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Investment into Renewable Energy Projects in sub-Saharan Africa: A South African Legal Perspective

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In the Faculty of Law, University of Pretoria

November 2019

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Declaration

I, **Kriosha Naidoo**, declare that this mini dissertation is wholly my own work except for references specifically indicated in the text. This mini dissertation is hereby submitted for the award of Legum Magister (LL.M) in International Trade and Investment Law in Africa at the International Development Law Unit, Centre for Human Rights, Faculty of Law, University of Pretoria. It has not been previously submitted for the award of a degree at this or any other tertiary institution.

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ACKNOWLEDGEMENTS

The financial assistance of Investec Bank Limited towards this research is hereby acknowledged. The opinions expressed and conclusions arrived at, are those of the author and not attributed to Investec Bank Limited.

I dedicate this mini dissertation to the memory of my late father, Linton S. Naidoo, whose wisdom, passion and thirst for academic knowledge had always inspired me – and continues to do so.

Firstly, I am grateful to my mother, Shanta, for being a continuous source of love, prayer, support and encouragement and without whom my education would have not been possible.

Secondly, I am thankful to my sister and best friend, Rasaleka, for always being my anchor through stormy days and constantly believing in me. I am also thankful to my brother in law, Ronald, for his enduring support.

Thirdly, I am grateful for the friendships forged with Akinyi, Maruwa and Tizi through this course. Their support has been unwavering. I am also thankful to the remainder of the LL.M class of 2019 who have made this educational experience a colourful yet insightful one. I am further grateful to my work colleague who has been a source of fruitful debate, practical guidance and encouragement.

Last, but not least, I am grateful to my supervisor and the course coordinator, Dr Niyi Abe, for his thought-provoking academic insight and constant guidance throughout the LL.M programme.

ABSTRACT

The South African government is facing a severe energy crisis. This crisis is presented against the backdrop of growing pressures from the international community to mitigate the detrimental effects of climate change caused by the harmful emissions of coal-generated electricity. Renewable energy promises to mitigate South Africa's energy crisis and prevent further degradation of the earth's atmosphere. This research, therefore, examines legal factors which affect investment in renewable energy projects in sub-Saharan Africa. It specifically focuses on the South African legal and regulatory framework in sub-Saharan Africa. The research paper identifies fragmented, misaligned and evasive legal and regulatory frameworks as an impediment to investment in renewable energy projects. The paper commences by analysing the plethora of fragmented pieces of legislations, regulations and policy directives presently governing renewable energy in South Africa. It analyses how the current South African legal and regulatory framework thwarts an investor's decision to expend capital on such projects. The research goes further to comparatively analyse investment into renewable energy projects in Chile as Chile is a fellow 'Global South' country which has demonstrated a significant growth spurt in attracting investment into its renewable energy projects. From Chile's successes, in terms of attracting investment into renewable energy, the research extracts lessons that the South African government can learn therefrom to adopt into its own framework. The research contemplates components which make up such a legal and regulatory framework before examining national challenges that may impede investment into renewables as well as hamper the successful implementation of the said framework. Finally, the research concludes by proposing recommendations to reduce or mitigate legal and regulatory impediments obstructing investment in renewable energy projects in South Africa.

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CHAPTER ONE:
INTRODUCTION

This research centres investment into renewable energy projects in sub-Saharan Africa, with a specific focus on renewable energy projects in South Africa. It critically examines the legal factors which impede investment in renewable energy projects in South Africa. More specifically, this research shall identify the legal factors which impede investment and analyse how such factors impact investment into renewable energy. It, thereafter, proceeds to assess an array of legal instruments / mechanisms which can be deployed to form a comprehensive and enabling legal and regulatory framework for renewable energy. Finally, this research concludes with a proposal of possible reforms to enhance investment into renewable energy and improve energy security in sustainable manner within South Africa.

The legal factors which impede renewable energy projects in sub-Saharan Africa - such as poor legal and regulatory frameworks and infrastructural deficit - thwarts an investor's decision to expend capital on such projects thereby making investment into such projects less attractive to the potential investor.[1] Therefore, a critical examination into the legal factors are crucial for the creation of an enabling environment that entices the procurement of investment into renewable energy. This assertion is supported by the African Development Bank in a report that it published in 2018, in which the African Development Bank states that "much work remains in strengthening regulatory independence vis-à-vis the regulated industry and the executive branch of government, as well as the capacity for regulators to able to effectively regulate the electricity sector and ensure its long-term health and sustainability."[2]

1.1 Research Context

[1] 'Beating Africa's Power Problem: The Issues Holding Africa Back' *Africa Oil and Power* 27 December 2017 https://africaoilandpower.com/2018/12/27/beating-africas-power-problem-the-issues-holding-africa-back/ (accessed on 09 May 2019).

[2] African Development Bank Group's 'Electricity Regulatory Index for Africa 2018' https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Electricity_Regulatory_Index_2018.pdf (accessed 10 May 2019).

On 21 March 2019, a day that is recognised as Human Right's Day in South Africa, the South African president assertively declared power as a basic human right by identifying the "energy crisis engulfing the country."[3] Such declarations - though not limited to South Africa alone - fortifies the multitude of erudite literature regarding the fundamental role which energy, as well as access thereto, plays in economic development.[4]

Power is lauded as the backbone of society as it goes a long way towards realising the moral code articulated in the Universal Declaration of Human Rights in that it reduces poverty and improves a person's health as well as living standards.[5] Article 1 and 25(1) of the Universal Declaration of Human Rights,[6] respectively, state that "all human beings are born equal in dignity" and have a "right to a standard of living adequate for health and well-being."[7] To live without access to power is to observe the degeneration of life as power is a core proponent of innovation, opportunity and productivity.[8] Any economy will struggle to grow or thrive if its societal backbone is weak. In sub-Saharan Africa, people lack power largely due to infrastructural deficits.[9] It suffices to say that energy infrastructure underpins economic activity and growth which shall thereby strengthen the societal backbone.[10] In this instance, attracting investment into energy projects will remain critical to realise the energy infrastructure that is needed to unleash economic activity and growth in order to strengthen the societal backbone.

Power generation in Africa, more specifically sub-Saharan Africa, is undoubtedly a need embedded within a right and presents the key to growth and development as it fuels the

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[3] L Tandwa 'Ramaphosa tells South Africa that energy is a basic human right and the current crisis will pass' *News24* 21 March 2019 https://www.news24.com/SouthAfrica/News/ramaphosa-tells-south-africans-that-energy-is-a-basic-human-right-and-current-crisis-will-pass-20190321 (accessed 07 May 2019).
[4] Power Africa's 'Understanding power project financing' http://cldp.doc.gov/sites/default/files/UnderstandingPowerProjectFinancing.pdf (accessed 06 May 2019).
[5] M Hughes 'Why access to energy should be a basic human right' *Forbes* 10 December 2018 https://www.forbes.com/sites/mikehughes1/2018/12/10/why-access-to-energy-should-be-a-basic-human-right/amp/ (accessed 11 May (2019).
[6] The United Nation's 'Universal Declaration of Human Rights of 1948' https://www.un.org/en/udhrbook/pdf/udhr_booklet_en_web.pdf (accessed 07 May 2019).
[7] As above.
[8] As above.
[9] As above.
[10] B Bungane 'Energy infrastructure an important factor I the IRP draft' *ESI Africa* 12 September 2018 https://www.esi-africa.com/industry-sectors/business-and-markets/energy-infrastructure-an-important-factor-in-the-irp-draft/ (accessed 08 May 2019).

economic engines of such countries.[11] It is held that globally "there are one billion, two hundred million people that live without access to electricity" of which sub-Saharan Africa accounts for more than half of the conjecture.[12] Sub-Saharan Africa's necessitated need for power generation can be articulated by doing an introspection into South Africa as it is an important producer of power due to it being a supplier of power to seven other countries in sub-Saharan Africa - namely Zimbabwe, Lesotho, Swaziland (eSwatini), Namibia, Botswana, Mozambique and Zambia.[13] Notwithstanding the fact that South Africa is an important producer for power in sub-Saharan Africa, South Africa is currently facing an energy crisis. The President of South Africa, Cyril Ramaphosa, articulated in a speech delivered on 21 March 2019, that the country's main power utility company is facing bankruptcy in an economy that is already embattled where one in five people lack access to electricity.[14] Thus, in the age of the fourth industrial revolution - which is "characterised by a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries"[15] – it is unconscionable and unjustifiable for those living in sub-Saharan Africa to be doing so in darkness. As alluded to by President Cyril Ramaphosa and upon extrapolation of the Universal Declaration of Human Rights,[16] living without access to power in the twenty-first century is a violation of a basic human right.[17]

Whilst there is a necessitated need for power generation in sub-Saharan Africa, as briefly demonstrated above, such need should not be at the expense of the natural environment. To electrify the sub-continent at the expense of the environment is to realise one human rights at the expense of another. This further necessitates the need to generate power in sub-Sharan Africa in a more sustainable manner. Sustainable energy is aptly defined as "inexhaustible energy that meets the needs of the present generations without compromising the ability of

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[11] J Ward 'The Growing Importance of Renewable Energy in Africa' 25 September 2017 www.howwemadeitinafrica.com/growing-importance-renewable-power-africa/ (accessed 07 May 2019).
[12] Bungane (n 10).
[13] Z Zama 'Did you know? SA exports electricity to seven countries in Southern Africa' *702* 15 October 2018 http://www.702.co.za/articles/323093/did-you-know-sa-exports-electricity-to-seven-countries-in-southern-africa (accessed 14 July 2019).
[14] United Nations Development Programme's 'Goal 7: Affordable and clean energy' https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-7-affordable-and-clean-energy.html (accessed 08 June 2019).
[15] K Schwab 'The Fourth Industrial Revolution' *World Economic Forum* https://www.weforum.org/about/the-fourth-industrial-revolution-by-klaus-schwab (accessed 10 July 2019).
[16] The United Nations (n 6).
[17] Tandwa (n 3).

future generations to meet their own needs."[18] Renewable energy on the other hand "is a form of energy resource that is replaced rapidly by a natural process".[19] Sources of renewable energy includes but is not limited to solar energy, wind power, hydroelectric energy, biomass and geothermal power.[20] An analysis of the definitions of 'sustainable' and 'renewable' energy demonstrates that renewable energy is a means to achieving sustainable power generation as 'renewable' and 'sustainable' are different terms though closely correlated as renewable energy forms part of the concept of sustainable energy.[21]

