

The Dilemma of Coal as a ‘Necessary Evil’ and the Green Economy Approach: Challenges of Energy Transition in South Africa in the Face of Climate Change

Coal, which has major uses not limited to thermal electricity production, and the steel and cement industries,¹ is one of those natural resources available in South Africa. South Africa possesses 11% of the world’s coal reserves and contributes about 6% of the global production.² The country has economically recoverable coal reserves of between 15 to 55 billion tonnes, of which 96% of these reserves are bituminous coal.³ South Africa relies on coal for 92% of its electricity production.⁴ This paper aims to explain the inherent challenges and contradictions in the country’s energy policy manifested through the continuous and increasing use of coal to generate power against the background of its adoption of the green economy approach to mitigate climate change. It discusses the dilemma that coal poses; whether the country should continue using coal for the much needed development, while overlooking its negative environmental consequences? The paper uses an institutional approach in looking at how the energy sector is governed in South Africa. The paper relied on analysis of documentary evidence emanating from government policies and briefs, and other stakeholders in the energy sector. This also involved systematic review of relevant literature. Information was also gathered by systematically following up on relevant issues in the media and current affairs as events unfold in the energy sector over the past five years. Political discourse analysis as part of Critical Discourse Analysis was used as the major analytical tool to analysing and explaining the various political discourses related to use of coal, the green economy and energy transition in the face of climate change mitigation efforts.

It has been found that coal has been a dominant driver of the economic development of South Africa for two centuries, starting with its use in the diamond mines in Kimberley in the late 1700s, followed by its use in the gold sector in the early 1800s.⁵ It appears South Africa is not yet ready to give up on this commodity to meet its increasing energy demands. Coal in South Africa has become important in the manner that oil is to an oil producing and exporting country.⁶ Eskom, which is a state-owned enterprise, has a long term US\$ 50 billion power plan to supply electricity power not only to South Africa but to extractive industries in client states such as Mozambique, Botswana, Lesotho, Namibia, Swaziland and Zimbabwe.⁷ Eskom generates approximately 95% of South Africa’s electricity and an equivalent of about 45% of the African continent’s electricity consumption.⁸ In 2007, the company gave major contracts to Hitachi and Alstom (private companies) for the construction of coal-fired electrical power plants (Medupi and Kusile), each with a generational capacity of about 4,800 mega watts.⁹ South Africa obtained a controversial US\$ 3.75-billion loan from the World Bank¹⁰ for the construction of the

¹ ‘The coal resource: A comprehensive overview of coal’, World Coal Institute, 2005, <http://www.worldcoal.org>.

² ‘Coal mining in Africa – overview’, Mbendi Information Services, <http://www.mbendi.com>.

³ Eberhard, A., ‘The future of South African coal: Market, investment, and policy challenges’, Stanford University, January 2011, <http://iis-db.stanford.edu>.

⁴ ‘The coal resource: A comprehensive overview of coal’, World Coal Institute, 2005, <http://www.worldcoal.org>.

⁵ Falcon, R., ‘The future of coal in South Africa’, Fossil Fuel Foundation, <http://www.eepublishers.co.za>.

⁶ Falcon, R., ‘The future of coal in South Africa’, Fossil Fuel Foundation, <http://www.eepublishers.co.za>.

⁷ Sharife, K., ‘South Africa’s dirty secret: Eskom and the Medupi power plant’, Plurpol Consultancy, 31 May 2013, <http://www.plurpol.org>.

⁸ van Gelder, J.W. and Spaargaren, P., ‘Financing of Kusile and Medupi power plants, South Africa’, Pacific Environment, 26 October 2010, <http://pacificenvironment.org>.

⁹ van Gelder, J.W. and Spaargaren, P., ‘Financing of Kusile and Medupi power plants, South Africa’, Pacific Environment, 26 October 2010, <http://pacificenvironment.org>.

¹⁰ Patel, K., ‘Eskom’s Medupi-sized headache’, Daily Maverick, February 2013, <http://www.dailymaverick.co.za>.

Medupi power station. The approval of the loan was considered controversial due to the World Bank's support of a project that will increase greenhouse gas emissions, which is not compatible with the bank's commitment to climate change mitigation and adaptation.¹¹ These are mega projects expected to cumulatively contribute about 25% of South Africa's power generation capacity.¹² South Africa, in its 'addiction to coal', is not only building Medupi and Kusile power stations, but the government is mooted a third new coal-fired power station.¹³ These new power stations will increase carbon dioxide emissions. For example, it is estimated that Medupi power plant will generate more carbon dioxide than 115 developing countries, that is, 25 million tonnes each year.¹⁴ Meanwhile, Eskom in South Africa has managed to reach high targets in terms of efficiency in its power stations, even under circumstances of using coal with high ash content.¹⁵ The company is further exploring other technologies to reduce the negative environmental consequences of using coal, such as underground gasification and various mechanisms of carbon capture.¹⁶ The country is also exploring the feasibility of using other sources of energy to reduce its dependency on coal and thus helping to reduce the negative impact of coal. For example, at the moment, renewable sources of energy constitute about 1% of South Africa's energy needs¹⁷ when there is great potential for such sources (50,000 megawatts available in wind and 500,000 megawatts in solar power)¹⁸ in the country.

Coal is going to remain a formidable source of power for South Africa for a long time to come as long as the resource is still available. The role of foreign capital in the form of the much-needed foreign direct investment in this mix should not be underestimated in the continual development of coal-based projects. The major concern will hinge upon the adoption of technologies that will enable its exploitation and subsequent use of coal to be less damaging than it is currently. In this case, understanding the environmental effects of investments in the energy sector in developing countries has become even more important.¹⁹ Coal will however not remain cheap as has been the case for a long period up to now. Energy-efficient technologies and diversification of energy sources would in overall put South Africa at a better pedestal for economic development.²⁰ Otherwise, there is still scope to adopt renewable sources of energy to achieve the same result of economic development, which in this case is more sustainable than coal based power projects.

¹¹ 'World Bank approves multi-billion-dollar loan for coal-fired power plant in South Africa', Democracy Now, 9 April 2010, <http://www.democracynow.org>.

¹² van Gelder, J.W. and Spaargaren, P., 'Financing of Kusile and Medupi power plants, South Africa', Pacific Environment, 26 October 2010, <http://pacificenvironment.org>.

¹³ Steele, M., "Another coal-fired power station to fuel South Africa's addiction?", Greenpeace, 24 February 2012, <http://www.greenpeace.org>.

¹⁴ Sharife, K., 'South Africa's dirty secret: Eskom and the Medupi power plant', Plurpol Consultancy, 31 May 2013, <http://www.plurpol.org>.

¹⁵ Falcon, R., 'The future of coal in South Africa', Fossil Fuel Foundation, <http://www.eepublishers.co.za>.

¹⁶ Falcon, R., 'The future of coal in South Africa', Fossil Fuel Foundation, <http://www.eepublishers.co.za>.

¹⁷ Falcon, R., 'The future of coal in South Africa', Fossil Fuel Foundation, <http://www.eepublishers.co.za>.

¹⁸ Sharife, K., 'South Africa's dirty secret: Eskom and the Medupi power plant', Plurpol Consultancy, 31 May 2013, <http://www.plurpol.org>.

¹⁹ Spalding-Fecher, R and Matibe, D.K., 2003. Electricity and externalities in South Africa. *Energy Policy*, 31, pp. 721-734.

²⁰ Kebede, E., Kagochi, J. and Jolly C.M., 2010. Energy consumption and economic development in Sub-Saharan Africa, *Energy Economics*, 32, pp. 532-537.