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Does the Carbon Tax in South Africa Encourage the Adoption of Wind Energy in the Country's Power Sector?

Kgalalelo C. Makamela [1]*, **Roshelle Ramfol** [2]
1 University of South Africa, Department of Auditing,
South Africa, Pretoria, 0002
E-Mail: 69679347@mylife.unisa.ac.za

2 University of South Africa, Department of Auditing,
South Africa, Pretoria, 0002
E-mail: ramfor@unisa.ac.za
*Corresponding author

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ABSTRACT

This research aims to evaluate whether South Africa's carbon tax rate incentivises the adoption of wind energy within the nation's power sector. By employing qualitative analysis, the study examines whether South Africa's carbon tax rate is suitable for promoting wind energy uptake in the power sector. Additionally, it identifies the level of carbon pricing required to stimulate investments in wind energy in South Africa's power sector using net present value (NPV) simulations. The research finds the South African carbon tax to be too low to incentivise the adoption of wind energy. It emphasises that in order to stimulate decarbonisation investments, carbon prices must be higher than abatement costs. The NPV simulation indicates that increasing the carbon price by ZAR 869.50 per tonne of CO2 would result in a positive NPV, thereby encouraging investment in wind energy in South Africa's power sector. Therefore, the study advocates for higher carbon prices to drive wind energy investments. This research contributes to tax policy scholarship by proposing a carbon pricing model for the adoption of wind energy in South Africa's power sector. Ultimately, decarbonising the power sector, a major source of greenhouse gas emissions (GHGs), will strengthen South Africa's efforts in reducing carbon emissions.

1. Introduction

The reality of climate change is evident in today's world (Ghazouani et al., 2020). This is demonstrated by trends such as rising surface temperatures, shifts in rainfall and weather patterns, and a heightened frequency of extreme weather events (Momodu et al., 2022). The burning of fossil fuels and industrial activities are responsible for causing climate change. (IPCC 2014). South Africa is a carbon intensive country that is heavily reliant on coal, which constitutes 74% of its total primary energy supply and 87% of its power generation (Hanto et al., 2021). The Mpumalanga province, South Africa, has numerous coal mines and power stations, causing severe air and water pollution due to coal mining and energy generation (Kamolane-Kgadima & Kathi, 2024; Olufemi et al., 2018; Nkambule & Blignaut, 2012). Polluting substances cause cancer and respiratory illnesses, as well as ozone layer loss that fuels climate change (Almetwally et al., 2020). Emissions from heavy industry plants disproportionately on surrounding communities leading to environmental deterioration and adverse health effects (Kamolane-Kgadima & Kathi, 2024). The business as usual (BAU) projects continuous coal use in South Africa's power sector until 2050 (Hanto et al., 2021). The burning of fossil fuels until 2050 will exacerbate human health and the advancement of climate change, with the power provider contributing to 47% of South Africa's greenhouse gas (GHG) emissions (Eskom 2023). The power sector's success in reducing carbon emissions will be crucial for achieving net-zero emissions (Eskom 2023). The 2°C scenario anticipates a coal phase-out by 2040 and increased diversified power generation from renewable solar and wind energy sources (Hanto et al.,2021). Transitioning the energy sector to renewable energy sources (RES) demands substantial investments and political dedication (Hanto et al., 2021). South Africa boasts excellent wind potential, with even greater potential found in the coastal regions (Mostafaeipour, et al.,2020). Wind integrating in the electricity mix requires fiscal policy direction to incentivise investments. Carbon pricing has played a crucial role worldwide in promoting investment in decarbonisation efforts (McKitrick, 2016; Steinebach et al.,2021). Improving energy efficiency and mitigating environmental issues through regulations and taxes are crucial for climate change strategies (Shahzad 2020). Carbon taxes follow the polluter pays principle that states that those who cause pollution should be accountable for the costs related to their emission-producing activities (García-Portela, 2023; National Treasury 2010). Imposing a carbon tax raises the price of goods and services, leading to reduced consumption, reduced profitability, and incentivising entities to adopt environmentally friendly solutions. (Jaqua & Schafa 2021:2; National Treasury, 2010; Sterner & Robinson 2018; Tan, Wu, Gu, Liu, Wang & Liu 2022).