Renewable energy projects by its very nature strengthens the realisation of a country's commitment to achieving the United Nation's 2030 Sustainable Development Goals (SDGs). In 2015, South Africa, as a member of the United Nations, adopted the SDGs.[22] In total there are 17 SDGs - one of which is the 'Affordable and Clean Energy' goal - each individually developed to accumulatively "end extreme poverty and spur economic growth whilst tackling climate change and the degradation of the world's oceans and forests".[23] At present, the South African government is heavily reliant on the use of fossil fuels to generate and deliver affordable energy to its citizens in spite of its high costs to the environment.[24] Such practices are considered to be unsustainable and contra to the objectives of the SDGs, therefore, necessitating the South African government to re-examine its reliance on fossil fuels and consider alternative energy sources. Renewable sources of energy are considered substitutes to fossil fuels as they contribute towards the national generation and supply of power whilst advancing the country's SDG objectives. A study conducted through the University of Cape Town's Energy Research Centre stated that South Africa would be able to fulfil its commitment under the Paris Agreement goal of limiting global warming -as a signatory thereto -[25] without

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[18] 'What is sustainable energy?' *Energy Alabama* https://alcse.org/what-is-sustainable-energy/ (accessed 11 July 2019).
[19] 'Renewable energy' *Science Daily* https://www.sciencedaily.com/terms/renewable_energy.htm (accessed 13 July 2019).
[20] 'Renewable energy' *Alternative Energy* http://www.altenergy.org/renewables/renewables.html (accessed 22 July 2019).
[21] 'Renewable and sustainable energy' *University of Calgary* https://energyeducation.ca/encyclopedia/Renewable_and_sustainable_energy (accessed 11 May 2019).
[22] 'State members of the United Nations and state members of specialized agencies' https://sustainabledevelopment.un.org/memberstates (accessed 11 July 2019).
[23] 'Sustainable Development Goals' https://sustainabledevelopment.un.org/?menu=1300 (accessed 06 June 2019).
[24] Zama (n 13).
[25] 'South Africa signs Paris Agreement on climate change' 22 April 2016 https://www.environment.gov.za/mediarelease/southafricasignsparisagreementonclimate (accessed 22 September 2019).

substantial impact to the South African economy by phasing out coal in the power sector and introducing a heavier reliance on renewable sources of energy.[26]

The "*painfully slow*" rate of electrification of sub-Saharan Africa should not be attributed to the scarcity of resources but rather the lack of infrastructure that is required to generate, transmit and distribute power to the people and businesses of the land.[27] It is widely known to investors that investing in an "African infrastructure project is difficult" and renewable energy projects are no exception.[28]

The International Agency of Energy has forecasted that over the next 25 years the "demand for electricity within the sub-Saharan region is expected to rise faster than the region's GDP growth."[29] Thus, the spotlight will be shone onto investment in renewable energy within the sub-Saharan region as such projects will play a leading role towards fulfilling the forecasted demand of energy estimated at 1 300 terawatts per hour by 2040,[30] whilst helping countries, such as South Africa, maintain its commitment to transitioning to a low carbon economy.[31] Consequently, as a result of the power deficit, the International Agency of Energy calculates that investment into power infrastructure amounting to US$ 49.4 billion per year is required to adequately electrify sub-Saharan Africa.[32] Thus, in light of such projections, it is imperative to dissect and examine the legal factors - such as legal and regulatory frameworks - which impede potential investment into renewable energy projects thereby lowering a country's ability to attract the much needed investment.[33] Without such investments, any aspirations towards firming the societal backbone in sub-Saharan Africa would be simply wishful.

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[26] B Phakati 'SA urged to speed up transition to money-saving renewable energy' *Business Day* 31 March 2019… https://businesslive.co.za/bd/national/2019-03-31-sa-urged-to-speed-up-transition-to-money-saving-renewable-energy (accessed 06 July 2019).
[27] As above.
[28] 'Power and energy infrastructure in Africa- Financing for the future' *Hogan Lovells* September 2016 https://www.hoganlovells.com/en/publications/power-and-energy-infrastructure-in-africa (accessed 08 May 2019).
[29] Bungane (n 10).
[30] As above.
[31] 'Renewable energy' http://www.energy.gov.za/files/renewables_frame.html (accessed 06 July 2019).
[32] O Veras 'Urbanisation in sub- Saharan Africa: Access to electricity' *Africa Business Insight* 19 July 2018 https://www.howwemadeitinafrica.com/urbanisation-in-sub-saharan-africa-access-to-electricity/ (accessed 09 May 2019).
[33] Bungane (n 30).

It is crucial to identify, understand and examine the legal factors which impede the sustainable electrification of South Africa - being one country that transmits power to seven other countries in sub-Saharan Africa - in order to fuel power generation in power deficient economies. These factors require examination as it slows down the rate of electrification by entrenching itself as an impediment to investment in renewable energy projects thereby contributing towards the lacklustre of such projects. Governments, therefore, need to enact concise, comprehensive and inclusive legal renewable energy frameworks to make renewable energy projects more attractive to potential investors, ultimately culminating in the acceleration of sustainable electrification in sub-Saharan Africa.

In light of the above, this research seeks to critically examine the legal factors impeding investment into renewable energy projects in South Africa. This is due to the fact that "renewable energy is a critical component that underpins economic activity and growth"[34] and guarantees sustainable development of the society.

1.2. Research Problem

There are various multifaceted factors which impede investment into renewable projects in sub-Saharan Africa. One of these factors are the legal and regulatory renewable energy frameworks of the power sector. A legal and regulatory renewable energy framework is an element that is considered by potential investors when assessing the risks associated with investments in renewable energy projects.[35] Depending on the manner in which a country legislates energy within its country, legal and regulatory frameworks can either serve as an impediment to or an enabler for investment into renewable energy projects.[36] It is, therefore, key to critically examine this factor as it is one of the influential factors that a potential investor contemplates when calculating a return on its investments in such projects. It is understood that many sub-Saharan African countries have inefficient, fragmented and / or burdensome - in other words poor - legal and regulatory energy frameworks from which stem energy regulators

[34] The United Nations (n 9).
[35] n 1.
[36] H Honiball 'Legal framework for the promotion of renewable energy in South Africa: a critical analysis' LLM thesis, North-West University https://dspace.nwu.ac.za/bitstream/handle/10394/11724/Haniball_H.pdf?sequence=1 (accessed 07 July 2019).

that are notoriously less than independent, impartial and objective.[37] The propensity for a poor and fragmented legal and regulatory energy framework to succumb to a corrupt bureaucracy is most probable.[38]

It is not surprising that when the World Bank compiled a report centring on the ease of doing business globally, many sub-Saharan African countries ranked at the bottom of the list since the report graded a country according to, *inter alia*, its legal and regulatory frameworks.[39] The average score for the ease of doing business in sub-Saharan Africa was less than 40 points as opposed to the 73 points scored by the Organisation for Economic Cooperation and Development (OECD) countries.[40] The said World Bank report clearly illustrates how critical legal and regulatory frameworks are as a factor which influences investment into renewable energy projects. With less than favourable results from the World Bank's report on the ease of doing business globally, attracting investment becomes increasingly difficult as poor legal and regulatory frameworks are identified as a risk to the success and sustainability of the development of African power projects.[41] Currently, in terms of the 'Doing Business' rankings - with one being the most favourable ranking and 190 being the least favourable ranking - South Africa ranks at eighty-two.[42]

As previously mentioned, an investment of US$ 49.4 billion is required to overcome the power deficit in sub-Saharan Africa.[43] However, such investments are rendered futile if an investment comes at a hefty cost to national governments due to the difficulty in securing finance for such projects. Many governments within sub-Saharan Africa are already highly indebted and power generation capacity requires a great injection of capital expenditure into energy infrastructure projects.[44] The institutions that are most willing to inject capital into energy infrastructure projects by means of loans to over-indebted governments are development financing institutions.[45] Consequentially, lending to over-indebted governments becomes costly to the

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[37] n 1.
[38] As above.
[39] As above.
[40] As above.
[41] As above.
[42] A World Bank Group Flagship Report 'Doing Business 2019' 16th edition https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.pdf (accessed 10 May 2019).
[43] Bungane (n 10).
[44] n 1.
[45] As above.

national government in that a dependency relation between the development financing institutions and the government is formulated.[46] The formulation of dependency between development financing institutions and national governments are worrisome and costly in that it often leaves national governments bloated with more debt than it can ordinarily ingest thereby perpetuating the indebtedness to and dependency on the development financing institution.[47]

For the purposes of attracting investments, governments such as South Africa will need to do some introspection as to how it can facilitate or promote investment into renewable energy projects. One way to attract such an investment is for national governments to adopt legal and regulatory energy frameworks that are "progressive and investor-friendly."[48] Therefore, the identified problems this research shall investigate include: (i) the effect that poor and fragmented legal and regulatory frameworks have on attracting sustainable investment into renewable energy projects and (ii) the foundations for and challenges to a comprehensive and integrated legal and regulatory framework.

1.3 Aims and Objectives of Research

The overarching aim of this research paper is to explore foundations for and challenges to a comprehensive and integrated legal and regulatory renewable energy framework through a critical examination of South Africa's current legal and regulatory framework, with a view of enhancing the attraction of investments into renewable energy projects in South Africa.

For the purposes of canvassing the overarching aim of this research, the objectives of this research shall seek to:

(i) identify poor legal and regulatory renewable energy frameworks as an impediment to investment in renewable energy projects in South Africa;

[46] As above.
[47] As above.
[48] OC Ruppel & B Althusmann *Perspectives on energy security and renewable energies in sub- Saharan Africa: practical opportunities and regulatory challenges* (2016) 94.

(ii) critically examine the current legal and regulatory renewable energy framework in South Africa through an interrogation of enacted or proposed legislations, regulations and / or policy directives issued by the government;

(iii) comparatively analyse the legal and regulatory renewable energy frameworks of Chile and extract lessons that could be learnt therefrom by the South African government; and

(iv) recommend the best possible reforms to South Africa's current legal and regulatory renewable energy framework to help the South African government to enhance investment in renewable energy projects.

1.4 Research Questions

There are three fundamental questions which this paper seeks to answer:

(i) What is the impact of poor legal and regulatory frameworks on investment in renewable energy projects?

(ii) What is the foundation of a comprehensive and integrated legal and regulatory framework?

(iii) What are the challenges to a comprehensive and integrated legal and regulatory framework?

(iv) How and to what extent does a comprehensive and inclusive legal and regulatory framework enhance investment in renewable energy projects?

1.5 Significance of the Research

The significance of this study is associated with "power being the 'oxygen' of an economy and the life-blood of growth" within a country.[49] With power being bestowed with the title of a basic human right,[50] understanding the factors that hinder the process of sustainable electrification of sub-Saharan Africa does much to uplift the livelihood of those who are deprived of such a human right. It is for this reason that it makes research into the investment of renewable energy projects within sub-Saharan Africa important.

