

South Africa's Electricity Crisis: The Need to Reconcile Environmental Policy Decisions with International Treaties

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I. INTRODUCTION

The history of South Africa under Dutch and British colonial rule has consisted of the subjugation of indigenous people by the white minority.¹ This systematic discrimination was formalized under an apartheid regime that imposed a hierarchical structure influenced by racism and the self-created privilege of white South Africans.² Racial segregation under this political system ran deeper than separate schools and restrooms.³ The segregation compromised black South Africans' access to necessities such as housing, water, and electricity.⁴

However, recent transitions in the South African government have provided some relief for the poor black population. In 1992, the apartheid regime began transitioning into a constitutional democracy.⁵ In this year, South Africa held its last whites-only referendum in which South Africans gave the government permission to work with black leaders in an effort to draft a new constitution free of racial discrimination.⁶ In 1994, the African National Congress won the first non-racial election⁷ and Nelson Mandela became the country's first black President.⁸ The new Government of National Unity implemented a comprehensive plan to enable greater economic and social development in South Africa, aiming to support the overwhelming population of poor blacks.⁹

One of the new government's first actions was to institute the Reconstruction and Development Programme (RDP).¹⁰ The government implemented this policy framework to address the vast socioeconomic problems lingering as a result of the transition from apartheid.¹¹ Lack of economic growth, enormous debt, and inequality among its citizens

1. See *History of South Africa*, ONE WORLD NATIONS ONLINE, <http://www.nationsonline.org/oneworld/History/South-Africa-history.html> (last visited Feb. 5, 2013).

2. See Andrew Marquard, Bernard Bekker, Anton Eberhard, & Trevor Gaunt, *South Africa's Electrification Programme, an Overview and Assessment 7* (Graduate School of Business, University of Cape Town, Working Paper, Dec. 2007), available at <http://www.gsb.uct.ac.za/files/ok.pdf>.

3. *Id.*

4. *Id.*

5. See Christopher Sutton, *Eskom and the United Nations Global Compact Principles on Human Rights*, in EMBEDDING HUMAN RIGHTS IN BUSINESS PRACTICE II 81, 81 (U.N. Global Impact ed., 2007).

6. *Id.*

7. This non-racial election was the first-ever election where black citizens could vote. *Id.*

8. *Id.*

9. *Id.*

10. *Id.* at 82.

11. *Id.*

contributed to the dilapidated economic structure of South Africa.¹² According to the RDP White Papers,¹³ “[a] programme is required that is achievable, sustainable and meets the objectives of freedom, and an improved standard of living and quality of life for all South Africans within a peaceful and stable society characterised by equitable economic growth.”¹⁴ The government acknowledged that the country could not improve when such a large percentage of its population, particularly black South Africans, was living in poverty.¹⁵

Apartheid had kept energy issues of the poor off the policy agenda.¹⁶ Interest in “energy poverty”¹⁷ issues did not emerge until the 1980s.¹⁸ To illustrate this point, in 1996, only 58% of the country’s population lived in formal housing.¹⁹ Additionally, 97% of non-urban white households had access to electricity, compared to 25% of non-urban black households.²⁰ Therefore, the provision of sufficient housing, including running water and electricity for cooking and lighting, was a prominent issue the government needed to address.

Since coming into power in 1994, the government responded to these issues by building 1.4 million housing units.²¹ This increase in housing development provided secure homes for more than 5 million people.²² After building these homes, however, the government then faced the

12. Andrew Marquard, Bernard Bekker, Anton Eberhard, & Trevor Gaunt, *South Africa's Electrification Programme: Policy, Institutional, Planning, Financing and Technical Innovations*, 36 ENERGY POLICY 3116, 3116–17 (Dec. 2007), available at http://www.erc.uct.ac.za/Research/publications/08bekker-etal_electrification%20_programme.pdf.

13. The RDP White Papers lays out the Government’s plans, goals, and methods of implementation of the RDP. See Parliament of The Republic of South Africa, General Notice, *White Paper on Reconstruction and Development*, 353 GOV’T GAZETTE No. 16085 (Nov. 15, 1994), available at <http://www.info.gov.za/view/DownloadFileAction?id=70427>.

14. *Id.*

15. *Id.* at 6.

16. See Marquard, *supra* note 12, at 3117.

17. Energy poverty is the lack of household access to modern energy services, including electricity and clean cooking facilities. See *Energy Poverty*, INT’L ENERGY AGENCY, <http://www.iea.org/topics/energy-poverty/> (last visited Feb. 5, 2013).

18. Marquard, *supra* note 12, at 3117.

19. *Id.* at 3115.

20. *Id.*

21. The Author travelled to South Africa in 2006, 2009, and 2011. During these travels, she saw the evolution of homes from shanty town houses made of cardboard and corrugated tin, to empty concrete structures without utilities, and finally to neighborhoods comprised of well-built concrete homes with plumbing and electrical wires running overhead. See also *Houses for Everyone*, SOUTHAFRICA.INFO, <http://www.southafrica.info/about/social/govhousing.htm> (last visited Mar. 22, 2012).

22. *Id.*

daunting task of supplying them with electricity. The cost of providing this electricity has been borne on the backs of the minority white population who have seen their electricity bills more than quadruple over a span of 8 years.²³ In addition, the utility companies responded to the demand for increased electricity by implementing a billing process that estimated the amount of electricity the population would use.²⁴ As a consequence, electricity bills are usually over-estimated for this part of the white minority population. Due to the over-estimations, customers must request refunds, which often are available only after the customer has paid the over-charged bill and requests such return.²⁵ As more South Africans continue to demand electricity, these problems will only escalate. For the South African government, attempting to solve one problem—the shortage of adequate housing, had caused another problem—how to supply affordable electricity to its population.

This Comment examines whether South Africa's treaty obligations conflict with the requirement of the country's government to provide electricity to a burgeoning home-owning population. Section II introduces Eskom, South Africa's largest utility company, which produces most of the electricity used in South Africa and surrounding countries.²⁶ Section III discusses South Africa's role in the Southern Africa Power Pool and the additional obligations this membership places on the country. Section IV then examines the controversial loan that South Africa received from the World Bank to assist in building the Medupi coal-fired power plant. Section V illustrates South Africa's climate change obligations imposed by its commitment to the United Nations Framework Convention on Climate Change and the Millennium Development Goals the country agreed to meet. Lastly, Section VI examines the relationship between the World Bank loan for the Medupi coal-fired power plant and South Africa's treaty obligations to reduce greenhouse gas (GHG) emissions. This Comment then proposes the establishment of regulations to reconcile conflicting decisions or obligations of international institutions.

II. SOUTH AFRICA'S MONOPOLISTIC ELECTRICITY COMPANY: ESKOM

Eskom Holding Ltd. (Eskom) is a government-owned public utility company in South Africa that generates and distributes electricity to

23. See *infra* Appendix A and B for a comparison of a Cape Town, South Africa resident's electricity bills from 2003 and 2011.