Adoption of environmentally friendly solutions, such as wind power, require entities to invest in these technologies. The investment evaluation will be carried out using Cost-Benefit Analysis (CBA), where an entity will invest in a project if the benefits outweigh the costs (Sofia et al., 2020). Investment decisions are influenced by a fixed tax rate (Haites, 2018). Carbon pricing mechanisms must surpass the investment costs for decarbonising technologies to incentivise decarbonisation efforts in the power sector.

Research on the role of carbon pricing in advancing decarbonization within energy generation is sparse. Most existing studies have concentrated on its adverse impacts on GDP, competitiveness, investments in solar photovoltaics, and profitability (Datta, 2017; Modiba, 2019; Van der Meijdena & Withagen, 2019; Van Heerden et al., 2016). Barnard (2019) conducted a cost-benefit analysis of solar photovoltaic investments in the mining sector, while Zietsman et al. (2022) explored the economic and technical feasibility of integrating wind power into distribution networks. Additionally, Makamela and Ramfol (2023) assessed whether South Africa's carbon pricing policy could incentivize mining companies to invest in solar photovoltaics. Despite these studies, there is a significant gap in understanding how carbon pricing policies might foster wind power integration and drive decarbonization in electricity generation. This study seeks to address this gap by examining carbon pricing strategies that could enhance South Africa's policies to better support the decarbonization of electricity generation and combat climate change.

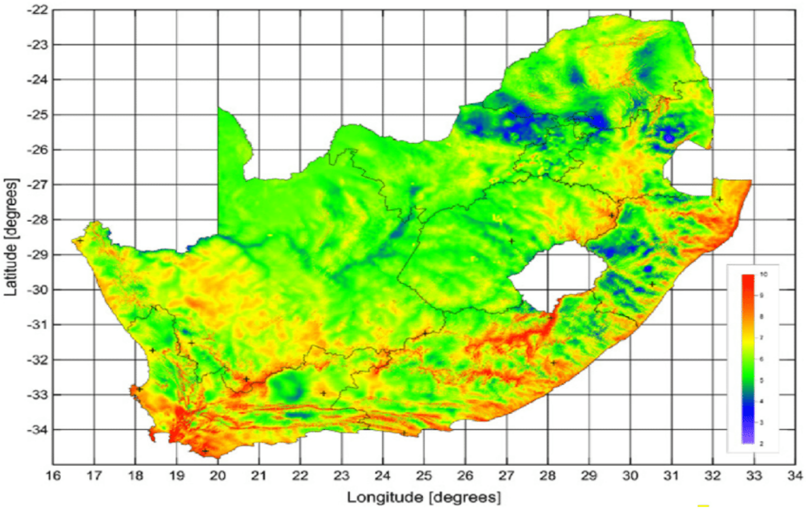
The research question guiding this study is: Does the Carbon Tax in South Africa Promote the Adoption of Wind Energy in the Country's Power Sector? This study will evaluate whether South Africa's carbon pricing encourages wind energy adoption and determine the minimum carbon price necessary to stimulate investment in wind energy. Using a net present value (NPV) simulation, the study will assess the costs and benefits of wind energy investments and confirm that low carbon prices do not effectively drive investment in such technologies. It is essential to evaluate if current carbon prices are adequate to support investment in renewable energy and mitigate climate change. Additionally, the study will propose a carbon price level that could enhance wind energy adoption and contribute to slowing climate change.

The paper is organised as follows: First, it reviews the potential of wind energy in South Africa, including its benefits and drawbacks. Second, it examines South Africa's carbon pricing and identifies challenges with the price level. Third, it performs a net present value simulation to assess the investment decision for wind energy. Finally, it offers recommendations for the carbon price level needed to promote wind energy adoption in South Africa.

2. Literature review

Diversified energy mixes with more sustainable energy options are essential for environmental protection and mitigating the adverse effects of climate change (Okonkwo et al.,2023). The adoption of renewable energy technologies reduces CO2 emissions (Sonter et al., 2020) by shifting energy generation from carbon intensive fossil fuel energy generation. Transitioning to a 100% renewable energy system is the most cost-efficient, least greenhouse gas emitting (GHG), and job-stimulating option for South Africa's energy system by 2050 (Oyewo et al.,2019). South Africa has substantial renewable energy potential with solar photovoltaic (PV) and wind technology being favourable options due to their technological feasibility (Naicker & Thopil, 2019; Simpson et al., 2019). Figure 1 illustrate the wind potential in South Africa at 100 metres above ground level with a range of 6 meters per second considered commercially viable. The green, yellow and orange shaded areas on the South African wind atlas map denote areas in South Africa with wind potential that can be exploited at a commercial level.