The success of this research can 'brighten' the lives of the ordinary persons walking the darkened streets of sub-Saharan Africa by enlightening private institutional investors, commercial banks and development financing institutions. All these institutions play a fundamental role in advancing the generation of renewable energy in sub-Saharan Africa. Due to the importance of their roles, this study can provide such institutions with a basic, yet critical, understanding of the impact that legal and regulatory frameworks may have on the attraction or diversion of investment in renewable energy projects in sub-Saharan Africa. Through appreciating the impact that such frameworks have on investment in renewable energy projects, private institutional investors, commercial banks and development financing institutions are thereby empowered to appropriately assess the risks associated with making an investment into a renewable energy project. Such an appreciation can go a long way towards overcoming some of the challenges of attracting such desired investment in sub-Saharan Africa and assist in realising a country's sustainable development commitments - thereby enabling private institutional investors, commercial banks and development financing institutions to make sustainable investments.[51]

National governments in sub-Saharan Africa will also benefit from this study as the citizens over whom it governs are predestined to be the biggest winners.[52] This study would be of benefit to the South African government as it can present a guideline and provide insight as to where it falls short in its legal and regulatory framework to attract investment in renewable energy projects.

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[49] n 1.
[50] Tandwa (n 3).
[51] The Boston Consulting Group and the African Finance Corporation's 'Infrastructure Financing in Sub- Saharan Africa: Best Practices from Ten Years in the Field' https://www.africafc.org/Publications/Publications-Documents/BCG-Report-Africa-May-2017-Electronic-v12-may.aspx (10 May 2019).
[52] As above.

This research is expected to make investing in renewable energy projects within sub-Saharan Africa more insightful as it should provide an understanding of how poor legal and regulatory frameworks can impede investment in renewable energy projects and, conversely, it should demonstrate how comprehensive and inclusive legal and regulatory frameworks can enhance investment in such projects.

Furthermore, this research primarily focuses on the South African legal and regulatory frameworks in sub-Saharan Africa. The reason for such a focus is owed to the fact that South Africa is an important and strategic producer of power for a few countries in sub-Saharan Africa. South Africa not only generates electricity for its citizens but in addition exports electricity to several other countries within sub-Saharan Africa [53] Thus, a critical examination into the legal and regulatory frameworks of South Africa is vitally important as generation of power in South Africa impacts the citizens and economies of other countries in sub-Saharan Africa and not exclusively South Africa.

A comparative analysis of the South African and Chilean legal and regulatory renewable energy framework shall be carried out. The choice of conducting a comparative analysis with the Chilean legal and regulatory framework is due to the fact that Chile is classified as a 'Global South' country as is South Africa.[54] However, in a recent Climatescope report conducted by the research organisation, BlombergNEF, Chile had recorded the biggest growth in its renewable energy portfolio amongst developing countries globally.[55] The effectiveness of the Chilean energy policies were identified to be one of three main factors contributing towards the growth spurt of investment in its renewable energy portfolio.[56] The Chilean success story, therefore, makes for a compelling comparative analysis as important lessons can be drawn from its recent achievements.

1.6 Literature Review

[53] Bungane (n 10).
[54] M O Ontieno 'What is Global South' *World Atlas* 21 March 2019 https://www.worldatlas.com/articles/what-is-the-global-south.html (accessed 23 July 2019).
[55] A Bertaglio 'Developing countries are the new leaders in renewables' *Enel Green Power* 16 January 2019 https://www.enelgreenpower.com/stories/a/2019/01/developing-countries-and-renewable-energy-for-a-sustainable-future (accessed 22 July).
[56] As above.

South Africa's renewable energy legal and regulatory framework is undeniably flooded with a plethora of pieces of legislation, regulations and policy directives. The World Bank's 'Doing Business Report 2019' advocates for the quality and efficiency of legal and regulatory frameworks in order for a country to attract investment for the realisation of economic development through the electrification of economies.[57] However, the said report falls short of assessing the impact that is had on investment as a result of poor legal and regulatory frameworks. Whilst this research concurs with the World Bank's 'Doing Business Report' with regard to the need for legal and regulatory frameworks that are of good quality and efficient, this research seeks to close the gaps of the aforementioned report by honing in on the impact of poor legal and regulatory frameworks on investment in renewable energy. In order to critically examine the impact that South Africa's convoluted legal and regulatory framework has on investment, this study will consider, through the lens of Omorogbe and Odor,[58] the ramifications and complications of such a framework on the attraction of investment into renewable energy projects.

Due to the barrage of legal policy governing renewable energy in South Africa it would be useful to explore, as suggested by Ruppel and Althusmann,[59] the legal and regulatory pathways that are able to "stimulate foreign direct and local investment in the energy / power sector"[60] as legal frameworks play an important role in promoting renewable energy in Africa. They further allude that success in promoting renewable energy "will come from the creation of appropriate and coordinated legal and regulatory frameworks".[61] However, they fall short to suggest what is deemed to be an appropriate and coordinated legal and regulatory framework. To this extent, this research will illustrate the opportunities and challenges of a legal and regulatory renewable energy framework that is comprehensive and inclusive. Furthermore, it will assess such comprehensiveness and inclusivity in light of enhancing investment into renewable energy in South Africa as well as consider a recommendation of such framework. Zillemann et al,[62] asserts that a critical assessment into the changes that need to be affected to

[57] n 1.
[58] Y Omorogbe & A Odor *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (2018).
[59] n 46.
[60] As above
[61] (n 46) 222.
[62] D Zillmann & others *Innovation in energy law and technology: dynamic solutions for energy transitions* (2018).

current legal and regulatory frameworks would need to be contemplated. This research shall respond to such an assertion by considering the opportunities and challenges are for changing South Africa's legal and regulatory framework for renewable energy to a framework that is comprehensive and inclusive.

1.7 Research Methodology

This research shall adopt a desktop-based qualitative research methodology. Throughout the study, primary and secondary source materials will be consulted and analysed to fulfil the aims and objectives of the study.

The primary sources of material that will be consulted includes the various energy legislation, regulation and policy directives implemented in South Africa and Chile. In the South African context, the legislation, regulations and policy that makes up its renewable energy framework includes *inter alia* the Constitution of the Republic of South Africa;[63] the White Paper on the Renewable Energy Policy of the Republic of South Africa; the National Energy Act 34 of 2008; the Integrated Energy Plan, the Integrated Resource Plan for Electricity 2010-2050; the Gas Act 48 of 2001; the Electricity Regulation Act of 2006; Biofuels Industrial Strategy of the Republic of South Africa (2007); the Renewable Energy Feed-in-Tariffs (REFIT) and the Renewable Energy Independent Power Producers Procurement Programme.[64]

This research will also proceed to consult secondary sources *inter alia* books, policy reviews and reports from international organisations, journal articles in addition to newspaper and legal magazine commentary.

1.8 Limitations of Research

It should be noted that this research does not intend to examine investment into individual renewable sources of energy. Rather, this research takes a holistic and generalised view of the

[63] The Constitution of the Republic of South Africa Act 108 of 1996.
[64] n 34.

renewable sources of energy available and focuses on the legal factors which impact investment in renewable energy projects.

1.9 Structure of Research

This research is structured as follows. Chapter two of the research introduces renewable energy by demonstrating the need for an energy transition from traditional sources of energy to clean sources of energy – such as renewables - in light mounting international obligations to curb the detrimental effects of climate change. The chapter proceeds to demonstrate the legal instruments through which renewable energy is promoted within the South African legal landscape and conducts a critical examination thereof. The focus of chapter is, thus, a critical examination of the South African legal and regulatory framework for renewable energy regarding the deployment and promotion of investment into renewable energy.

The following chapter, Chapter three, explores the foundations of a comprehensive legal and regulatory framework for renewable energy. It considers components which make up such a legal and regulatory framework before examining national challenges that may impede investment into renewables as well as hamper the successful implementation of the said framework.

Chapter four of this research is focused on a comparative analysis of the legal and regulatory frameworks for renewable energy in Chile against that of South Africa. The chapter commences by substantiating the reasoning behind the comparison between Chile and South Africa. The chapter progresses to set out the current legal and regulatory framework adopted by the Chilean government. Thereafter, the chapter concludes by conducting a comparative analysis of the renewable energy legal and regulatory frameworks adopted by Chile and South Africa.

Chapter five draws this research to a conclusion. The focus of this chapter will be summary of what has been learnt. This chapter shall further provide recommendations for possible reforms to South Africa's existing legal and regulatory renewable energy framework in order to lucratively enhance investment in renewable energy.

CHAPTER TWO:
LEGAL AND REGULATORY LANDSCAPE OF RENEWABLE ENERGY IN SOUTH AFRICA

2.1 Introduction

Renewable energy is a form of energy which "harnesses naturally occurring non-depletable sources of energy, such as solar; wind; biomass; hydro; tidal; wave; ocean current and geothermal, to produce electricity."[65] The South African Department of Energy has stated that in order to generate a sustainable energy system that facilitates economic growth, environmental sustainability and energy security, a comprehensive and sound energy strategy is needed.[66] Conceptually, as will be demonstrated through this research, renewable energy satisfies the three aforementioned elements that is required to generate a sustainable energy system. However, questions arise as to the sound and comprehensive state of South Africa's renewable energy strategy. To this extent, this chapter shall seek to examine the legal and regulatory framework for renewable energy in South Africa with regards to the deployment of renewables within the country's energy mix and the promotion of investment therein. This chapter shall, thus, proceed to: (i) set out the current landscape for renewable energy in South Africa, (ii) identify barriers to the deployment and investment of renewable energy in South Africa, (iii) outline the theoretical legal and regulatory renewable energy framework in South Africa, and (iv) critically examine the South Africa's legal and regulatory framework.

2.2 Renewable Energy Landscape in South Africa

[65] 'White Paper on the promotion of renewable energy and clean energy development' https://www.gov.za/sites/default/files/gcis_document/201409/rewp2208022.pdf (accessed on 01 August 2019).
[66] The South African Department of Energy's 'The state of renewable energy in South Africa: 2015" at 30 http://www.energy.gov.za/files/media/Pub/State-of-Renewable-Energy-in-South-Africa.pdf (accessed on 22 September 2019).