24. *Id.*

25. *Id.*

26. See *Company Information*, Eskom, <http://www.eskom.co.za/c/40/company-information/> (last visited Mar. 22, 2012).

residential, industrial, mining, commercial, and agricultural customers.²⁷ It is one of the top five utility companies in the world in terms of sales and size.²⁸ Eskom maintains a monopolistic hold on South Africa, currently generating 95% of South Africa's electricity.²⁹ In addition, Eskom generates nearly 45% of all electricity used in Africa.³⁰

A series of events, most involving Eskom, led to the peak of South Africa's electricity problems. Beginning in the 1980s, South Africa invested heavily in coal, a cheap form of energy, which enabled Eskom to generate and distribute large amounts of electricity.³¹ The focus on coal as a less expensive source of energy caused Eskom to disregard alternate and off-grid³² energy supplies.³³ This oversight was further compounded by the failed privatization of Eskom in 1998, which resulted in inadequate funding and the inability of the company to construct needed power stations.³⁴ In addition, the increased demand for electricity lowered the country's reserve margin³⁵ to a level that threatened the country's ability to cope with maintenance or breakdowns of power plants that were already running above capacity.³⁶

These negative conditions resulted in an energy crisis from 2007 through 2008.³⁷ Put simply, the demand for power was greater than the available supply, and Eskom ran out of electricity to provide to South

27. *Id.*

28. Size refers to the percentage of energy supplied to South Africa and surrounding countries. See ESKOM, *ESKOM AS A GLOBAL CHANGE AGENT IN AFRICA 2* (July 26, 2000), available at <http://www.un.org/partners/business/gcevent/companies/pdf/eskom.pdf>.

29. See *Company Information*, *supra* note 26.

30. *Id.*

31. See Dave Harcourt, *Rolling Blackouts to Benefit South Africa*, ECO LOCALIZER (Oct. 18, 2008), <http://ecolocalizer.com/2008/10/18/rolling-blackouts-to-benefit-south-africa/>.

32. Off-grid energy refers to accessing electricity from avenues other than through the main or national transmission grid. For example, rather than turning on electricity supplied by Eskom or a similar utility company, a resident could use batteries to supply its electricity. See *Off-Grid Lighting*, OFF-GRID, <http://www.off-grid.net/2013/02/03/off-grid-lighting/#more-44627> (last visited Feb. 5, 2013).

33. *Id.*

34. See FRANCOIS CALLO, SOLIDARITY RESEARCH INST., *ESKOM'S POWER CRISIS: REASONS, IMPACT & POSSIBLE SOLUTIONS 7* (2009), available at <http://www.solidarity-research.co.za/wp-content/uploads/2010/07/13-Eskoms-power-crisis-Reasons-impact-solutions-Gewysig.pdf>.

35. The reserve margin is the excess generation capacity over peak demand. *Id.* at 11.

36. *Id.*

37. *Id.* at 7–11.

Africans. To cope with this problem, Eskom and the government implemented a system of “load-shedding,” or government-scheduled rolling blackouts at various intervals.³⁸ The blackouts, or shutting off of electricity, allowed Eskom to conserve the limited energy it was generating, but at the expense of serving its customers’ needs.³⁹

South Africa was not the only country affected by this energy crisis. South Africa’s membership in the Southern Africa Power Pool (SAPP) spread the impact of the crisis beyond its borders.⁴⁰ Eskom provides 85% of the electricity traded in the SAPP.⁴¹ Therefore, the import and export relationships between the SAPP countries caused the blackouts to flow from South Africa to many surrounding countries.⁴²

III. SOUTHERN AFRICA POWER POOL: SOUTH AFRICA’S ELECTRICAL CONNECTION TO SOUTHERN AFRICA

The SAPP is an international power pool established in 1995 via the Inter Governmental Memorandum of Understanding as a regional body of the Southern Africa Development Community (SADC).⁴³ The SAPP members created a common power grid and market in order to expand electricity trade, lower energy costs, and ensure greater supply of electricity to the utilities.⁴⁴ The pool was structured by long-term bilateral contracts for supply between countries, and these contracts were supplemented by additional short-term contracts.⁴⁵ The SAPP agreements must be interpreted to comply with the SADC treaty and other SADC guidelines.⁴⁶ In addition, disputes between power pool countries are settled via the SADC Dispute Resolution Tribunal.⁴⁷ The SAPP further consists of an executive committee, three subcommittees, an operating subcommittee

38. See Harcourt, *supra* note 31.

39. *Id.*

40. See RABOBANK ECONOMIC RESEARCH DEPT., No. 2008/04, ENERGY CRISIS—THE CASE OF SOUTH AFRICA (SPECIAL REPORT) 3 (2008).

41. *Id.*

42. *Id.*

43. See SUSTAINABLE DEV. DIV. OF THE U.N. ECON. COMM’N FOR AFRICA, ASSESSMENT OF POWER-POOLING ARRANGEMENTS IN AFRICA 39 (Oct. 2004). The SADC is an inter-governmental organization located in Gaborone, Botswana. Southern African Dev. Cmty., *SADC Facts and Figures*, SOUTHERN AFRICAN DEV. CMTY., <http://www.sadc.int/about-sadc/overview/sadc-facts-figures/> (last visited Feb. 26, 2013). The organization strives for regional integration and aims to ensure economic well-being of its member countries, improve the standards of living and quality of life, and promote freedom and social justice. Southern African Dev. Cmty., *SADC Objectives*, SOUTHERN AFRICAN DEV. CMTY., <http://www.sadc.int/about-sadc/overview/sadc-objectiv/> (last visited Feb. 26, 2013).

44. See SUSTAINABLE DEV. DIV., *supra* note 43, at 40.

45. *Id.*

46. *Id.*

47. *Id.*

and its associated coordination center, and an environmental subcommittee.⁴⁸

As a member of the SAPP, each country must meet an Accredited Capacity Obligation (ACO).⁴⁹ This is a requirement that each utility company subject to the ACO maintain sufficient capacity to meet forecasted monthly peak demand.⁵⁰ There are additional obligations of members such as supplying emergency energy for at least six hours per day and disclosing operational information and costs.⁵¹ The SAPP also operates through a pricing arrangement that is set out in the countries' operating agreements.⁵²

Eskom represents South Africa in the SAPP and has played a significant role in energy connections in the SAPP region.⁵³ One of the most important accomplishments of the SAPP was the Matimba-Insukamini interconnector built in October 1995.⁵⁴ This was the first linkage of electrical system operations between the north and south of Southern Africa.⁵⁵ As stated above, Eskom's inability to provide electricity during the high demand in 2007 and 2008 affected South Africans as well as the countries relying on Eskom's electricity imports and contributions to the power pool. South Africa's energy crisis, and its corresponding effect on surrounding countries, indicated the need for increased electricity generation, capacity, and security.

In a country already recovering from economic and social inequality and political instability, these energy problems only intensified the difficulty of stimulating the economy's growth. The energy crisis of 2007 and 2008, and the extreme financial hardship that followed, demonstrated that without immediate improvements to electricity generation and supply, South Africa's economy would suffer, energy prices would increase for all—including the poor—and South Africa would not be able to meet its obligations to neighboring countries.⁵⁶ The

48. *Id.*

49. *Id.* at 43.

50. *Id.*

51. *Id.*

52. *Id.*

53. See U.N. Comm. on Sustainable Dev., South Africa Country Report, 14th Sess., 6 (Sept. 2005).

54. This linked South Africa and Zimbabwe. *Id.* at 31.

55. *Id.*

56. See CALLDO, *supra* note 34, at 4; see also OGUNLADE DAVIDSON, NEIL HIRST, & WILLIAM MOOMAW, RECOMMENDATIONS TO THE WORLD BANK GROUP ON LENDING

government recognized that it would need financial assistance from outside sources in order to recover financially and to improve efficient energy production.⁵⁷ South Africa found this assistance in the World Bank.