Figure 1: South African wind atlas



Source: South African Wind Energy Project (SAWEP) 2020

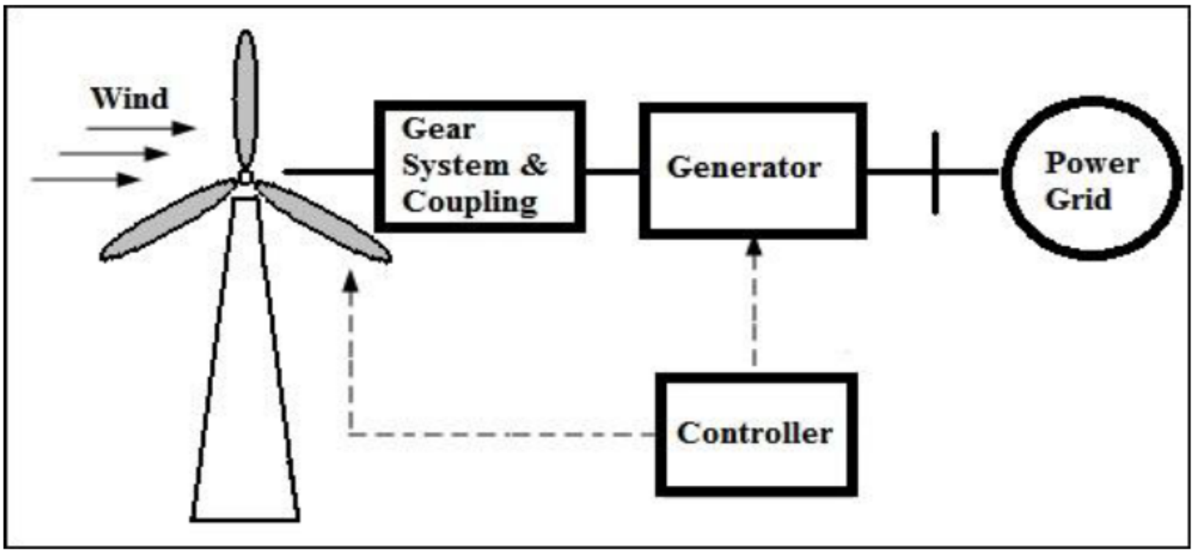
South Africa shows promising wind potential, particularly in the coastal regions of the country (Mostafaeipour et al., 2020). The Sub-Saharan Africa, particularly Cape Alguhas, exhibits notable wind energy potential, with wind speeds ranging from 7.29 to 9.70 meters per second (Aliyu et.,2018). Coastal regions, as confirmed by wind atlases, display significant wind potential, notably in the Western and Eastern Cape, where average annual speeds exceed 4 meters per second at 10 meters above ground level (Nwaigwe, 2022; Akinbami et al., 2021).

Moderate wind energy potential is observed in the Drakensburg foothills and Kwazulu-Natal regions (Akinbami et al., 2021). South Africa boasts a substantial wind power potential of 6,700 giga watt, comparable to its solar power potential (Nwaigwe, 2022; Jain & Jain, 2017). However, current wind energy generation by ESKOM is minimal, accounting for only 0.05% of electricity, despite existing demonstration plants like Klipheuwel and the Darling wind farm (Aliyu et al.,2018). This represents a fraction of the country's overall wind energy potential, which highlights the significant opportunity for expansion as part of decarbonisation efforts and the transition away from fossil fuels.

Wind Energy

Wind energy harnesses the kinetic energy of moving air to produce electricity. A rotating wind turbine converts the air's kinetic energy into mechanical energy (Mutombo & Numbi, 2019; Saifullah, Karim & Karim, 2016). As wind flows over the turbine, it applies a force that turns the blades, which then rotate a shaft inside the nacelle (Saifullah et al., 2016). The nacelle, a horizontal structure, contains a gearbox, generator, and power electronics connected to the blades (Hossain & Ali, 2015). The gearbox increases the rotational speed for the generator, which uses magnetic fields to transform this mechanical energy into electrical energy (Saifullah et al., 2016). Power generation starts at wind speeds of about four meters per second (Hossain & Ali, 2015), and the produced electricity is sent through a transformer to adjust the voltage for practical use (Saifullah et al., 2016). Figure 1 graphically illustrates the wind energy system as described above.