The integrity of the world's climate in recent years has been surveyed to be one of the most prevalent issues that mankind is facing today.[67] Climate change, a global challenge that seeks to unite the world through its non-discriminatory characteristic,[68] is said by the former President of the United States, Barack Obama, to be "one issue that will define the contours of this century more dramatically than any other".[69] Climate change is defined in terms of Article 1 of the United Nations Framework Convention on Climate Change as the "change in climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods".[70] Therefore, climate change is "no longer some far-off problem"[71] as climate variability is currently been observed in different parts of the world today.[72] Such variability in temperatures necessitates concerted and deliberate action on the part of governments globally to take more gallant steps towards averting a catastrophe - with South Africa being no exception. South Africa acknowledges the importance of climate integrity and environmental sustainability.[73] This acknowledgement is evidenced in the Constitution of the Republic of South Africa, Act 108 of1996 (the Constitution) which ardently entrenches the significance of climate and environmental sustainability by articulating, in section 24 (a) and (b) therein, a human "right to an environment that is not harmful to their health or wellbeing; and to have the environment protected, to the benefit of present and future generations".[74]

However, despite its acknowledgement of the importance of climate integrity and environmental sustainability, South Africa is a developing country that is stricken with several

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[67] A Jackson 'The 10 most serious problems in the world, according to millennials' *Business Insider South Africa* 29 August 2017 https://www.businessinsider.com/world-problems-most-serious-according-to-millennials-2017-8?IR=T (accessed 31 July 2019).
[68] 'What is climate change?' https://www.acciona.com/climate-change/ (accessed 31 July 2019).
[69] J Santiago '15 quotes on climate change by world leaders' *World Economic Forum* 27 November 2015 https://www.weforum.org/agenda/2015/11/15-quotes-on-climate-change-by-world-leaders/ (accessed 31 July 2019).
[70] 'United Nations Framework Convention on Climate Change 1992' https://unfccc.int/resource/docs/convkp/conveng.pdf (accessed on 31 July 2019).
[71] Santiago (n 69).
[72] J Henley 'Climate crisis blamed as temperature records broken in three nations' *The Guardian* 25 July 2019 https://www.theguardian.com/world/2019/jul/24/summers-second-heatwave-set-to-break-records-across-europe (accessed 31 July 2019).
[73] H Papacostantis 'Renewable Energy Regulation in South Africa: Lessons to be learnt from the Chinese Experience' (2017) L2 *Comparative and International Law Journal of South Africa* at 275.
[74] The Constitution of the Republic of South Africa Act 108 of 1996.

societal challenges.[75] The challenges that face South Africa can be broadly categorised as being two-fold:[76] (i) socio-economic challenges such as high unemployment rates that are said to be contributed by a dire shortage of power supply in the country amongst other factors and,[77] (ii) the global issue of climate change and sustainable development pressures inferred through the United Nations' 2030 Sustainable Development Goals (SDGs).[78] Therefore, in light of the aforesaid challenges as well as South Africa's constitutional promise of a right to an environment that is not harmful to one's health or wellbeing, the South African government's role in electrifying the country can be likened to a pivot on a seesaw as it seeks to balance the aforementioned challenges. The reason for the South African government's role being likened to pivot on a seesaw is due to the challenges which confer opposing obligations upon it. On the one side, the government has obligation to its citizens with respect to the most cost effective realisation of their socio-economic rights and, on the other side, the South African government has an obligation to the international community with respect to the mitigation of detrimental climate changes.

The difficulty that is presented in the balancing of the abovementioned obligations is attributed to South Africa's heavy reliance on fossil fuels, such as coal, to generate 77 percent of its primary energy.[79] Further exacerbating the government's balancing of the aforesaid obligations is its "power utility's reliance on coal-fired power stations to produce 90 percent of its electricity."[80] The South African government's reliance on fossil fuels to electrify South Africa, as well as other countries in sub-Saharan Africa,[81] can be linked to the affordability of coal-fired generated electricity that is derived from established technologies.[82] The affordability of coal-fired generated electricity, in light of overcoming the socio-economic challenges that the country faces, allows the South African government to honour its promise

[75] T Ebrahim & Thato Masiangoako 'Reflecting on South Africa's socioeconomic progress' https://www.constitutionhill.org.za/blog/reflecting-on-south-africas-socioeconomic-progress (accessed 21 September 2019).
[76] Papacostantis (n 73) 275.
[77] C Smith 'Load shedding threatens jobs, economic recovery, says consumer body' *Fin24* 20 March 2019 https://www.fin24.com/Economy/Eskom/load-shedding-threatens-jobs-economic-recovery-says-consumer-body-20190320 (accessed 01 August 2019).
[78] Papacostantis (n 73) 275.
[79] 'Coal resources' http://www.energy.gov.za/files/coal_frame.html (accessed 01 August 2019).
[80] R Mauger & M Barnard 'Addressing fragmentation in the South African renewable energy governance effort-lessons to be learnt from France' (2018) 29 *Journal of Energy in Southern Africa* at 1.
[81] Z Zama 'Did you know? SA exports electricity to seven countries in Southern Africa' *702* 15 October 2018 http://www.702.co.za/articles/323093/did-you-know-sa-exports-electricity-to-seven-countries-in-southern-africa (accessed 14 July 2019).
[82] Papacostantis (n 73) 275.

of free electricity embedded within the Free Basic Electricity Policy of 2003 - with minimal cost to its coffers.[83] The Free Basic Electricity Policy of 2003 is a policy, implemented by the South African government, that is intended to provide free electricity to its indigent citizens "to bring about relief to poor electrified households and to ensure optimal socio-economic benefits".[84] Therefore, through a reliance on coal, the South African government is able to fulfil its obligations, in a cost effective manner, to its citizens in terms of enabling them to realise their socio-economic needs.

However, whilst coal-fired generation of electricity appears to be the most cost-effective option for the South African government to deliver on its promise of free basic electricity, the cost of burning such fossil fuels for the generation of electricity lies in the detrimental effect on the environment through the emission of greenhouse gases (GHGs).[85] GHGs are gases suspended in the atmosphere which influences the earth's energy balance.[86] These GHG emissions, in the form of carbon dioxide and chlorofluorocarbons amongst others, cause global warming - "the warming that results when the atmosphere traps heat radiating from the Earth towards space".[87] The majority of South Africa's GHG emissions stem from its "coal-based, energy intensive economy."[88] It is this sort of an economy that places South Africa in a predicament with respect to the challenges that it faces, as reliance on coal-fired energy generation erodes the government's commitment under the Paris Agreement goal of limiting global warming and inhibits its chance of achieving the SDGs by 2030.[89] The Paris Agreement to the United Nations is one whereby all parties thereto must develop nationally determined contributions which illustrates a party's action plan to combat the effects of climate change.[90] Whereas the SDGs is a new United Nations climate agreement that was developed in 2015 and is aimed to

[83] F Adam 'Free basic electricity: a better life for all' http://www.earthlife.org.za/wp-content/uploads/2010/03/Free-Basic-Electricity-Final-Low-res.pdf (accessed 01 August 2019).
[84] GN 4 in GG 25088 of 4 July 2003 http://www.energy.gov.za/files/policies/Free%20Basic%20Electricity%20Policy%202003.pdf (accessed 22 September 2019).
[85] Papacostantis (n 73) 281.
[86] 'What are greenhouse gases?' https://www.myclimate.org/information/faq/faq-detail/detail/News/what-are-greenhouse-gases/ (accessed 21 September 2019).
[87] 'The causes of climate change' https://climate.nasa.gov/causes/ (accessed 01 August 2019).
[88] Papacostantis (n 73) 275.
[89] B Phakati 'SA urged to speed up transition to money-saving renewable energy' *Business Day* 31 March 2019 https://businesslive.co.za/bd/national/2019-03-31-sa-urged-to-speed-up-transition-to-money-saving-renewable-energy (accessed 06 July 2019).
[90] Papacostantis (n 73) 275.

end extreme poverty.[91] The most relevant SDG relating to the preservation of the environment is that of the seventh goal which relates to the 'access to affordable, reliable, sustainable and modern energy for all'.[92] In terms of the seventh SDG, South Africa is urged to "substantially increase its share of renewable energy" in its current energy mix and to promote investment in energy infrastructure and clean energy technologies."[93]

In view of the impact of GHG emissions on the integrity of the climate, the institution of a Free Basic Electricity Policy and a reliance on coal generated electricity, the South African government currently attempts to alleviate the socio-economic challenges that its citizens face by violating their "right to an environment that is not harmful."[94] Moreover, by placing continued reliance on coal generated electricity in its energy mix, the South African government falters in honouring its international commitment to reduce GHG emissions in terms of the aforementioned Paris Agreement as well as hampers its goal to end poverty by the year 2030 in terms of the SDGs. Therefore, to level the seesaw, a holistic solution for the balancing of South Africa's national socio-economic challenges against the global challenge of climate change and sustainable development, lies within the concept of renewable energy. Renewable sources of energy can help to alleviate South Africa's socio-economic challenges and strengthen energy security compromised by a shortage in supply of electricity,[95] whilst promoting the "right to an environment that is not harmful."[96]

In light of the promise to alleviate socio-economic challenges, the Constitution promotes renewable energy in South Africa's energy mix - currently comprising of coal; renewable energy sources; crude oil; gas and nuclear -[97] by advocating, in section 24 (b) (iii), for the

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[91] The United Nations' 'Transforming our world: The 2030 agenda for sustainable development' https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf (accessed 02 August 2019).

[92] OC Ruppel & K Ruppel- Schlichting 'Comparative legal aspects of the potential of renewable energy to promote security, sustainable development and climate change mitigation: Germany, South Africa and Namibia' in in OC Ruppel & B Althusmann (eds) *Perspectives on energy security and renewable energies in sub-Saharan Africa: practical opportunities and regulatory challenges* (2016) at 118.

[93] The United Nations (n91).

[94] (n 74) sec 24.

[95] P Burkhardt & M Cohen 'Power Shortages in South Africa could get a whole lot worse' *Bloomberg* 07 April 2019 https://www.bloomberg.com/news/articles/2019-04-08/power-shortages-in-south-africa-could-get-a-whole-lot-worse (accessed 01 August 2019).

[96] (n 74) sec 24.

[97] The Department of Energy's 'South African Energy Sector Report' (2018) http://www.energy.gov.za/files/media/explained/2018-South-African-Energy-Sector-Report.pdf (accessed 01 August 2019).