IV. FUNDING OF THE ESKOM ELECTRICITY PROJECT: THE WORLD BANK'S LOAN FOR MEDUPI

In March 2010, the World Bank approved a \$3.75 billion loan to South Africa to fund Eskom's Power Investment Support Project.⁵⁸ The loan included three components, with the main focus being the construction of a new coal-fired power plant.⁵⁹ Firstly, \$3.05 billion was allocated to finance, supply, and construct the Medupi coal-fired power station⁶⁰ and associated facilities.⁶¹ Secondly, \$260 million of the loan was allocated to increasing the use of renewable energy.⁶² Lastly, \$485 million was allotted to low-carbon energy efficiency components.⁶³

According to the World Bank, the Project Development Objective was to "enhance power supply and energy security in an efficient and sustainable manner to support economic growth objectives and accelerate South Africa's long-term carbon mitigation strategy."⁶⁴ The country's energy crisis and the global financial crisis exposed South Africa's vulnerability to energy collapses, which it was feared would result in further economic problems and hampered national growth.⁶⁵

The International Bank for Reconstruction and Development (IBRD) approves loans for projects that aim to reduce poverty and promote sustainable development in developing countries.⁶⁶ Therefore, in order to approve this loan, South Africa's situation and Eskom's project had to fit within the World Bank's six criteria for coal power projects as laid

FOR ESKOM INVESTMENT SUPPORT PROJECT THAT INCLUDES A LARGE COAL BURNING POWER STATION AT MEDUPI 7, 7–8 (2010).

57. See CALLDO, *supra* note 34, at 7–8.

58. The World Bank provided the loan through its International Bank for Reconstruction and Development branch. See World Bank, *Eskom Power Investment Support Project Fact Sheet*, 1 (May 2012), http://siteresources.worldbank.org/INTSOUTHAFRICA/Resources/Eskom_Power_Investment_Support_Project_Fact_Sheet.pdf.

59. *Id.*

60. The Medupi power station has a capacity of 3,600–4,800 MW. *Id.*

61. *Id.*

62. *Id.*

63. An example of a low-carbon energy efficient component is a railway to transport coal from the mine to the plant that would lower GHG emissions. *Id.*

64. *Id.*

65. *Id.*

66. See *International Bank for Reconstruction and Development*, THE WORLD BANK (2011), <http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/EXTIBRD/0,,menuPK:3046081~pagePK:64168427~piPK:64168435~theSitePK:3046012,00.html>.

out in *Development and Climate Change: A Strategic Framework for the World Bank Group (DCCSF)*.⁶⁷ The World Bank Expert Panel (Expert Panel)⁶⁸ analyzed each criteria in relation to the proposed project plans for Medupi.

The first requirement is that there is a demonstrated developmental impact.⁶⁹ According to the World Bank, without taking action to increase South Africa's energy supply, the country would face continued economic loss and additional hardships for the country's poor.⁷⁰ Without the loan, there would be major delays in the construction and running of the proposed Medupi power plant.⁷¹ These delays would inhibit South Africa's generation capacity, compromising the security of electricity supply and negatively affecting other SADC countries relying on South Africa's energy production.⁷² Consequently, South Africa's economic growth would be greatly inhibited.

The second requirement is that assistance is provided to identify and prepare low carbon projects.⁷³ In 2005, the Renewable Energy Strategy set a goal of 4% renewable energy use by 2013.⁷⁴ In 2006, South Africa adopted the National Energy Efficiency Strategy, which set national targets for improvements in energy efficiency.⁷⁵ Lastly, in 2008, South Africa committed to the Long-Term Mitigation Strategy⁷⁶ in order to address climate change as a whole.⁷⁷ Therefore, South Africa had already implemented low carbon strategies and increased energy efficiency projects when it applied for the loan.

The third requirement is that energy sources are optimized by considering the possibility of meeting the country's needs through energy efficiency

67. See World Bank, *supra* note 58.

68. The Expert Panel is a panel of independent experts that assess the viability and effects of a proposed project, evaluate compliance of the project with World Bank criteria, and advise the World Bank as to its findings. See DAVIDSON, *supra* note 56, at 3.

69. *Id.* at 20.

70. See World Bank, *supra* note 58.

71. See DAVIDSON, *supra* note 56, at 10.

72. *Id.*

73. *Id.* at 20.

74. *Id.*

75. See DAVIDSON, *supra* note 56, at 5.

76. The Long-Term Mitigation Strategies included several options the country could implement in an effort to reduce greenhouse gas emissions. See DAVIDSON, *supra* note 56, at 3.

77. *Id.* at 5–6.

and conservation.⁷⁸ South Africa had, and continues to have, energy efficiency programs in operation.⁷⁹ Eskom currently maintains an internal efficiency program that aims to decrease non-essential energy consumption 15% by 2015.⁸⁰ South Africa, as part of its “2005 End Use Standards,” established stringent standards for lighting, equipment, and appliances used by certain public entities.⁸¹ The Expert Report, however, recognized that energy efficiency measures would not make up for the increased emissions produced by the Medupi power plant.⁸²

The fourth and fifth requirements combined require full consideration of viable alternatives to the least-cost options.⁸³ When additional financing from donors for their incremental cost is not available, the project must use the best available and appropriate technology to allow for high efficiency and, therefore, lower GHG emissions intensity.⁸⁴ The World Bank considered alternative sources of energy to increase electricity production.⁸⁵ These alternatives included wind power, solar power, hydropower, and natural gas.⁸⁶ However, the Expert Panel concluded that none of the alternatives could meet the required base load.⁸⁷ The South African government also acknowledged that alternatives were not sufficient compared to the energy production the new coal-fired plant would provide.⁸⁸

Although the Panel did not study the engineering of this project in-depth, the Expert Report did recognize South Africa’s attempts to reduce the GHG emissions that would increase from operation of the power plant.⁸⁹ To justify its desire to construct the Medupi plant, Eskom vowed to use supercritical technology in the coal-fired power plant as part of the project.⁹⁰ Supercritical technology operates at increasingly higher temperatures and pressures, allowing higher efficiencies and reducing carbon dioxide emissions.⁹¹ In addition, the Report encouraged

78. *Id.* at 20.

79. *Id.* at 14.

80. *Id.*

81. *See* DAVIDSON, *supra* note 56, at 15.

82. *Id.* at 20.

83. *Id.*

84. *Id.*

85. *Id.* at 16.

86. *Id.*

87. The required base load is 9,600 megawatts (MW) over five years. *Id.* at 20; *see also* World Bank, *supra* note 58.

88. *See* DAVIDSON, *supra* note 56, at 20.

89. *Id.*

90. *Id.* at 10–11.

91. *See Improving Efficiencies*, WORLD COAL ASS’N, <http://www.worldcoal.org/coal-the-environment/coal-use-the-environment/improving-efficiencies/> (last visited Mar. 22, 2012).

use of the highest efficiency lighting, motors, and vehicles when operating the plant.⁹²

The sixth requirement is an attempt to incorporate environmental externalities in project analysis.⁹³ In this case, with the construction of a coal-fire power plant, negative environmental externalities could include: effect on air pollution, damage to forests or water, and health of the surrounding community. The Report recognized the potential, and highly likely, increased GHG emissions resulting from the plant.⁹⁴ However, the Report combated this by suggesting that Eskom develop an effective low carbon transition strategy.⁹⁵

In conclusion, the Expert Panel determined that Eskom's Power Investment Support project met these six criteria. Therefore, the World Bank approved the loan and subsequently funded the construction of the Medupi power plant.