Figure 2: Wind energy system



Source: Saifullah et al (2016).

Wind energy is an environmentally friendly energy source that is widely available, clean, and emits no greenhouse gases (Mutombo & Numbi, 2019; Sayed et al., 2021). The harmful gaseous emissions, such as sulfur and nitrogen oxides, released during the combustion of fossil fuels, cause adverse health conditions like asthma. These health issues are significantly reduced with the use of environmentally friendly energy sources (Sayed et al., 2021). Wind energy technologies help decrease reliance on fossil fuels, thus contributing to climate change mitigation by reducing fossil fuel usage. Additionally, wind energy systems consume less water compared to fossil fuel power plants, promoting better use of this limited resource (Sayed et al., 2021). Wind energy can convert approximately 50% to 60% of the wind passing through the turbines into electricity (Harrison Solar, n.d.; World Economic Forum, 2022). This efficiency is higher than the 15% to 20% efficiency of solar and 42% of concentrated solar power (CSP), making wind energy the most efficient renewable energy source.

Wind speeds significantly influence electricity generation, with even minor fluctuations causing substantial impacts (Solaun & Cerdá, 2019). Variations in wind speed can lead to voltage instability, resulting in either excess or insufficient electricity, which disrupts the power grid and necessitates costly repairs (Akinbami et al., 2021). Furthermore, wind farms also pose environmental challenges, including noise pollution from turbine blades, which can produce noises at frequencies around 100 Hz, potentially causing hearing issues for nearby residents (Akinbami et al., 2021; Sayed et al., 2021). To reduce noise impacts, wind farms should be located away from residential areas, although this creates challenges in connecting to the power grid (Akinbami et al., 2021). During construction, wind farms can disrupt local ecosystems by removing plants and damaging soil through excavations (Sayed et al., 2021; Msigwa et al., 2022). Wind turbines are also linked to bird mortality due to collisions, negatively affecting local wildlife. In South Africa, wind farms have caused an average of 2.9 bird deaths per turbine annually, impacting 130 bird species between 2014 and 2018 (Msigwa et al., 2022).

SA Carbon Tax and policy impediments

Globally, carbon tax is favoured over CO2 emissions capping systems for its simpler implementation and monitoring (Green, 2021; McKitrick, 2016; National Treasury, 2010). South Africa's climate change mitigation strategy incorporates a carbon tax, which imposes a direct tax on total greenhouse gas (GHG) emissions from combustion, fugitive, and industrial processes (Department of Environment Forestry and Fisheries, 2020; National Treasury 2017). The tax specifically targets Scope 1 CO2 emissions arising from direct fuel combustion, gasification, and non-energy industrial processes (National Treasury, 2013). In June 2019, the carbon tax rate was set at ZAR 120 (USD 6.32) per tonne of carbon dioxide equivalent, but it has since risen to ZAR 190 (USD 8.37) per tonne effective January 1, 2024. (National Treasury, 2024). The carbon tax applies to emissions from fuel combustion, fugitive sources, and industrial processes, with exemptions ranging from 60% to 90% to support the transition to lower-carbon operations. These free emission allowances reduce the overall effective carbon tax rate to between ZAR 19 and ZAR 76 (USD 1 and USD 4).

The existing effective carbon tax rate, between ZAR 19 and ZAR 76 (USD 1 to USD 4), falls well below the suggested range of ZAR 950 to ZAR 1900 (USD 50 to USD 100) needed to limit temperature rise to 1.5°C above pre-industrial levels (Beck et al., 2017). Insufficient carbon prices have rendered the climate change mitigation policy instruments ineffective (Baranzini et al., 2017; Boyce, 2018; Haites, 2018; Rosenbloom et al., 2020). Excessive tax-free emission allowances further restrict the effectiveness of carbon pricing instruments in decarbonisation efforts (Baranzini et al., 2017), leading to lower effective carbon prices. The price of carbon ought to be sufficiently high to encourage investment in carbon-reducing technology, such wind power. By making long-term carbon tax liabilities greater than the cost of switching to low-carbon activities, a higher carbon tax rate promotes decarbonisation (OECD 2020; Sumner et al., 2011).