"sustainable development and use of natural resources while promoting justifiable economic and social development".[98] It is the nature of renewable energy that endorses the sustainable economic and social development of the people of South Africa. It increases access levels to electricity and secures a reliable source of energy whilst taking into account the environment to ensure sustainability for the present and future generations.[99] The Intergovernmental Panel on Climate Change makes a bold, though theoretical, assertion that the potential of renewable energy "is much greater than all of the energy that is used by all the economies on Earth" as these sources of energy guarantee a supply that is future-proof unlike its fossil fuel counterpart.[100]

Therefore, in light of the above, renewable energy can be classified as a formidable tool that may be utilised by governments to fight against and mitigate the effects of climate change.[101] In addition to being a formidable tool that can be used to against climate change, it can be used by the South African government to overcome the socio-economic challenges that the country faces. It is reported that one of the potentials that lie within renewable sources of energy is its ability to create jobs as it is "more labour intensive than other forms of electricity generation".[102] It is said that renewables have the potential to create more jobs than coal generated electricity, "through measuring the number of permanent jobs created per unit of energy produced".[103] If the potential of job creation holds true, then renewable energy goes a long way towards helping South Africa lower its high rate of unemployment thereby debilitating some of the socio-economic challenges faced by its citizens. It can, thus, be justifiably said that renewable energy advances the socio-economic rights of its citizens in a manner that protects the integrity of the environment for the present and future enjoyment of South Africans. Renewable energy, as reliable source of energy, is imperative to reduce the

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[98] (n 74) sec 24(b)(iii).
[99] Z Chiguvare & TM Chiguvare 'The state of renewable energy technologies and applications in sub-Saharan Africa- Where do we stand, and where do we go?' in OC Ruppel & B Althusmann (eds) *Perspectives on energy security and renewable energies in sub- Saharan Africa: practical opportunities and regulatory challenges* (2016) at 11.
[100] Ruppel & Ruppel- Schlichting (n92) 117.
[101] As above.
[102] M Grosling 'SA could have a major advantage with renewable energy, say experts' *Fin24* 05 February 2019 https://www.fin24.com/Economy/sa-could-have-major-advantage-with-renewable-energy-20190205 (accessed 06 July 2019).
[103] As above.

levels of poverty in South Africa, improving the health of its citizens, enhance productivity and support economic growth.[104]

However, notwithstanding the fundamental importance that renewable energy plays in advancing South African human rights, its prevalence in South Africa's current energy mix is approximately a mere nine percent of the total energy mix.[105] The low feature of renewable energy in the South African energy mix seeds scepticism regarding the South African government's confidence in the potential of renewable energy to advance socio-economic rights as its constitutionalised importance and relevance, inferred from section 24 of the Constitution, contradicts its status quo within the South African energy mix. Thus, this research shall proceed to identify potential barriers that impede investment into renewable energy projects in South Africa, as it stands to reason that enhanced investment into renewable energy projects directly correlates with an increased deployment of renewables into an energy mix.

2.3 Barriers to Investment in Renewable Energy

South Africa is currently amid a calamitous energy crisis.[106] Opportunities for renewable energy to claim prominence in South Africa's energy mix can breed off such a calamity. The stage for renewable energy is set in South Africa against the backdrop of the government digging deep into its shallow pockets to save the national power utility, Eskom, from bankruptcy in an earnest effort to keep the country from plunging into darkness.[107] Aside from facing bankruptcy and seeking aid from the national government to keep its doors open, Eskom is unable to generate sufficient electricity to meet demands resulting in the implementation of load shedding from time to time.[108] Load shedding is described as a reduction in load of power

[104] Chiguvare & Chiguvare (n 99) 15.
[105] 'South Africa Power Fact Sheet' https://www.usaid.gov/powerafrica/south-africa (accessed on 02 August 2019).
[106] Ruppel & Ruppel- Schlichting (n92) 118.
[107] A Sguazzin & C Goko 'Eskom gets bailout funding. Now it needs a rescue plan' *Fin24* 26 July 2019 https://www.fin24.com/Economy/Eskom/eskom-gets-bailout-funding-now-it-needs-a-rescue-plan-20190726 (accessed 02 August 2019).
[108] T Niselow 'Load shedding through the years and how Eskom has struggled to keep the lights on' *Fin24* 24 March 2019 https://m.fin24.com/Economy/Eskom/sunday-read-load-shedding-through-the-years-and-how-eskom-has-struggled-to-keep-the-lights-on-20190324 (accessed 23 September 2019).

supply to protect electricity power system from a total blackout .[109] Eskom's load shedding has had a detrimental effect on the South African economy which has seen, as a result thereof, a depreciation of the South African Rand and a downgrade of the country's credit rating to a negative investment destination outlook.[110] "Escalating electricity costs, energy security concerns, and a carbon tax, creates a landscape which should see more businesses adopting clean energy projects to address the challenges,"[111] thus, making investment in renewable energy look more desirable. However, this has not necessarily been the case as there are barriers which impede growing investment in renewable energies within South Africa.

South Africa has a great strategic advantage when it comes to renewable sources of energy as these sources of energy exist in its abundance.[112] Its landscape is one that is exposed to "high wind speeds" and is enriched by "a famously bright sun".[113] Notwithstanding South Africa's abundance of renewable sources of energy and the opportunities that prevails for investment into renewables as a result of an unstable supply of energy generated by Eskom, renewable energy is not a prominent feature of energy in the South African energy mix.[114] It is said that the poor feature of renewable sources of energy in South Africa is attributable to specific barriers that block an investor's entrance to renewable energy.[115] It is acknowledged that the barriers which hinder a greater inclusion of renewable energy to South Africa's energy mix includes high establishment costs for the uptake of renewables comparative to that of coal generated electricity; vast amounts of nuclear energy that can be extracted from small amounts of uranium; the South African government's willed commitment to fund new coal-fired power stations; and most fundamentally the slow and poor development of laws, regulations and policies on renewable energy.[116] There is a general apprehension regarding the "absence of appropriate policy and regulatory regimes that support renewable energy".[117] The lack of investment in the renewable energy sector in South Africa is predominantly due to the lack of

[109] 'What is load shedding?' http://loadshedding.eskom.co.za/LoadShedding/Description (accessed 02 August 2019).
[110] Ruppel & Ruppel- Schlichting (n92) 118.
[111] A Moyo 'Time ripe for SA renewable energy investments' *ITWeb* 29 April 2019 https://www.itweb.co.za/content/Kjlyr7wdw3yMk6am (accessed 02 August 2019).
[112] Papacostantis (n 73) 285.
[113] Ruppel & Ruppel- Schlichting (n92) 117.
[114] Ruppel & Ruppel- Schlichting (n92) 118.
[115] Papacostantis (n 73) 285.
[116] Papacostantis (n 73) 285.
[117] Chiguvare & Chiguvare (n 99) 15.

supportive legal and regulatory frameworks.[118] Appropriate legal and regulatory frameworks, as well as efficiently implemented policies,[119] are crucial support mechanisms that are best suited to attract urgent investment in renewable and promote its increased prevalence within the South African energy mix.[120] Therefore, the first step to unlocking investment in South African renewables lies in the scrutiny of South Africa's current legal and regulatory framework - inclusive of policies developed in respect of renewables - in order to ascertain why its legal and regulatory framework impedes investment into renewable energy.

2.4 Theoretical Outline of the Legal and Regulatory Framework of Renewable Energy in South Africa

The foundation for a legal and regulatory framework in renewable energy is laid in the South African supreme law, the Constitution. Section 24 of the Constitution states that:

> "*everyone has a right to an environment that is not harmful to their health of wellbeing; and to have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development*."

The entrenchment of the above-stated right in the Constitution confers a responsibility on the South African government to create an "enabling environment wherein the environmental impacts are regulated effectively."[121] The success of an increased deployment of renewable energy in South Africa's energy mix will depend on the successful attraction of increased investment into renewables. These successes are both ultimately underpinned by an "integrated

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[118] E Gacheng 'Legal and policy frameworks for climate-friendly energy generation in Africa: Energy security for future development' in OC Ruppel & B Althusmann (eds) *Perspectives on energy security and renewable energies in sub- Saharan Africa: practical opportunities and regulatory challenges* (2016) at 182.
[119] Ruppel & Ruppel- Schlichting (n92) 145.
[120] Ruppel & Ruppel- Schlichting (n92) 131.
[121] H Honiball 'Legal framework for the promotion of renewable energy in South Africa: a critical analysis' LLM thesis, North-West University https://dspace.nwu.ac.za/bitstream/handle/10394/11724/Haniball_H.pdf?sequence=1 (accessed 07 July 2019).

structure of legislative and policy support regulating environmental, energy, fiscal and other aspects".[122] Notwithstanding the Constitutional promise which paves the way for an increased deployment of renewables in South Africa, the country's legal and regulatory framework is identified to be fragmented, "patchy and varied"[123], as well as misaligned and evasive which essentially defeats the purport of section 24 of the Constitution. The importance of the presence of renewables in South Africa, conferred in terms of entrenchment in section 24 of the Constitution, becomes questionable upon a close examination of the legal and regulatory framework instituted by the government.

2.4.1 National Policies for Renewable Energy in South Africa

The topography of South Africa's national policy on the promotion of renewables spans widely across various sectors of government.[124] However, for the purposes of this research paper, focus will be directed on the policies which are deemed the most relevant for the promotion of renewable energy and investment therein - being the 1998 White Paper on Energy Policy (1998 White Paper) and the 2003 White Paper on the Promotion of Renewable Energy and Clean Energy Development (2003 White Paper).[125]

The 1998 White Paper on Energy Policy

The 1998 White Paper, in laying down the foundations of South Africa's energy policy, officially demarcated the position for renewables in the South African energy mix by making the management of "energy-related environmental and health impacts" one of its five objectives.[126] In terms of this objective, as per paragraph 3.2.2.4 therein, the government undertakes to "work towards the establishment and acceptance of broad national targets for the reduction of energy-related emissions that are harmful to the environment and to human health". The 1998 White Paper measures the commercial potential for renewables to be medium to long-term, therefore seeking to encourage appropriate investment.[127] It further aims to ensure that "economically feasible renewable energy technologies are implemented; an

[122] As above.
[123] Ruppel & Ruppel- Schlichting (n92) 145.
[124] Ruppel & Ruppel- Schlichting (n92) 146.
[125] As above.
[126] The Department of Minerals and Energy 'White paper on the energy policy of the Republic of South Africa' (1998) http://www.energy.gov.za/files/policies/whitepaper_energypolicy_1998.pdf .
[127] As above.

equitable level of national resources is invested in renewable technologies;"[128] and address constraints on the development of the renewable industry.[129]

The 2003 White Paper on the Promotion of Renewable Energy and Clean Energy Development