V. SOUTH AFRICA'S INTERNATIONAL COMMITMENTS AND OBLIGATIONS UNDER THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty that was created in 1992 and has been adopted by a majority of countries.⁹⁶ The objective of the UNFCCC is to "achieve stabilization of the concentrations of GHG in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."⁹⁷ On August 29, 1997, South Africa's government ratified the UNFCCC.⁹⁸ The Kyoto Protocol (Protocol), adopted in December 1997, is an international

92. See DAVIDSON, *supra* note 56, at 14.

93. *Id.* at 20. Environmental externalities are effects on individuals or enterprises that are not part of the direct decision-making process. See Alyssa Kagel, *Handbook on the Externalities, Employment, and Economics of Geothermal Energy*, GEOTHERMAL ENERGY ASS'N, i (Oct. 2006), <http://www.geo-energy.org/reports/Socioeconomics%20Guide.pdf>.

94. See DAVIDSON, *supra* note 56, at 4.

95. *Id.* at 3.

96. See U.N. Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

97. *Id.* art. 2. Countries have common but differentiated responsibilities according to their classification as an Annex I, Annex 2, or Non-Annex country. *Id.* pmbl.

98. See United Nations, *Status of Ratification of the Kyoto Protocol*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php (last visited Mar. 22, 2012).

agreement that is structured on the principles of the UNFCCC.⁹⁹ The Protocol mandates that countries stabilize their GHG emissions.¹⁰⁰ South Africa acceded to the Kyoto Protocol in July 2002, but is classified as a Non-Annex I country.¹⁰¹ As a Non-Annex I country, South Africa is not required to meet strict targets and deadlines for emissions reductions set by the Protocol.¹⁰² Despite the lack of stringent requirements, South Africa has still committed to meeting targets for lower GHG emissions.¹⁰³

In 2010, South Africa committed to lowering its expected GHG emissions 34% by 2020 and 42% by 2025.¹⁰⁴ In addition, all parties to the UNFCCC agree to be guided by certain principles. According to Article III:

1. The Parties should protect the climate system for the benefit of present and future generations of human kind. . .
2. . . .
3. The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.
4. The Parties have a right to, and should, promote sustainable development.
5. The Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable growth and development . . . thus enabling them better to address the problems of climate change.¹⁰⁵

Therefore, even though the regulations of the Kyoto Protocol are not enforceable against South Africa, the obligations and general principles of the UNFCCC are.¹⁰⁶ The country must abide by its commitment to aid in the global effort to lower GHG emissions, and this begins with making responsible decisions to reduce emissions in the country itself.

The clean development mechanism (CDM), defined by Article 12 of the Kyoto Protocol, is one of the mechanisms South Africa uses to lower

99. See Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 12(2), *adopted* Dec. 11, 1997, 2303 U.N.T.S. 162, [hereinafter Kyoto Protocol].

100. *Id.* art. 3. For annex I, or developed countries, the Protocol set a national target of reducing emissions by 5% from the level of 1990 emissions of that country. *Id.*

101. See Sandra Gore & Claire Tucker, *Getting the Deal Through—Climate Regulation 2012—South Africa*, BOWMAN GILFILLAN (Jan. 24, 2012, 4:24 PM), <http://www.bowman.co.za/News-Blog/Blog/Getting-the-Deal-Through-Climate-Regulation-2012>.

102. *Id.*

103. *Id.* South Africa made these commitments at the Copenhagen Summit in 2009. *Id.*

104. *Id.*

105. See UNFCCC, *supra* note 96, at art. 3.

106. See Gore, *supra* note 101. See also Kyoto Protocol, *supra* note 99, art. 3.

its carbon emissions and contribute to the global effort of GHG stabilization.¹⁰⁷ The CDM allows developing countries implementing emission-reduction projects to earn certified emission reduction (CER) credits, each of which is equivalent to one ton of CO₂.¹⁰⁸ The CER credits earned can be sold and/or traded to developed countries in order to assist them in meeting their emissions reduction targets assigned by the Protocol.¹⁰⁹ This mechanism encourages sustainable development in developing countries without emission targets because they are able to sell these credits and increase the country's finances.¹¹⁰ In addition, developed countries benefit from trading and selling these credits because the credits enable these countries to meet their strict emission targets.¹¹¹

In addition to its treaty obligations, South Africa, as a United Nations member state, agreed to achieve the Millennium Development Goals (MDG).¹¹² These eight international development goals aim to reduce poverty by 2015.¹¹³ The goals include: 1) eradicating extreme poverty and hunger; 2) achieving universal primary education; 3) promoting gender equality and empowering women; 4) reducing child mortality; 5) improving maternal health; 6) combating HIV/AIDS, malaria, and other diseases; 7) ensuring environmental sustainability; and 8) developing a global partnership for development.¹¹⁴ The most applicable goal of the current discussion is number seven, ensuring environmental sustainability.

In attempting to meet this goal, countries should integrate principles of sustainable development into their policies and programs.¹¹⁵ According to South Africa's 2010 Country Report, the country will likely not meet the timetable set for this goal.¹¹⁶ A specific aspect of this goal is to

107. The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3. Kyoto Protocol *supra* note 99, art. 12. Currently, South Africa is involved in 228 CDM projects. *See* UNFCCC, *supra* note 96, at 3.

108. *See* Gore, *supra* note 101.

109. *Id.* at 4.

110. *Id.* at 1.

111. *Id.*

112. *See* PALI LEHOHLA, STATISTICIAN GENERAL, COUNTRY REPORT ON THE MILLENNIUM DEVELOPMENT GOALS 4 (2010).

113. *Id.* at 12.

114. *Id.* at 13.

115. *Id.* at 84.

116. *Id.*

reduce CO₂ emissions to 8.4 metric tons per capita by 2015.¹¹⁷ South Africa's 2010 Country Report classifies the CO₂ emissions target achievability as "possible," not "likely."¹¹⁸ The same year this Country Report indicated that South Africa was not on track to meet goal seven and had only a chance to meet its CO₂ emission target, the country requested and received a loan to fund a power plant that would increase CO₂ emissions.

Although South Africa is not currently restricted by the Protocol's international regulatory obligations for GHG emissions, the country has clearly demonstrated its intention to set and meet emission reduction targets and contribute to the global effort to stabilize and reduce the release of GHG. In addition, the country committed to the 2015 MDG that included a specific obligation to promote environmental sustainability. Consequently, while South Africa clearly committed to positive climate change and emissions reduction, the country's plan to build a new coal-fired power plant works against these goals. When examined closely, the World Bank appears to have altered the definition of its loan criteria in order to allow Eskom's Power Investment Support Project to meet those guidelines. The South African government's decision to build Medupi, which was made feasible by the World Bank's loan, is inconsistent with the general principles that the country agreed to abide by as a signatory to the UNFCCC. A conflict therefore arises, and a solution is necessary, when an international financial institution makes a decision to support a country that is inconsistent with a United Nations treaty of which that country is a member.

VI. THE COAL CONFLICT AND THE REGULATORY SOLUTION

Solar power, wind power, nuclear power, biomass, geothermal, hydropower, coal, oil, and natural gas are all viable sources of energy. From this list, coal is inherently the highest-polluter and most carbon-intensive energy source when used for electricity production.¹¹⁹ The level of carbon dioxide emissions produced as a direct result of burning coal for electricity production ranges from 790 to 1017 grams of CO₂/kilowatt hours (kWh).¹²⁰ This is compared to 362 to 575 grams of

117. See LEHOHLA, *supra* note 112, at 85.

118. *Id.*

119. See *Coal and Climate Change Facts*, CTR. FOR CLIMATE AND ENERGY SOLUTIONS, <http://www.c2es.org/global-warming-basics/coalfacts.cfm> (last visited Mar. 22, 2012).

