing coal: The World Bank, for example, has since changed its lending policy away from coal.

Coal-3 is a dangerous and costly energy project! SAY NO TO COAL-3!!

Support renewables! People's power - clean and easy to implement

Support these actions on 27th September 2013 to stop Coal-3 and transition to renewable energy:

Earthlife Africa-Jhb and partners will hold a demo outside the Eskom Regional Office in Braamfontein from 10am until 1pm.

groundWork and partners will hold a demo outside the Eskom offices in Westville, Durban, and Pietermaritzburg, from 10am until 1pm.

Greenpeace Africa will hand in a memorandum to Minister of Trade and Industry Rob Davies at his Pretoria office at 10am.

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Notes

¹ IPCC. *Press release: IPCC starts meeting to finalize Working Group I report*, 12 September 2013, and *Understanding Climate Change: 22 years of IPCC Assessment*, 2010, Pg 9

² International climate negotiations take place under the ambit of the United Nations Framework Convention for Climate Change or UNFCCC. There are meeting sessions every year widely called the COPs or Conference of Parties to the United Nations

³ IPCC. 2010. *Understanding Climate Change: 22 years of IPCC Assessment*, Pg 7

⁴ On May 9th 2013 the National Oceanic and Atmospheric Administration reported CO₂ levels of 400.03 parts per million (ppm)

⁵ UNFCCC. 2009. *Copenhagen Accord*. Pg 2. [Accessed at:

<http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf>]

⁶ International Energy Agency. 2013. *Four energy policies can keep the 2 degree climate goal alive*, 10 June 2013. [Accessed at: <https://www.iea.org/newsroomandevents/pressreleases/2013/june/name,38773,en.html>]

⁷ David Roberts. 2012. *Climate Change is simple*. Ted Talks presentation, 15 October 2012. [Accessed at: <http://www.youtube.com/watch?v=A7ktYbVwr90>]

⁸ *ibid*

⁹ Malte Meinshausen et al. 2009. Greenhouse-gas emission targets for limiting warming to 2 degrees celcius in *Nature 08017*, Vol 458, 30 April 2009, Pg 1158

¹⁰ Carbon Tracker and Grantham Institute. 2013. *Unburnable carbon 2013: Wasted carbon and stranded assets*. Pg 4

¹¹ Measurements in CO₂eq means that all greenhouse gases, including CO₂, are accounted for in one format. "CO₂ and CO₂-eq are not strictly comparable but can still be used to examine SA's energy targets, since more than 80% of SA's emissions come from CO₂ alone," according to Jesse Burton, 2011, Sustainable Energy Brief 23: South Africa's Mitigation Targets, Pg 4.

¹² Blignaut, James. 2012. Climate change: Opportunity cost of Medupi and Kusile Power stations. *Journal of Energy in Southern Africa*, Vol 23 No 4, November 2012, Pg 71

¹³ *Op cit*. Pg 72

¹⁴ Eskom. 2009. *Environment Impact Assessment Process: Proposed Coal-Fired Power Stations and associated Infrastructure in the Waterberg, Limpopo: Final Scoping Report*, March 2009, Pg 30.

¹⁵ *Op cit*, Pg 36