Materials and method

3. Methodology

This research employs a qualitative approach to assess the effectiveness of South Africa’s carbon pricing policy in encouraging wind energy adoption in the power sector. Through thematic analysis of policy documents and literature, the study pinpoints challenges such as low carbon pricing and excessive free emission allowances (Campbell et al., 2020). Additionally, net present value (NPV) simulations are used to determine the carbon price required to incentivise wind energy investments. Secondary data on CO2 emissions and renewable energy costs are gathered through purposive sampling to select relevant literature and datasets (Etikan et al., 2016; Johnston, 2014).

Investment decision

Decarbonisation requires investment in low-carbon technologies. Investment projects frequently entail large, long-term capital expenditures, necessitating effective decision-making methods to mitigate risks (Huang, Tong, Wang & Zheng,2022). Common investment appraisal methods include Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period (PBP), with NPV and IRR being particularly widely used, while NPV is especially prevalent in companies in South Africa and India (Huang et al., 2022). NPV evaluates all future net cash flows associated with an investment decision by calculating the difference between the present value of future inflows and outflows of funds (Bora 2015; Huanget al., 2022; Žižlavský 2014:506) and encourages investment in projects that yield positive net cashflows from an investment. The NPV calculation accounts for the time value of money and risk by discounting cash flows, recognizing that money received today is more valuable than money received in the future due to inflation (Bierman & Smidt 2012). An NPV analysis is performed to evaluate whether the benefits of investing in 100-megawatt (MV) wind facility exceeds the carbon tax of continued CO2 emissions. The present value is calculated by discounting cash flows using the entity's overall cost of capital (Bierman & Smidt 2012; Sandahl & Sjögren 2003). The wind energy facility is expected to have a 20-year useful life and assumed to be fully financed by debt at the prime rate of 11.75%. When the risk associated with an investment significantly differs from the risk of the entity itself, an investment-specific cost of capital can be used (Bierman & Smidt, 2012). Using the cost of capital as the discount rate indicates the minimum required return to cover financing costs over the investment period (Visconti, 2021), and each entity will have a different rate based on the varied project risk and cost of capital.

Investment cost

The wind energy cost data presented in Table 1 was sourced from the cost information of the wind farms listed below. This data was converted using an average exchange rate of ZAR 13 per USD 1 and adjusted for a 5% annual increase from the year of investment through to 2024.

Wind farm	**Size in megawatt (MW)**	**Commercial use**	**Cost (millions)**	**Adjusted cost (ZAR) to 2024**	**Cost (ZAR) per MW**
Loeriesfontein 2 Wind Farm	138	2017	USD 255.919	4 681 348 530	33 922 815
Tsitsikamma Community wind farm	95.325	2016	USD 222.272	4 269 160 693	44 785 321
Kouga Wind Farm	80	2015	ZAR 1 850	2 869 957 200	35 874 465
Noupoort Mainstream Wind	79	2016	ZAR 1 900	2 807 165 343	35 533 739
Jeffreysbay Wind Farm	138	2014	USD 279.81	5 643 002 925	40 891 326
Dassiesklip Wind Energy Facility	120	2021	USD 220.332	2 864 316 000	23 869 300
Witberg wind energy project	103	2025	ZAR 3 400	3 230 000 000	31 359 223
Seriti Resources Wind Farm	155	2026	ZAR 4 000	3 990 000 000	25 741 935
Average cost (ZAR) per MW in 2024					**33 997 265**
average project costs (2021 – 2026)					**26 990 153**

Source: Authors’ compilation from (Barradas, 2024; GlobalData, 2021, 2022; Kouga Wind Farm, n.d.; Jeffreys Bay Wind Farm, n.d.; Mainstream Renewable Power, n.d.; Seriti ZA, 2023)

The average cost of investment was not taken into account because it significantly deviated from the cost per MV during the more recent period of 2021-2025. Given that expenditures occur over different time periods and considering projected costs for future wind energy projects, there is a risk that the investment cost could be skewed by growth rates and foreign exchange fluctuations. In efforts to limit this risk the average project costs from 2021 -2026 is used in the NPV calculation. This period also covers any technological improvements and efficiency that may have resulted in the reduced cost per MV in recent years.