120. See *Comparative Carbon Dioxide Emissions from Power Generation*, WORLD NUCLEAR ASS'N, <http://www.world-nuclear.org/education/comparativeco2.html> (last visited Mar. 22, 2012).

CO₂/kWh for use of gas.¹²¹ In addition, hydro, solar, wind, and nuclear resources are not burned in order to produce electricity, and therefore they do not emit as much CO₂.¹²² It therefore seems contradictory for a country that is bound by UNFCCC obligations and committed to Kyoto's global effort to reduce GHG emissions to receive a loan from the World Bank for construction of a new coal-fired power plant as opposed to a less carbon intensive solution.

A. South Africa's Allocation of the World Bank Loan to the Medupi Power Plant Violates its UNFCCC Obligations

As a Member to the UNFCCC, South Africa should not receive the portion of the World Bank loan dedicated to the Medupi power plant. In signing and ratifying the UNFCCC, South Africa agreed to abide by the rules and principles of the treaty. It committed, as a signatory, to reduce the amount of GHG emissions it produced in order to contribute to the global effort under the UNFCCC to "stabiliz[e] GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."¹²³ Requesting, receiving, and allocating \$3.05 billion for a new coal-fired power plant diverges from the commitments it made under the UNFCCC and violates its obligations under such treaty.

Medupi is the fourth largest coal power plant in the world.¹²⁴ Once operative, the Medupi power plant will emit approximately 25 million tons of CO₂ a year; this is more CO₂ than 135 countries will each produce that same year.¹²⁵ In fact, if the Medupi power plant were considered a country, it would rank 77th out of 212 countries in carbon dioxide emissions.¹²⁶ In addition, the plant will extract water¹²⁷ from already strained sources within the country.¹²⁸

121. *Id.*

122. *Id.*

123. *See* UNFCCC, *supra* note 96, art. 2.

124. *See* Zachary Shahan, *World Bank OKs \$3B for World's 4th Largest Coal Power Plant*, *Ecopolitology* (Apr. 10, 2010), <http://ecopolitology.org/2010/04/10/world-bank-oks-3b-for-worlds-4th-largest-coal-power-plant/>.

125. *Id.*

126. *Id.*

127. During electricity production, coal-fired power plants use water to extract, wash and transport coal, cool steam emitted during electricity production, and control pollution from the power plant. *See How it Works: Water for Coal*, UNION OF CONCERNED SCIENTISTS, http://www.ucsusa.org/clean_energy/our-energy-choices/energy-and-water-

According to UNFCCC Article 3(1), South Africa should strive for inter-generational equality in the climate system.¹²⁹ Construction of the world's fourth largest coal-fired power plant is not a commitment to protection of the climate in the present, nor the future. Once the Medupi power plant is up and running, South Africa has a peak, plateau, and decline trajectory for GHG emissions. According to a Presidential announcement, the government would implement "a range of voluntary nationally appropriate mitigation actions (NAMAs) to ensure that the country's emissions deviate below 'Business as Usual' (BAU) baselines."¹³⁰ Consequently, this strategy would cause emissions to peak from 2020 to 2025, stabilize for a decade, and only then begin to decline.¹³¹ The peak of GHG emissions in South Africa, reaching over 600 million tons,¹³² is unnecessary. Even though the government plans to make concerted efforts to reduce GHG emissions 35 years from now, the solution to the country's energy issues does not require this immense increase in emissions.

In addition, under the UNFCCC, member countries should make efforts to reduce global GHG emissions. However, South Africa's peak, plateau, and decline trajectory is focused solely on South Africa, rather than cooperating as a Member country in reducing *global* GHG emissions. In spite of the government's plan to lower South Africa's GHG emissions in the future, the increased emissions Medupi will produce in the present are antagonistic to the efforts of UNFCCC countries. Accordingly, South Africa not only violated its individual obligations under Article 3(1) of the treaty, it violated its Article 3(5) and Article 4 commitment to cooperate with other countries in the effort to reduce or prevent emissions of GHG.

use/water-energy-electricity-coal.html (last visited Feb. 5, 2013). Therefore, coal-fired power plants significantly impact surrounding water sources. *Id.*

128. See Khadija Sharife, *South Africa's Dirty Secret: Eskom and the Medupi Power Plant*, PAMBAZUKA NEWS, (May 13, 2010), <http://www.pambazuka.org/en/category/features/64410/print>.

129. See UNFCCC, *supra* note 96, art. 3(1).

130. See DEP'T OF ENVTL AFFAIRS, REPUBLIC OF SOUTH AFRICA, Ref. BCC11/06/01/01, DEFINING SOUTH AFRICA'S PEAK, PLATEAU AND DECLINE GREENHOUSE GAS EMISSION TRAJECTORY (2011). "Business as Usual" is a baseline concept used to measure the results of certain GHG emissions reduction methods. See Patricia Nelson, *An African Dimension to the Clean Development Mechanism: Finding a Path to Sustainable Development in the Energy Sector*, 32 DENV. J. INT'L L. & POL'Y 615, 635 (2004). The BAU baseline provides the amount of emissions that would be produced if reduction methods were not implemented. *Id.* Emissions produced after implementing a reduction measure can then be compared to the BAU baseline to study the effects of the methods. *Id.*

131. See DEP'T OF ENVTL AFFAIRS, *supra* note 130, at 1.

132. *Id.*

In compliance with Article 3(3), South Africa should anticipate, prevent, or minimize negative effects on climate change.¹³³ South Africa knew of the negative effect the Medupi power plant would have on climate change via increased CO₂ emissions. The country also has the ability to utilize other forms of energy and minimize emission of CO₂ using additional technology. South Africa's actions did the opposite of preventing and minimizing these known negative effects.

Eskom and the South African government did attempt to cancel out the increased GHG emissions that Medupi would produce. The attempt to balance out the negative effects of coal use is evidenced by Eskom's allocation of portions of the World Bank loan to funding the use of sustainable resources and methods dedicated to low carbon efficiency. Although the Medupi plant's use of coal will have a detrimental effect on the environment, Eskom does attempt to lessen the harsh effects by using supercritical coal technology. In the spirit of the UNFCCC, the loan will fund the technology that will allow for cleaner and more efficient burning of coal, subsequently reducing the amount of potential emissions. Additionally, a portion of the loan is allocated for renewable energy.¹³⁴ The money will help to finance the 100 MW Sere Wind Power Project and the 100 MW Upington Concentrating Solar Power Project.¹³⁵ Lastly, Eskom will have \$485 million to spend on low-carbon energy efficiency components of the project.¹³⁶ These components include the Majuba Rail Project¹³⁷ and technical assistance used for reviewing opportunities to increase coal-fired power plant efficiency opportunities.¹³⁸

While these components are steps in the right direction, the attempt to control and/or lessen Medupi emissions is nowhere close to making up for the amount of CO₂ the plant will produce. The desire for cheap sources of electricity is understandable in a country in need of a stable energy supply; the increased demand for electricity has depleted the country's ability to supply it, and resolution is imperative. In a country attempting to grow its economy and bridge a huge socioeconomic gap, an ample supply of energy resources is mandatory. However, South

133. See UNFCCC, *supra* note 96, art. 3(3).

134. \$206 million is allocated to renewable energy. See World Bank, *supra* note 58.

