ABSTRACT

The increase in the demand for electricity in the advent of industrialisation brought about an increase in the burning of fossil fuels and the rate of deforestation. This is due to the fact that coal is the most abundant and cost-effective energy source found globally. Coal contributes to approximately 40% of the world's electricity power generation. South Africa forms part of the top ten coal producers in the world. In 2014, South Africa generated approximately 92% of its electricity from coal. Inasmuch as coal is the most abundant and cost-effective energy source, it has negative impacts on the environment by means of emissions that are distributed into the atmosphere through its combustion. This is the primary means by which greenhouse gases (GHG), such as carbon dioxide (CO_2), methane (CH_4), surface ozone (O_3), nitrous oxides (N_2O), chlorofluorocarbons (CFC) and water vapour, are released into the atmosphere, and cause global warming (Schneider, 1990; Labat et al., 2004 and Boisvenue & Running, 2006).

South Africa is the highest CO_2 emitter compared to other African countries, emitting 433 173 kilotonnes. However, the country only contributes to 1.5% of the global CO_2 which is minuscule compared to 25 % contributed by China. Be that as it may, every percentage of CO_2 emitted accumulates in the atmosphere. Hence, South Africa made a voluntary commitment at the United Nations Framework Convention on Climate Change (UNFCCC) in Copenhagen to reduce the country's GHG. This was done by the South African government implementing initiatives that encourage and promote energy efficiency (EE).

South Africa also selected carbon tax as one of the country's long-term mitigation strategies. This implied that there would be the use of the "market" to reduce emissions. The carbon tax, in its nature, is a disincentive and has financial implications for the end-user. This, therefore, prompted the inception of this report.

This report seeks to evaluate the potential effects of the carbon tax on mining companies' profitability and levels of emission reduction, and to determine whether the tax will prompt the reduction of CO_2 emitted, or whether the tax will just be a revenue-raising exercise. The report will focus on South African coal, gold, platinum, and iron ore mining companies

listed on the Johannesburg Stock Exchange (JSE). The data was collected from 2010 to 2017; this coincides with the announcement made by the South African National Treasury on the Carbon Tax Policy paper. The profitability and emission data were collected from the companies' annual financial reports and from the Carbon Disclosure Project reports respectively.

The announcement made by the South African National Treasury on the Carbon Tax Policy paper in 2010 motivated numerous mining companies to work in an environmentally conscious manner. The study confirmed that the Carbon Tax Act 15 of 2019 would bring about a decrease in the amount of GHG emissions per mining company, during the project analysis period. These positive results, however, bore negative financial implications, because the carbon tax had negative impacts on the mining companies' profitability. The overall trends indicate that the gold industry could potentially be the most vulnerable to the impact of the carbon tax when compared to other commodity sectors, more especially between the years 2014 and 2015.This effect was compounded by macro-economic factors such as the gold price, fatal injuries that occurred in the mining operations resulting in stoppages and industrial actions.

Based on the findings, it is recommended that more detailed investigation is conducted into incentivising revenue recycling mechanisms on the revenue that will potentially be raised from the carbon tax, to benefit South African citizens. An additional investigation could be done to determine the impact of variable cost on the mining companies on a long-term and short-term basis. This will have to incorporate actual tax incurred by the respective company and the actual tax implications will be determined from there. The impact that the tax will have on employees' salaries could be modelled in predictive analysis. This will determine the impact of the carbon tax when translated to employee salaries and the likelihood of employees being retrenched as a result of the carbon tax imposition.