Investment period costs and cost saving

The reported average CO2 avoided per MV in table 2, from integrating wind energy were used to determine the carbon tax cost saving. The average CO2 avoided per megawatt was further adjusted to account for a 2% annual decrease in efficiency due to wear and tear. The carbon tax is expected to rise by 6.5%[1]. Annual operation and maintenance costs were estimated at 3% of the initial costs (Wind Measurement International, n.d.), with a projected annual increase of 6% throughout the investment period. Electricity revenue is not considered due to its uniform pricing; the price remains the same regardless of the electricity's source. The uniform pricing would then not create future differential cashflows considered in an NPV calculation.

Table 2: Average CO2 avoided per MV

Wind farm	Size in MW	CO2 avoided per MW
Loeriesfontein 2 Wind Farm	138	3 986
Air Liquide and Sasol	330	3 636
Kouga Wind Farm	80	3 375
Noupoort Mainstream Wind	79	3 797
jeffreysbaywindfarm	138	2 899
Gouda Wind Facility	138	2 942
Seriti Resources Wind Farm	155	2 258
Average CO2 avoided per MW		**3 270**

Source: Authors' compilation from (Acciona, n.d.; GlobalData, 2021; Kouga Wind Farm, n.d.; Jeffreys Bay Wind Farm, n.d.; Mainstream Renewable Power, n.d.; Sasol, 2024; Seriti ZA, 2023)

Tax allowance and differential cashflow benefit

The Income Tax Act provides for capital allowance tax deduction for entities investing in new renewable energy assets, including wind, solar, hydropower under 30 MW, and biomass, against their taxable income. The cost is deducted over three years at rates of 50%, 30%, and 20% for the first, second, and third years, respectively (National Treasury, 2023). This tax benefit is included in the tax calculation in the NPV calculation. The Income Tax Act further allows deduction of expenditure incurred in the production of income such as operation and maintenance costs from income earned by a taxpayer. The deduction reduces the income, and results in reduced tax payable. This tax benefit may be utilised against an entities' income reducing future differential tax cashflow.

4. Results and discussion

The NPV simulation in Appendix A is negative ZAR 2 157 741 856,29 signifying that the investment cost for a 100 MW wind energy plant outweighs the carbon tax savings over the investment period, thus discouraging

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[1] The average growth rate in carbon tax between 2019 to 2023. The 2024 year was excluded to the outlier growth rate of 23% in that year, when all other years were constant 6% and 7% growth rates.

power generation sector from investing in such a project for decarbonisation. A sensitivity analysis is conducted using the equivalent annual annuity method to ascertain the minimum carbon price that might encourage power generation sector to invest in wind energy plants.

Annual equivalent annuity (EAA)

EAAs are the fixed yearly cash flows that an investment produces over the course of its lifetime (Cai, 2022). A project with a negative NPV and negative EAA is not viable for investment. A sensitivity analysis is performed to identify the break-even carbon price at which the power generation sector would find investing in a wind energy plant equally attractive as paying the carbon tax. By dividing the EAA by the annual carbon emissions avoided, the additional carbon price charge per tonne of emissions can be calculated. The analysis shows that the current carbon price of ZAR 190 would need to be increased by ZAR 869.49 per tonne of CO2 to reach a break-even point. At this increased carbon price, the power generation sector would be indifferent to either investing in wind energy technology or paying the carbon tax. Any further increase in the break-even carbon price would result in a positive NPV, suggesting that the investment in wind energy should be adopted based on NPV criteria.

5. Conclusion and recommendations

A major obstacle to South Africa's carbon pricing level is its failure to drive significant decarbonisation due to low carbon tax rates. The analysis indicates that the current carbon pricing is inadequate to encourage investment in a 100 MW wind energy plant. The NPV simulation reveals a negative value of ZAR 2,157,741,856.29, showing that the costs of wind energy investment exceed the carbon tax savings over the investment period. The sensitivity analysis conducted using the EAA demonstrates that the existing carbon price of ZAR 190 would need to be increased by ZAR 869.49 per tonne of CO2 to reach a break-even point. At this higher carbon price, the power generation sector would be indifferent between investing in wind energy and continuing to pay the carbon tax. Any additional rise in the carbon price would yield a positive NPV, indicating that higher carbon prices could make wind energy investments financially viable. Consequently, adjusting the carbon price is essential to incentivise wind energy investment and enhance the decarbonisation of the power sector. decarbonising the power sector, a significant emitter of GHGs, will bolster South Africa's decarbonisation efforts.