135. *Id.*

136. *Id.*

137. Transporting coal using a railway car helps decrease the amount of emissions released during transportation. *Id.*

138. *Id.*

Africa is not making decisions that are in the best interest of its country in the long-term.

Even though coal may appear to be a simpler and cheaper solution, further investment in alternative, renewable energy sources¹³⁹ is the best avenue for long-term growth, stabilization, and equality. More importantly, use of renewable energy sources would comply with the country's treaty obligations and work towards meeting the MDG to which it agreed. In addition, Medupi is not being structured to allow for the retrofitting of carbon capture and storage.¹⁴⁰ Eskom, the South African government, and the World Bank all acknowledged the negative effect Medupi would have on climate change. Not taking as many steps as possible to limit and prevent the negative effects of Medupi is a violation of Article 3(3) and the obligations South Africa committed to as a signatory of the UNFCCC and participant in the MDG.

According to Article 3(4), South Africa should promote sustainable development, allowing it to successfully deal with climate change problems.¹⁴¹ Building another coal-fired power plant does not encourage sustainable development. The majority of this loan will allow further burning of coal, increasing GHG emissions both now and in the future. If South Africa wanted to comply with the UNFCCC, it would apply the \$3 billion to the second and third components of Eskom's project.¹⁴² The South African government continuously argues that alternative sources of energy are too expensive; yet \$3 billion is a significant amount of money. Instead of enabling the production of 25 million tons of CO₂ a year, that sum of money could be, and should be, allocated to more environmentally friendly resources and projects. Although the government feels otherwise, tapping into renewable energy sources is necessary and financially feasible.

Wind and solar power are more expensive energy sources to utilize, but the cost is worth it. Using China as an example of a proactive response to energy issues, one can understand the potential that South Africa has to exploit resources that not only comply with treaty obligations, but also provide a better future for its citizens¹⁴³ and a greener environment for the world. South Africa and China are both characterized as developing countries as well as emerging global powers.¹⁴⁴ China's population

139. Examples of renewable energy sources include wind and solar power.

140. See DAVIDSON, *supra* note 56, at 11.

141. See UNFCCC, *supra* note 96, art. 4(4).

142. The second and third components refer to wind and solar power and low-carbon efficiency, respectively.

143. This includes creating jobs and improving the economy.

144. *Id.*

outnumbers South Africa's by 1.25 billion people.¹⁴⁵ However, China's five tons of emissions per capita is less than South Africa's twenty tons of emissions per capita.¹⁴⁶ In order to establish energy security, China constructed over 10,000 wind turbines in Beijing, which produced almost 14,000 MW of energy.¹⁴⁷ In addition, the manufacturing, installation, operation, and maintenance of these turbines created over 200,000 jobs.¹⁴⁸ This same project could have produced more than half of South Africa's energy supply as well as provided employment opportunities and energy security.¹⁴⁹

According to the CEO of Eskom, Mpho Makwana, South Africa possesses the potential to affordably tap into 5,000 MW of power using 2,500 2MW wind turbines over a four-year period.¹⁵⁰ When wind turbines are used for energy production, the turbines do not omit any CO₂ and would significantly contribute to lowering both South Africa's and the world's GHG emissions. The South African government still argues that use of alternative forms of energy is presently too expensive. From a numerical viewpoint, however, the Medupi power plant project's capital cost is \$3.5 billion more than the potential capital cost of Mpho Makwana's acknowledged 5,000 MW wind turbine project.¹⁵¹ This difference represents almost the entire amount of the World Bank loan to Eskom.

Although South Africa has implemented several wind farm projects, these projects are considered merely "experimental."¹⁵² Instead, South Africa should treat wind and solar power as priorities. Mpho Makwana acknowledged that South Africa has the ability to administer wind-powered electricity production. In addition, South Africa's geographical location makes it a prime country to exploit solar power. If South Africa took the money loaned for coal-fired power and invested it in natural resources that are less carbon intensive, the country would be able to

145. See Sharife, *supra* note 128.

146. *Id.*

147. *Id.* The turbines allowed Beijing to increase wind power generation by 124% in 2009. *Id.*

148. *Id.* "The European Wind Energy Association (EWEA) estimates that from commissioning to construction, wind power generate[s] 15 jobs per MW." *Id.*

149. *Id.*

150. See Sharife, *supra* note 128. Mpho Makwana made this statement on January 22, 2010 to the National Energy Regulator of South Africa (NERSA). *Id.*

151. See Sharife, *supra* note 128. The cost of Medupi so far totals \$16.6 billion. *Id.*

152. *Id.* Klipheuwel, which cost \$5 million to build, produces power for 2,500 households. *Id.*

comply with its commitments to the UNFCCC, move closer to achieving its MDG, and simultaneously bridge the nation's enormous socioeconomic gap.¹⁵³ Refusal to exploit available sources of cleaner, sustainable energy and a disregard of technology to decrease CO₂ emissions is a violation of the general principles of the UNFCCC.

B. The Need for Enforceable International Treaty Obligations

South Africa's behavior, as described thus far, is in violation of its obligations under the UNFCCC. The problem is that enforceability is lacking. Treaties are international agreements that impose obligations on countries that sign and ratify the agreement.¹⁵⁴ Treaties may be binding and enforceable against a country that violates the treaty's principles and mandated obligations.¹⁵⁵ The UNFCCC is enforceable against South Africa and consequences should be imposed in response to the country's violation of its climate change obligations.

South Africa has masked its decision to use coal with the idea of alleviating poverty. It has sold the power plant as the most beneficial, and possibly only, method to increase electricity while simultaneously reducing poverty. It is clear that there is a need for a quick fix to South Africa's lack of energy supply. The South African government and leaders of Eskom, however, are being narrow-minded and financially self-interested. There are alternative, and more beneficial, avenues for solving the country's electricity problem.

Combining the commitment to renewable energy with demand-side management would enable South Africa to meet its energy needs while also complying with its treaty obligations to reduce GHG emissions. During the process of increasing wind and solar electricity production capabilities, South Africa can turn to the people, the consumers, to address the problem from the demand side. Through demand-side management, the demand for energy can be decreased by providing incentives and education that encourage consumers to use less energy during peak times.¹⁵⁶ When the demand lessens, the pressure to supply such large amounts of electricity decreases. This strategy will provide South Africa the ability and time to implement renewable energy projects, ensure energy sustainability, and cut its reliance on less expensive, but injurious coal. In addition, this strategy will reduce poverty now and in the long

153. Investment in less carbon intensive natural resources would bridge the socioeconomic gap by creating more job opportunities and ensuring energy security.

154. See WEST'S ENCYCLOPEDIA OF AMERICAN LAW, TREATY (2005), available at <http://www.encyclopedia.com/topic/treaty.aspx#2>.

155. *Id.*

156. See ROB STEPHEN, ENERGY EFFICIENCY MADE SIMPLE 23 (2009).

run by creating thousands of job opportunities, sparking outside investment interest in the country, and providing a healthier environment for the country's people. Incentive, or enforcement of law, is essential in ensuring that countries make these responsible decisions.