The 2003 White Paper is the official policy which laid the foundation for the deployment of renewable energy in South Africa, as was demarcated for by the 1998 White Paper. A key objective of the 2003 White Paper is the intention of government "to create an investment climate for the development of the renewable energy sector".[130] The 2003 White Paper can be surmised as a key policy document which speaks to the purport of section 24 of the Constitution in that it, as asserted by Ruppel and Ruppel-Schlicting,[131] "recognises sustainable development, an enabling environment and specific institutional arrangements as being key for renewable energy implementation, and underlines the need for creating an enabling environment through the introduction of fiscal and financial support mechanisms within an appropriate legal and regulatory framework". Furthermore, in terms of paragraph 7.2 of the 2003 White Paper, government has committed itself to the promotion of an effective legislative system through the implementation, maintenance and continuous improvement thereof.[132]

However, unlike the 1998 White Paper which hatched the National Energy Act 34 of 2008 and the Electricity Regulations Act 4 of 2006 (as amended), the 2003 White Paper has failed to spawn an enabling renewable energy law that articulates the policy positions stated therein - casting doubt upon government's commitment regarding the future role of renewables in South Africa's energy supply mix.[133] In light of the national government's doubtful commitment to renewable energy, legal certainty arguably becomes the precursor to the removal of obstacles as it is said that the "[t]he right 'risk' allocation starts with a coherent energy policy and well implemented energy regulatory framework to minimise political and regulatory risk".[134]

The 2005 Energy Efficiency Strategy of the Republic of South Africa

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[128] Ruppel & Ruppel- Schlichting (n92) 146.
[129] (n 126) para 7.7.
[130] 'Renewable energy' http://www.energy.gov.za/files/renewables_frame.html (accessed 03 August 2019).
[131] Ruppel & Ruppel- Schlichting (n92) 147.
[132] White Paper on the Renewable Energy Policy of the Republic of South Africa (2004) at 25 https://www.gov.za/sites/default/files/gcis_document/201409/261691.pdf
[133] T Murombo 'Law, regulation, and the promotion of renewable energy in South Africa' PhD Thesis, University of Witwatersrand at 161.
[134] T Murumbo (n 133) 162.

The Energy Efficiency Strategy of the Republic of South Africa (EES) is envisioned to "encourage sustainable energy sector development and energy use through efficient practices" thereby minimising the undesirable impacts of energy usage upon health and the environment, as well as contribute towards securing affordable energy for all.[135] It is a national policy document "which focuses on promoting the sustainable efficient use of energy in hope that the reduced demand could fend off the need to increase generating capacity through the construction of new coal-fired power plants".[136] At the time of its formulation, the EES - as a precursor to the National Energy Act -[137] raised notable doubts about the lack of energy efficiency measures that were undertaken and government's incapacity to implement energy-efficient programmes.[138] However, in spite of the doubts raised, the EES has been included in subsequent policy of documents of the mining sector to ensure energy security. Therefore, the focus of EES has a fundamental impact on the promotion of renewable energies in South Africa.

2.4.2 Renewable Energy Legislation in South Africa

A plethora of statutory laws currently govern renewable energy in South Africa. In some instances, the governance of renewables in such legislation may directly or indirectly impact investment into renewable energy. For the purposes of this research, the relevant legislations include: the National Environmental Management Act 107 of 1998 (NEMA); the National Energy Act 34 of 2008 and the Electricity Regulation Act 4 of 2006.[139] The renewable energy legislative framework can easily be distinguished into two sub-categories, namely an environmental legislative framework and an energy legislative framework.[140]

The National Energy Act 34 of 2008

The 1998 and 2003 White Paper, as national policies on renewable energy in South Africa, paved the pathway for the National Energy Act.[141] The National Energy Act is lauded as the most apposite statutory law within the entire renewable energy legal and regulatory framework of South Africa.[142] The key objectives of the National Energy Act, as articulated in section 2

[135] 'Energy Efficiency Strategy of the Republic of South Africa', GN 908 in GG 32342 of 26 June 2009.
[136] T Murombo (n133) 280.
[137] National Energy Act 34 of 2008.
[138] Honiball (n121) 43.
[139] Ruppel & Ruppel- Schlichting (n92) 145.
[140] Honiball (n121) 35-51.
[141] Mauger & Barnard (n80) 2.
[142] Ruppel & Ruppel- Schlichting (n92) 145.

thereof,[143] provides for the assurance of a secure energy supply through the promotion of diverse sources of energy by making provision for certain safety, health and environmental energy concerns which ultimately contributes to the sustainable development of the South African economy. Section 6 (2) of the National Energy Act emphasises the requirement of the South African government to derive an energy action plan that is both integrated and sustainable.[144] The said action plan, referred to as the Integrated Energy Plan in the National Energy Act,[145] must account for the security of energy supply; the economic availability of energy resources; universal accessibility and free basic electricity; social equity; employment; the environment; international commitments; and the contribution of energy towards socio-economic development.[146] Whilst section 6 (2) does not overtly account for the inclusion of renewable energy therein, the National Energy Act does imply its inclusion through an inference of section 6 (2) (a), (b), (g), (h) and (j).

Electricity Regulation Act 4 of 2006 (as amended by the Electricity Regulation Amendment Act 28 of 2007)

The Electricity Regulation Act 4 of 2006 (ERA), as amended, is another statute that forms part of the energy legislative framework. Moreover, it is an important piece of legislation worth consideration within the broader legal and regulatory renewable energy framework as it has an impact on the promotion and further inclusion of renewables in South Africa's current energy mix. Though no explicit mention of renewables is made, ERA's most fundamental objectives relating to renewable energy comprises of the efficient, effective, sustainable and orderly development of electricity supply; the facilitation of investment in the supply of electricity; the promotion of diverse energy source usage and energy efficiency.[147] ERA is an important legislation worth considering in the renewable energy context as it contains within itself implications for an assortment of licenses that are required for the producers of renewable energy as well as implications for the relationship established between the license holders and the energy regulator.[148]

National Environmental Management Act 107 of 1998

[143] National Energy Act (n 137) sec 2(a), (b), (h) & (l).
[144] National Energy Act (n 137).
[145] National Energy Act (n 137) sec 1.
[146] National Energy Act (n 137) sec 6(2).
[147] Electricity Regulation Act 4 of 2006 sec 2(a), (b), (c) & (e).
[148] Ruppel & Ruppel- Schlichting (n92) 146.

The National Environmental Management Act 107 of 1998 (NEMA), as amended, is the principle act in the environmental legislative framework for renewable energies.[149] Section 24 (b) of the Constitution paved the way for the enactment of NEMA.[150] Essentially, NEMA provides overarching structural governance in terms of which it creates a framework for the micro regulation of different sectors of the environment relating to the usage and pollution of land, water and air amongst others.[151] NEMA holds the key to unlocking the ecologically sustainable deployment of renewable energies in South Africa as it principles, in terms of section 2 (4)(a)(vi),[152] "the development, use and exploitation of renewables". However, it is imperative to note that NEMA may warrant the exploitation of renewable sources of energy but not at a rate which is faster than the energy source is able to renew itself.[153] The importance of the principles stipulated in terms of section 2 of NEMA lies in the requirement, as identified by Murombo,[154] of "the energy sector, among other sectors, to be guided by the said principles in extracting minerals, energy production, and consumption to prevent significant effects on the environment". Further to its notable principles, NEMA, in terms of section 24, creates an authoritative yet necessary obligation that speaks to its principles. Such an obligation inhibits the *cart blanche* institution of energy projects by mandating the acquisition of an environmental pre-authorisation for the commencement of any energy project, including those of renewables.[155]

2.4.3 South Africa's Regulatory Renewable Energy Framework

The regulatory framework for renewable energy is informed by the respective renewable energy statutory laws. Therefore, for the purposes of this research, the regulations deriving from the afore-examined energy and environmental legislative frameworks will be considered. However, it is worth noting that regulations that will be further examined herein does not constitute the entire regulatory renewable energy framework as there is an array of regulations stemming from a plethora of statutes that impact renewable energies, directly or indirectly, in South Africa.

[149] Ruppel & Ruppel- Schlichting (n92) 145.
[150] The Constitution of the Republic of South Africa Act 108 of 1996.
[151] Murombo (n133).
[152] National Environmental Management Act 107 of 1998.
[153] Honiball (n121) 36.
[154] Murombo (n133) 210.
[155] Honiball (n121) 36.

Electricity Regulations on New Generation Capacity

The Electricity Regulations on New Generation Capacity (2011 Regulations) was published in 2011 in terms of section 35(4) of the Electricity Regulation Act of 2006.[156] The 2011 Regulations applied to and introduced, *inter alia*, the new capacity generation of renewable sources of energy through the development of the Integrated Resource Plan 2010-2030; the entry of the independent power producers through the formulation of the Renewable Energy Independent Power Producers Procurement Programme; and the guidelines on the conclusion of power purchase agreements.[157] Notwithstanding this, it must be noted that the Electricity Regulation on New Generation Capacity of 2009, later revised to the 2011 Regulations, introduced the unsuccessful Renewable Energy Feed-in-Tariff system.[158]

The Integrated Resource Plan 2010-2030

The Integrated Resource Plan 2010-2030 (IRP), reckoned a 'living plan' due to its revision by the Department of Energy every two years,[159] came about through the promotion of integrated energy resource planning in the National Energy Act and the Electricity Regulations Act.[160] The promulgation of the IRP demonstrated an intention on the part of the South African government to introduce renewable energies into the country's energy mix,[161] in order for the government to keep in line with its commitment to transition the South African economy to that of a low carbon one.[162] The IRP is carried out through ministerial determinations regulated by the Electricity Regulations on New Generation Capacity in terms of the Electricity Regulations Act.[163] The IRP is said to be an ambitious plan in that it has a 20 year vision which foresees 17 800 megawatts of renewable energy go online by 2030 - of which 5 000 megawatts of renewable energy is said to be operational by this year and an additional 2 000 megawatts is expected to come on line by 2020.[164] In addition to the IRP's aim to reduce GHG emissions, it further seeks to decrease unemployment thereby foreseeing the role renewable energies play in promoting job creation in South Africa.[165]

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[156] Papacostantis (n 73) 296.
[157] Papacostantis (n 73) 296-297.
[158] Ruppel & Ruppel- Schlichting (n92) at 149.
[159] Ruppel & Ruppel- Schlichting (n92) at 144.
[160] National Energy Act (n 137); Electricity Regulation (n 147).
[161] Murombo (n133) 193.
[162] 'Renewable energy' http://www.energy.gov.za/files/renewables_frame.html (accessed 03 August 2019).
[163] As above.
[164] As above.
[165] Ruppel & Ruppel- Schlichting (n92) at 148.