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Appendix A

Year	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**
Cashflow year	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Investment cost	- 2 699 015 293																				
Maintenance and operation costs		- 80 970 459	- 85 828 686	- 90 978 407	- 96 437 112	- 102 223 339	- 108 356 739	- 114 858 143	- 121 749 632	- 129 054 610	- 136 797 886	- 145 005 760	- 153 706 105	- 162 928 471	- 172 704 180	- 183 066 431	- 194 050 416	- 205 693 441	- 218 035 048	- 231 117 151	- 244 984 180
Profit before tax		**- 80 970 459**	**- 85 828 686**	**- 90 978 407**	**- 96 437 112**	**- 102 223 339**	**- 108 356 739**	**- 114 858 143**	**- 121 749 632**	**- 129 054 610**	**- 136 797 886**	**- 145 005 760**	**- 153 706 105**	**- 162 928 471**	**- 172 704 180**	**- 183 066 431**	**- 194 050 416**	**- 205 693 441**	**- 218 035 048**	**- 231 117 151**	**- 244 984 180**
Income tax implications		386 229 088	241 793 984	170 310 996	26 038 020	27 600 301	29 256 320	31 011 699	32 872 401	34 844 745	36 935 429	39 151 555	41 500 648	43 990 687	46 630 129	49 427 936	52 393 612	55 537 229	58 869 463	62 401 631	66 145 729
Carbon tax saving		62 138 098	64 549 056	67 053 560	69 655 238	72 357 861	75 165 346	78 081 761	81 111 334	84 258 453	87 527 681	90 923 755	94 451 597	98 116 319	101 923 232	105 877 854	109 985 914	114 253 368	118 686 399	123 291 431	128 075 138
Total cashflow	**- 2 699 015 293**	**367 396 728**	**220 514 354**	**146 386 148**	**- 743 854**	**- 2 265 176**	**- 3 935 074**	**- 5 764 683**	**- 7 765 898**	**- 9 951 412**	**- 12 334 776**	**- 14 930 449**	**- 17 753 860**	**- 20 821 465**	**- 24 150 819**	**- 27 760 641**	**- 31 670 890**	**- 35 902 844**	**- 40 479 186**	**- 45 424 089**	**- 50 763 313**
Discount rate	**11,75%**																				
NPV	**- 2 157 741 856,29**																				
EAA	**284 360 804,71**																				
Increase in carbon tax to break-even per tonne of CO2		**869,49**																			

Income tax calculations

Tax cashflows	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Profit before tax		**- 80 970 459**	**- 85 828 686**	**- 90 978 407**	**- 96 437 112**	**- 102 223 339**	**- 108 356 739**	**- 114 858 143**	**- 121 749 632**	**- 129 054 610**	**- 136 797 886**	**- 145 005 760**	**- 153 706 105**	**- 162 928 471**	**- 172 704 180**	**- 183 066 431**	**- 194 050 416**	**- 205 693 441**	**- 218 035 048**	**- 231 117 151**	**- 244 984 180**
Section 12B allowance		- 1 349 507 646,4	- 809 704 587,8	- 539 803 058,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxable income/ (loss)		- 1 430 478 105,2	- 895 533 274,2	- 630 781 466,1	- 96 437 111,9	- 102 223 338,7	- 108 356 739,0	- 114 858 143,3	- 121 749 631,9	- 129 054 609,8	- 136 797 886,4	- 145 005 759,6	- 153 706 105,2	- 162 928 471,5	- 172 704 179,8	- 183 066 430,6	- 194 050 416,4	- 205 693 441,4	- 218 035 047,9	- 231 117 150,7	- 244 984 179,8
Tax		**- 386 229 088,4**	**- 241 793 984,0**	**- 170 310 995,8**	**-26 038 020,2**	**- 27 600 301,4**	**- 29 256 319,5**	**- 31 011 698,7**	**- 32 872 400,6**	**- 34 844 744,7**	**- 36 935 429,3**	**- 39 151 555,1**	**- 41 500 648,4**	**- 43 990 687,3**	**- 46 630 128,5**	**- 49 427 936,3**	**- 52 393 612,4**	**- 55 537 229,2**	**- 58 869 462,9**	**- 62 401 630,7**	**- 66 145 728,5**