In South Africa's case, enforceability should entail denial of the portion of the loan allocated to Medupi. In addition, South Africa should pay a fine into a United Nations fund, dedicated to climate change prevention, for violating the global commitment to GHG reductions. Without enforceability of treaty obligations, signing and ratifying the agreement holds no purpose. By allowing South Africa to represent itself as committed to global GHG emissions, and then permitting the use of a \$3.05 billion loan to fund a gigantic coal-fired power plant, a mockery is made of the UNFCCC. South Africa, under the guise of an immediate need for electricity and alleviation of poverty, would be free to make decisions that, when reviewed closely, are not beneficial to the country as a whole and lack compliance with obligatory treaty commitments. South Africa is manipulating the system to appear committed to the global climate, while simultaneously doing what is financially best for the government.

C. Holding the World Bank Accountable for Enabling South Africa's Violation

In the solutions proposed thus far, the World Bank has not been held directly accountable. Alteration or denial of the loan are some mechanisms of oversight with respect to the World Bank's actions, yet there are no legal ramifications for the institution. The World Bank's financial power to fund large, country-wide projects necessitates the ability to hold the institution accountable for projects it funds that violate the rights of a country, its citizens, and/or its other treaty obligations.

At the project level, accountability for complaints against the World Bank is enforced via the World Bank Inspection Panel (IP) and Compliance Advisor/Ombudsman (CAO).¹⁵⁷ These quasi-judicial systems provide review mechanisms of Bank-supported projects when someone feels harmed by such a project.¹⁵⁸ Further, the World Bank is required to

157. See Alnoor Ebrahim & Steve Herz, *Accountability in Complex Organizations: World Bank Responses to Civil Society* 9 (Harvard Bus. Sch., Working Paper No. 08-027, 2007).

158. *Id.* at 10.

disclose policy information and maintain public information centers.¹⁵⁹ These attempts at accountability are insufficient and additional means of holding the World Bank liable for injurious Bank-funded projects are essential.

Firstly, the IP is merely a chance for people's voices to be heard; affirmative actions implementing legal liability require more.¹⁶⁰ Although it is important for society to be able to voice its opinions to a large institution, the absence of legal liability makes the regulatory process futile. Secondly, the CAO is an independent group that reports complaints to the President of the World Bank.¹⁶¹ The CAO then informs the World Bank Board of compliance findings before submitting an Annual Report disclosing these issues.¹⁶² Reviewing a complaint and publishing that complaint is not a substantial accountability mechanism. In addition, a review of a complaint can appear to comply with World Bank policies. However, as seen in the Medupi loan requirement, these policies and criteria can be expanded to allow compliance, even when the heart of the action is harmful.

As stated in Section IV, the World Bank has certain criteria a proposed project must meet in order for that country to secure a project loan. In the case of South Africa, those criteria were expanded. In its Final Report, the experts concluded that the project met the criteria but then stated "the World Bank must commit itself to supporting the South African government's efforts to improve energy efficiency on a scale that matches its commitment to Medupi."¹⁶³ In addition, in its assessment of criteria four, the Expert Panel concluded that no alternative options were viable except for coal, then subsequently stated "however . . . we stress the need to develop other, cleaner, options for the future."¹⁶⁴ The World Bank's Expert Panel knew of the effect Medupi would have on the climate and still approved the loan. The Expert Panel avoided the clear damage Medupi would have by putting the focus on South Africa figuring out cleaner energy production methods *in the future*. This shows a disregard for the immediate detrimental impact of Medupi and places the responsibility for the future impact on the country. If a complaint were filed with the current enforceability measures in place, an Inspection Panel would justify the loan using the Expert Panels Final

159. *Id.* at 9.

160. *Id.* at 10.

161. *Id.*

162. See The World Bank Group, *About the CAO: Governance*, COMPLIANCE ADVISOR OMBUDSMAN, <http://www.cao-ombudsman.org/about/governance/> (last visited Apr. 3, 2012).

163. See DAVIDSON, *supra* note 56, at 20.

164. *Id.*

Report. Accountability for the acknowledged injurious effect of Medupi is lacking unless those not internally involved in the company have the power to hold the World Bank responsible for these decisions.

Although the World Bank has the underlying objective of helping developing countries, the institution benefits financially from these loan transactions as well. Therefore, there is an incentive to approve and fund these projects; a disincentive to abuse this power is what is lacking. Accordingly, affirmative enforcement measures are required. The people should be able to take judicial action when a Bank-funded project causes harm to society. The community as a whole or other non-governmental organizations should be able to bring a suit against the World Bank. If initiation of a lawsuit is limited to the government, this measure would be ineffective. For example, in the Medupi loan situation, the South African government requested and benefitted from the loan. The government had no reason, therefore, to take action against the World Bank. The citizens of South Africa, however, were harmed by the loan because of its unhealthy consequences, the violation of the country's treaty obligations, and the hindrance on accomplishing the MDG. As a result of the deleterious effects upon the country, the nation, via its people or another organization, should have the ability to turn to litigation against the World Bank in order to stop the harmful project and provide an incentive to prevent future approval of injurious projects.¹⁶⁵

D. Regulation is Needed to Prevent Inconsistencies Between International Institutions

There is clearly a conflict in the obligations required of the international institutions involved in South Africa's building of Medupi. South Africa is mired between its United Nations obligations for GHG reductions and the World Bank's loan enabling the increase of CO₂ emissions. Why would a company not accept billions of dollars from an international institution (i.e. The World Bank) that is willing to provide such a loan, when there is no disincentive in doing so?

South Africa is a Member state of the United Nations. The country committed to the UNFCCC and its global effort to reduce GHG emissions and to create a sustainable future. It then violated the general principles of the UNFCCC by requesting and devoting billions of dollars to a

165. For example, injunctions preventing the loan, fines, etc.

power plant that would produce more CO₂ emissions than some countries do in a year. Regardless of any perceived violations of the UNFCCC, it is not surprising that a country in great need would accept funding from the World Bank when given the opportunity.

In addition to the United Nations, the World Bank is another international institution involved in the controversial behavior of South Africa. Disguised as a solution to poverty, the World Bank provided a loan for the Medupi power plant that would significantly increase South Africa's GHG emissions. The relationship between the United Nations and the World Bank, as it relates to South Africa, is analogous to one parent telling you not to do something while the other parent gives you money to do that very thing.

This controversy calls for regulations in order to prevent inconsistencies between international institutions. As stated above, a necessary response to South Africa's treaty violation is to prevent the country from securing the loan dedicated to financing Medupi. However, there is currently no binding authority that allows such an action to be taken. Therefore, regulations are needed when one international body has imposed regulations on a country that creates a counterproductive relationship with another international body.

First, there should be preventative regulations. The United Nations should have a broad set of criteria or list of limitations for what a country is allowed to do once it signs an obligatory treaty. When an international institution provides a loan for, or in some way is involved in, a country's project that is related to the subject matter of a binding treaty, such institution would be required to confirm that its actions comply with the United Nations' list of criteria. In this case, even though the World Bank found that South Africa met its DCCSF criteria, the World Bank should have taken an additional step. The World Bank would have reviewed its loan approval in accordance with United Nations criteria related to the UNFCCC treaty. Most likely, this loan would have been denied. Alternatively, the World Bank could have been instructed to reallocate the loan to additional sustainable development efforts and energy resources.

Second, in the case of a conflict, there should be enforcement regulations. The United Nations, via its Security Council, should have the ability to intervene in the country's incompatible relationship or action with another international body when it concerns a binding treaty. This is not a suggestion that the United Nations take another international institution to court. Rather, it should have the ability to veto, comment on, or otherwise be involved in the distribution of loans or approval of money by institutions when such actions conflict with a country's treaty obligations. In this case, the United Nations, via the power of the UNFCCC, would have

reviewed this loan. It then would have had the ability to veto the loan, or at the very least make enforceable decisions on the reallocation of the money to sources that would comply with South Africa's treaty obligations.