Renewable Energy Independent Power Producers Procurement Programme

The Renewable Energy Independent Power Producers Procurement Programme (REIPPPP), purported by Murombo to be South Africa's most prized renewable energy procurement programme, is "an auction-based process for procuring new generation capacity" as determined by the 2011 Regulations.[166] It is a programme that is characterised by a bidding-system in terms of which independent power producers (IPPs) and renewable energy generators are invited to submit bids for the supply of specified quantities renewable energy.[167] The submitted bids are required to meet specified legal, environmental and financial criterions before each bid can be "evaluated on the bid price and economic development objectives".[168] Implementation of the REIPPPP is expansive, spanning across various government departments and institutions.[169] There are three fundamental contractual arrangements that must be noted within the REIPPPP, namely a government support agreement concluded between Eskom and the South African government; a power purchase agreement concluded between Eskom and an IPP; and an implementation agreement which is entered into between an IPP and the South African government.[170]

The REIPPPP was designed in accordance with the IRP to invigorate investor sentiment in South African renewable energies.[171] It is aimed at introducing private participation, known as IPPs, to develop infrastructure for the generation of renewable energy to meet the increasing demand for electricity.[172] This aim was concretised by the former Minister of Energy in South Africa, in a briefing on the draft IRP in 2018, when he stated that "energy infrastructure is a critical component that underpins economic activity and growth across the country".[173] Therefore, the REIPPPP's "main objective is to secure private sector investment for the development of new electricity generation capacity, thereby giving effect to the policy decision to diversify South Africa's energy generation mix which was articulated in the 1998 White Paper," is rational.[174]

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[166] Murombo (n 133) 35-36.
[167] Ruppel & Ruppel- Schlichting (n92) at 151.
[168] As above.
[169] Murombo (n 133) 36.
[170] Ruppel & Ruppel- Schlichting (n92) at 151.
[171] As above.
[172] Papacostantis (n 73) 299.
[173] B Bungane 'Energy infrastructure an important factor in the IRP draft' *ESI Africa* 12 September 2018 https://www.esi-africa.com/industry-sectors/business-and-markets/energy-infrastructure-an-important-factor-in-the-irp-draft/ (accessed 05 August 2019).
[174] (n 162).

2.4.3.4 Renewable Energy Feed-In-Tariffs

The final Renewable Energy Feed-In-Tariffs (REFIT) and the guidelines on the REFIT system, formulated by the National Energy Regulator of South Africa (NERSA), were published in 2009 in terms of the Electricity Regulation on New Generation Capacity.[175] The REFIT system provided for a guarantee on the purchase price of renewables and such a tariff was "designed to cover the costs of the generation of renewables plus provide a reasonable return on investment."[176] However, in light of cost variances across each source of renewable energy, tariffs were calculated per source of energy and per respective renewable technology, thereby, adding to the multiplicity of tariffs instituted.[177]

The formulation of REFIT was a response to international pressure regarding the creation of a "favourable environment for renewables in South Africa.[178] In essence, it is a system that was intended to ensure fair and consistent compensation to generators of renewable energy.[179] With respect to NERSA's guidelines on the REFIT system, the guidelines made it obligatory for a generator of renewables to obtain a licence, issued by NERSA itself, in order to beneficiate from REFIT.[180] The said guidelines palmed off the responsibility onto the generators of renewable energies to ensure that the power it generated were from credible sources of renewable energy.[181]

Environmental Impact Assessment Regulations

The Environmental Impact Assessment Regulations (EIA Regulations) are promulgated under section 24 of the NEMA. Though not expressly listed as an activity under the EIA Regulations, any renewable energy project contemplated or undertaken in South Africa would need to require an environmental pre-authorisation after studying the environmental impact of the activity.[182] The pre-studies and authorisations required in terms of the EIA Regulations impact many sectors of the South African economy, particularly the energy sector, thereby creating

[175] Ruppel & Ruppel- Schlichting (n92) at 149.
[176] As above.
[177] As above.
[178] Murombo (n 133) 183.
[179] Honiball (n 121) 52.
[180] Ruppel & Ruppel- Schlichting (n92) at 149.
[181] As above.
[182]Murombo (n 133) 217.

"opportunities for regulators to promote environmentally sound energy technologies."[183] Environmental impact assessments play a very significant role in the environmental statutory and regulatory framework for renewables as it remains a fundamental key for South Africa to unlock the SDGs.[184]

Notwithstanding the fact that this section sought to lay out portions of the legal and regulatory framework for renewable energy in South Africa, the said framework demonstrated above is deduced as being rather expansive. Thus, this chapter proceeds to critically examine the extensive nature of the legal and regulatory renewable energy framework in South Africa with specific regard to the promotion of investment therein.

2.5 Critical Examination of the Legal and Regulatory Framework for Renewable Energy in South Africa

The legal instruments, as highlighted in the previous section, originate from multiple governmental departments as they impact many sectors within the South African economy due to "the nature of the field of law influencing their objectives".[185] The said differentiation in statutes, regulations and policies owing to "the nature of the field of law influencing their objectives" is said to endorse fragmentation, misalignment and evasiveness within South African renewable energy legal and regulatory framework.[186] This section of the chapter proceeds to assess the manner and extent to which the differentiation of legal instruments endorses fragmentation, misalignment and evasiveness within the legal and regulatory frameworks – ultimately impacting investment therein.

2.5.1. Energy Legislative Framework

The National Energy Act 34 of 2008

As previously articulated, the National Energy Act is the most relevant renewable energy statute as most renewable sources of energy fall within the ambit of the National Energy Act -

[183] Murombo (n 133) 217.
[184] Honiball (n 121) 37.
[185] Mauger & Barnard (n80) 2.
[186] As above.

aimed to ensure energy security.[187] Notwithstanding the significant relevance of the National Energy Act and the fact that it was enacted a mere few years after the 2003 White Paper, the National Energy Act glaring fails to make explicit mention of renewable energy in section 2 of its objectives.[188] An explicit omission from the objectives of the National Energy Act has serious implications for the significance of renewable energy in South Africa's current and future energy supply mix - as pronounced by the 2003 White Paper which ironically paved the pathway for the National Energy Act. Though an inference to renewable energy is made through the enunciation of "promoting diversity of energy supply and its sources",[189] the National Energy Act's failure to explicate renewable energies into its objective fosters doubt regarding the serious intent of government to advance the promotion of renewable energy into the country's current and future energy mix. Recognition of renewable energy as a source of energy only appears further in the National Energy Act at section 19 - which regards the regulations that the Minister of Energy may make in respect of renewable energies. Moreover, the National Energy Act fails to cement prescribed measures to promote renewable energy nor prescribe "minimum contributions of renewable energy mix" in South Africa.[190]

The enactment of the National Energy Act can be deemed as the perceived undermining - by the national government - of the strategic objective of the 2003 White Paper "to develop, implement, maintain and continuously improve and effective legislative system to promote the implementation of renewable energy".[191] This perception is attributable to the evasive provisions of the Nation Energy Act with respect to renewable energy. Thus, the enactment of the National Energy Act can be hailed to be a weak effort or attempt by the South African government "to develop, implement, maintain and continuously improve and effective legislative system to promote the implementation of renewable energy". Mindful of the evasive nature of the National Energy Act with respect to renewable energy, Ruppel and Ruppel-Schlichting makes a valid critical assertion that the National Energy Act is "not able to provide legal security or certainty for producers and investors in the field of renewable energy."[192] Its broad and lofty "policy statements of intent falls short of providing a road map

[187] Ruppel & Ruppel- Schlichting (n92) at 149.
[188] As above.
[189] National Energy Act (n 137) sec 2(b).
[190] Ruppel & Ruppel- Schlichting (n92) at 145.
[191] (n 132) 33-34.
[192] Ruppel & Ruppel- Schlichting (n92) at 145.

towards renewable energy in the generation of electricity."[193] Therefore, it can justifiably be said that the evasiveness and the failures of the National Energy Act, regarding role of renewable energy in the national energy supply mix, contributes towards a negative investor sentiment and, therefore, can be seen as an impediment to investment in renewable energy in South Africa.

The Electricity Regulation Act 4 of 2006 (as amended)

The ERA, as established in afore-section, is another statute that has an impact on the promotion of renewable energy in South Africa. Though relevant in terms of its aim to "achieve the efficient, effective sustainable and orderly development and operation of electricity supply," the ERA fails to make explicit mention of renewable energy though mere inferences that can be read therein upon the mention of promoting diverse uses of energy sources.[194] The non-existent direct mention of renewable energy adds to the lack of succinct laws governing renewable energy in South Africa.

Furthermore, in terms of section 8 (1) of the ERA, investment into renewable energy is burdened by an imposition of a licensing requirement on persons who desire to engage in the transmission, distribution or trade of electricity.[195] However, the licensing condition that may be imposed by NERSA, in terms section 15 (1) (s),[196] does not succinctly refer to environmental sustainability which is a concept that underpins renewable energy. In light of such pithiness, renewable energy is, therefore, rendered a mere technical inferred inclusion in the ERA rather than a deliberate action by government to transition towards the sustainable generation of electricity.[197] The clear lack of sustainability spirit in the formulation of section 15 (1) (s) permeates the disjointed compilation of laws governing renewable energy in South Africa. Section 15 (1) (s) of the ERA merely affords NERSA the mandate to impose licensing conditions in connection with the compliance of health, safety and environmental standards. It does not mandate the obligatory promotion of renewable energy thereby debilitating the purport of the 2003 White Paper. Such incoherence between section 15 (1) (s) of ERA and the undercurrents of sustainability which saturates the NEMA fragments the legal and regulatory renewable energy framework in South Africa.

[193] Murombo (n133) 178.
[194] Ruppel & Ruppel- Schlichting (n92) at 146.
[195] Murombo (n133) 184.
[196] The Electricity Regulation Act (n147).
[197] Murombo (n133) 184.