VII. CONCLUSION

South Africa's governmental changes have played an important role in the country's energy policy. The increase in housing for the nation's most impoverished section of the population resulted in a huge increase in demand for electricity. The increase in electricity demand resulted in a decrease in energy supply. To resolve these issues, the South African government turned to the cheap but harmful solution of coal as an energy source for electricity production.

Coal is the most carbon-intensive energy source when used to generate electricity. Therefore, the construction of a power plant dedicated to burning coal for electricity production is not ideal for a country that is a signatory to the UNFCCC. The request for and use of billions of dollars to construct this power plant was a violation of South Africa's treaty obligations and a hindrance to accomplishing the MDG. The country, however, had no incentive to refuse this money when it was in need of a quick fix for their electricity crisis.

Using alleviation of poverty as the rationale, the International Bank for Reconstruction and Development approved and provided a loan to South Africa for over \$3 billion dollars for construction of the Medupi coal-fired power plant. This single power plant would produce more CO₂ emissions in one year than entire countries do in that same period of time. Therefore, South Africa's decisions caused a conflict between two international organizations.

To address this conflict and prevent future issues, several actions are required. First, the obligations imposed on a Member country to a treaty need to be enforced. Secondly, the United Nations should adopt preventative regulations that international institutions must comply with when making agreements or loans to a country that is a signatory to a relevant treaty. If a conflict occurs, consequences should be mandatory. Whether these consequences involve blocking of a loan or binding decisions on restructuring of an agreement, the United Nations should have review power over actions taken that conflict with enforceable international treaties. Lastly, the people harmed by a project should be able to bring suit against the financial institution that enables such

actions. Without affirmative legal action, there is no true disincentive to fund other injurious projects in the future.

VII. APPENDICES¹⁶⁶

APPENDIX A¹⁶⁷

Western Region
PO BOX 577 BELLVILLE 7535
CONTACT CENTRE (800) 027264
FAX NO: (021) 917 3837
E-MAIL: WESTERN@ESKOM.CO.ZA
WEB: WWW.ESKOM.CO.ZA

YOUR ACCOUNT NO: [REDACTED]
SECURITY HELD: 536.11
BILLING DATE: 30/09/03
TAX INVOICE NO: [REDACTED]
ACCOUNT MONTH: OCTOBER 2003
CURRENT DUE DATE: 30/09/03
OLD ACCOUNT NO: [REDACTED]
NOTIFIED MAIL DESKAND: 13.00

Weston Region
PO BOX 577 BELLVILLE 7535
DIRECT DEPOSIT DETAIL:
BANK: ADB
BRANCH CODE: 0046
BANK ACC NO: [REDACTED]
ACCOUNT NO / PREFERENCE NO: [REDACTED]
NAME: [REDACTED]
FAX NUMBER: [REDACTED]
INSTALLMENT: [REDACTED]

METER NUMBER	PREV. READING	CURR. READING	DIFFERENCE	CURRENT	CONDUCTIVITY
22811	13860/01	16081/01	2220	2220	2220

TOTAL ENERGY CONSUMED FOR BILLING PERIOD (kWh): 2220

TOTAL CHARGES FOR BILLING PERIOD: 269.10

ITEM	AMOUNT
Balance brought forward	725.24
Payments received	836.00
Interest on overpaid account	6.33
Total charges for billing period	209.99
VAT based on items at 14%	41.44
TOTAL AMOUNT DUE	269.10

PAID 7/4/03

GRAPH: kWh vs MONTH (O-D-J-F-M-A-M-J-J-A-S-O)

Message: [REDACTED]


FACE RUN NO: P01374
BILL GROUP: [REDACTED]

TELEPHONE NUMBER (TOLL FREE): [REDACTED]
TELEPHONE NUMBER (HOME): [REDACTED]
TELEPHONE NUMBER (CELL): [REDACTED]
E-MAIL ADDRESS: [REDACTED]
FAX NUMBER: [REDACTED]

166. A comparison of the 2003 and 2011 electricity bills shows the dramatic increase and fluctuation of electricity prices in South Africa over an 8-year period. This is a 985.57 Rand difference in electricity bills for the same home and same number of residents.

167. 2003 Eskom electricity bill of Cape Town, South Africa resident. The total amount due equals 269.10 Rand.

APPENDIX B¹⁶⁸



Eskom Holdings SOC., INCORPORATED IN SOUTH AFRICA
REG. NO. 2003/001700/06

WESTERN REGION
PO BOX 977 BELVILLE 7026

CONTACT CENTRE: (086) 075566
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081 641 3001
081 655 5776
CUSTOMER SELF SERVICE WEBSITE:
http://www.eskom.co.za

WESTERN REGION
PO BOX 977 BELVILLE 7026

DIRECT DEPOSIT DETAIL

BANK: ABSA
BRANCH CODE: 331414
BANK ACC NO: [REDACTED]

TAX INVOICE

E-MAIL: No email address supplied

READING TYPE: ESTIMATE READING DATES: 28/10/2011 - 28/11/2011 NO OF DAYS: 33 SEASON

Your next actual reading will be on 20/12/2011

CONSUMPTION SUMMARY FOR BILLING PERIOD

METER NUMBER	PREV. READING	CURR. READING	DIFFERENCE	CONSTANT	CONSUMPTION
22818	204598	210199	5701	LOW	1,201.09
TOTAL ENERGY CONSUMED FOR BILLING PERIOD (kWh)					

PREMIER ID NUMBER: [REDACTED] TARIFF NAME: Nonpeak Standard


ZELANDER NO. 14

Energy Charge (+/- 60 kWh @ 50 c/kWh @ R0.5000 kWh):	R	27.00
Energy Charge (+/- 60 kWh @ 300 kWh @ 200 kWh @ R0.8475 kWh):	R	302.84
Energy Charge (+/- 500 kWh @ 400 kWh @ 200 kWh @ R0.8400 kWh):	R	235.43
Energy Charge (+/- 800 kWh @ 600 kWh @ R1.0325 kWh):	R	821.43
Fixed Environmental Levy charge 1,201 kWh @ R0.02 kWh:	R	24.00
TOTAL CHARGES FOR BILLING PERIOD	R	1,400.68

ACCOUNT SUMMARY FOR OCTOBER 2011

BALANCE BROUGHT FORWARD (See Sep 2011-10-20)	R	1,023.77
PAYMENTS RECEIVED (Cash/Deposit - 2011-10-21)	R	-1,023.77
TOTAL CHARGES FOR BILLING PERIOD	R	1,400.68
VAT PAID ON ITEMS AT 14%	R	104.66

ARREARS			TOTAL AMOUNT DUE	
PRE DATES	31-09 DATES	CURRENT		
0.00	0.00	0.00	TOTAL AMOUNT DUE R	1,254.67
			TOTAL AMOUNT DUE	1,254.65



818 2518 3758 0834

PAYMENT ARRANGEMENT

INSTALLMENT: [REDACTED]

ARREARS: [REDACTED]

DUPLICATE DATE: 2011-11-21

AMOUNT PAID: [REDACTED]

LATE PAYMENT CHARGES WILL BE ADDED TO OVERDUE ACCOUNTS

969160

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MONTH (Actual, Estimated)

D O N J F M A M J J A S O

168. 2011 Eskom electricity bill of Cape Town, South Africa resident. The total amount due equals 1,254.67 Rand.