Electricity Regulations on New Generation Capacity

The Electricity Regulations on New Generation Capacity are said to be "the first explicit step towards proactive promotion of renewable electricity by the government", however, it is yet another legal instrument that is devoid of exclusive focus on renewable energy.[198] It allows for private participation in the electricity generation sector through the procurement of any new electricity capacity, not limited to just renewables, from IPPs. Moreover, South Africa currently has a single buyer of electricity, namely Eskom.[199] This is problematic in that it places renewable energy procurement solely at the mercy of a monopoly -[200] that generates approximately 90 percent of South Africa's electricity, 77 percent of which derived from coal.[201] Therefore, for the sake of promoting investment renewable energy in South Africa, the electricity grid cannot be under the exclusive control of fossil-fuel reliant power utility whose sole control over the power grid's systems and operation functions does much to discourage the increased emergence of renewables into South Africa's energy supply mix.[202] Greenpeace's proclamation regarding the urgent need for Eskom to shift its investments from coal to renewable energy "on a far larger scale" holds true and the South African government must become serious about attracting investment in renewable energy if it is to honour its international commitments to mitigate the detrimental effects of climate change.[203]

The Integrated Resource Plan 2010-2030

The IRP was purposefully developed to challenge fragmentation within the legal and regulatory energy frameworks in South Africa.[204] That being said, fragmentation is defined by Murombo to be the "lack of coordination and synchronisation of the legislation, institutions and sectors that ideally should be interlinked" so as to regulate one integrated ecosystem which should encompass the legal and regulatory framework for renewables in South Africa.[205] The development of the IRP holds true to the aforementioned definition in that the National Energy Act and the ERA both promote integrated resource planning.[206] However, IRP is recognised

[198] Murombo (n 133) 189.
[199] Murombo (n 133) 187-188.
[200] As above.
[201] Mauger & Barnard (n 80) 2-3.
[202] Honiball (n 121) 54.
[203] As above.
[204] Murombo (n 133).
[205] Murombo (n 133) 52.
[206] Murombo (n 133) 193.

to be fraught with uncertainty and shifting visions.[207] The uncertainty and shifting of vision in the IRP is owed to the reduced renewable energy electricity targets, which were initially set in the 2003 White Paper. Though it can be argued that the revision of the renewable energy electricity targets was a move from an ambitious to a more pragmatic target, such shifts emit a negative investor sentiment on renewables in South Africa. Murombo validly acknowledges that given the IRP's dispensation to shape the investment and financing outlook on renewables, it would be nonsensical for an economic investor to capitalise funds into renewables when renewable energy has been validated by the South African government, through a revision of its electricity target, to have a projected diminishing role in country's energy supply mix until 2030.[208] Therefore, it can be asserted that the downward revision of the said target sends a distinct message to investors and the international community regarding the South African government's lack of will to ensure the further deployment of renewables within the country's energy mix.

1998 White Paper

There is uncertainty which hovers around the prioritisation of the 1998 White Paper's objectives. The absence of succinct prioritisation of the 1998 White Paper's objectives has instilled a deep-seated disjuncture at policy level between the energy and environmental laws in South Africa.[209] This disjuncture has shaped the South African government's approach on the role of renewable energy in South Africa… "a slow paced approach towards developing a certain clear-cut law on renewable energy."[210] The 1998 White Paper is, thus, seen as a missed opportunity by government to integrate South Africa's energy and environmental laws which would ultimately culminate in the development of a "certain clear-cut law on renewable energy".[211]

Renewable Energy Independent Power Producers Procurement Programme

The publication of the REIPPPP regulations are conflicting to those of the REFIT programme.[212] The contradictory nature of the REIPPPP feeds misconceptions that the REFIT scheme was replaced by the REIPPPP. However, this was not the case as the Department of

[207] Murombo (n 133) 136.
[208] Murombo (n 133)135.
[209] Murombo (n 133) 158.
[210] As above.
[211] A above.
[212] Ruppel & Ruppel- Schlichting (n92) at 150.

Energy implemented the REIPPPP outside of the REFIT programme in light of the legal challenges that it, as a ministry, faced with the REFIT scheme.[213] Nonetheless, the unforeseen and sudden shift from the REFIT programme to the REIPPPP added volatility to renewables in South Africa, thereby shaking the private sectors confidence in investments pertaining to renewable electricity.[214] Moreover, the unexpected shift from the REFIT scheme to the REIPPPP fuelled delays and uncertainty regarding the development of renewable energy infrastructure in the country.[215] Furthermore, whilst REIPPPP is deemed to be South Africa's flagship regulations regarding the procurement of renewable energy, it falls short in addressing the general access to electricity by merely focusing on the procurement of energy supply. Thus, the REIPPPP fails to fully exploit the potential of renewable energy as it does not present a solution regarding the accessibility of electricity but simply concerns itself with the procurement thereof.[216] To merely focus on the procurement of renewable sources of energy without addressing the accessibility thereof erodes the successes achieved under the REIPPPP as it is clearly demonstrated that one legal instrument cannot absolve all the issues pertaining to the generation, distribution and security of electricity in the South Africa.

Further to the above, there remains some inconsistency regarding the generation of renewable electricity in that the IRP sets a target of 17 800 gigawatts,[217] whereas the REIPPPP has a target set at a mere 3 725 megawatts.[218] It can be said that such inconsistencies stem from the misalignment and fragmentation that exists within the legal and regulatory framework for renewable energy.

Moreover, with respect to the REIPPPP, Eskom's monopoly over the national grid mandates the offering of its assistance to IPPs regarding connectivity to the grid and the purchasing of their electricity.[219] In light of this, it stands to reason why Eskom's monopoly is a cause for concern. Firstly, Eskom's hegemony over the national electricity grid is a deterrent to investment in renewables.[220] Secondly, this scheme of arrangement, whereby Eskom is mandated to avail its assistance, lends itself to an unfortunate consequence in terms of which

[213] As above.
[214] Honiball (n 121) 53-54.
[215] Papacostantis (n 73) 299.
[216] Honiball (n 121) 54.
[217] Papacostantis (n 73) 298.
[218] Honiball (n 121) 53.
[219] Papacostantis (n 73) 299.
[220] Papacostantis (n 73) 300.

the poor is burdened with the costs for Eskom's purchase of the IPPs electricity as such costs are passed through to the consumers.[221] In spite of the REIPPPP leaving much to be desired in terms of renewable energy regulations and the general accessibility of electricity,[222] any misgivings regarding the programme is understated by the record investments it has attracted in renewable energy.[223]

Renewable Energy Feed-In-Tariffs

The Department of Energy in South Africa faced constitutional issues regarding the institution of the REFIT programme. The National Treasury alleged that the REFIT programme is based on the principles of predetermined non-digressive tariffs which violated section 217(1) of the Constitution. [224] Section 217 (1) of the Constitution states that any procurement process via a bid must be "fair, equitable, transparent, competitive and cost-effective". The REFIT scheme is not characteristically competitive given the predetermination of tariffs which renders it least cost-effective in the absence of such competition.[225] Thus, it can be hypothesised that, in spite of the attractive tariffs introduced in 2009,[226] the observed stagnation in renewable energy investments can be construed to be a causal consequence of anti-competitive pricing, amongst other factors.

2.5.2. Environmental Legal and Regulatory Framework for Renewable Energy

National Environmental Management Act 107 of 1998

The NEMA is identified to be an overarching piece of legislation that provides for crosscutting of regulatory tools and strategies that inform specific regulation in sectorial legislation.[227] This essentially means that the NEMA is a crucial legal instrument that can be used to promote renewable energy in South Africa. It is potentially equipped to drive a transition from use of fossil fuels in the generation of electricity towards a sustainable form of generation.[228] In light of the fact that sustainability is the core of renewable energy, any electricity generated from renewable sources of energy would classified as being sustainable generation. However, without disregard to the NEMA being an instrumental tool for the advancement of investment

[221] Papacostantis (n 73) 299.
[222] Honiball (n 121) 54.
[223] Murombo (n 133) 190.
[224] Ruppel & Ruppel- Schlichting (n92) at 150.
[225] Honiball (n121) 52.
[226] Ruppel & Ruppel- Schlichting (n92) at 150.
[227] Murombo (n 133) 208- 209.
[228] As above.

in renewable energy, energy legislation makes seldom references to the NEMA. Thus, the low feature of the NEMA in strategic pieces of energy legislation, such as the ERA, is seen as a discouragement of promoting the prevalence of renewables into South Africa's current electricity supply.[229] The non-prominent feature of the NEMA in the energy legislative framework breeds fragmentation within the larger legal and regulatory framework for renewable energy. It holds true that the misalignment of the NEMA in the ERA is a "symptom of a need to reform the existing energy laws and develop explicit renewable energy laws" as the fragmentation of the energy and environmental laws does little to enable investment in renewable energy.[230]

Environmental Impact Assessment Regulations

Dubbed "a mandatory tool to advance sustainable development",[231] the EIA Regulations provide a good basis upon which renewable energy can be promoted in South Africa. However, this has not been reported to be the case as it has been argued that the application of environmental impact assessments, in terms of the EIA Regulations, are ineffective in the promotion of sustainability.[232] The said argument was founded upon the analysis of coal and nuclear procurement applications in terms which the requirement to consider alternatives to a proposed activity were seen to be transient.[233] Furthermore, environmental experts allege that environmental impact assessors "often take short cuts" in their assessments.[234] In light of the issues presented with regard to the environmental impact assessments and due to sustainability being the core of renewable energy, the ineffectiveness of the environmental impact assessments inhibits investment as the promotion of renewable energy is negatively impacted.

Furthermore, an additional fundamental shortcoming of the environmental impact assessment process is the fear by environmental specialists of retribution regarding unfavourable impact assessment outcomes.[235] Such fear, directed by the applicants of the environmental impact

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[229] T Murombo 'Law, regulation, and the promotion of renewable energy in South Africa' PhD Thesis, University of Witwatersrand at 208-209.
[230] As above.
[231] S Bega 'Too often, environmental impact assessments (EIAs) are tipped in favour of development in South Africa, say experts' *IOL Saturday Star News* 22 May 2018 https://www.iol.co.za/saturday-star/news/too-often-environmental-impact-assessments-eias-are-tipped-in-favour-of-development-in-south-africa-say-experts-15102592 (accessed 07 August 2019).
[232] Murombo (n 133) 209.
[233] Murombo (n 133) 212.
[234] S Bega (n 231).
[235] As above.

assessments, leads to the lack of impartiality in the environmental impact findings.[236] This fear seeks to debilitate the promise of an enabling framework that is meant to buttress the deployment of renewables within South Africa's current and future energy mix.

In light of the above issues, it is surmised that a theoretically solid environmental framework that is weakened by the implementation of its regulations poses as a deterrent to investment in renewable energy.

2.5.3. Summation of Examination

The legal and regulatory framework for renewable energy in South Africa has been examined to be fragmented, misaligned and evasive as "the drive towards increased renewable energy generation is codified in a variety of policy documents and pieces of legislation, which together embody the national renewable energy legal framework."[237] The fragmentation, misalignment and evasiveness of the legal and regulatory framework for renewable energy lies in tension between the environmental and energy laws in South Africa.[238]

There is an intricate connection that exists between environmental and energy laws that can be used to advance the promotion of renewable energy and investment therein. This connection is rooted in the concept of sustainable development, which is embedded in s24 (b) of the Constitution, thus making it an important connection. Notwithstanding this, South Africa's energy and environmental frameworks have been developed in silos.[239] The energy laws in South Africa have grown externally from the environmental laws due to: (i) differing objectives of the said laws and (ii) the mere inferences made to renewable energy in the said laws with no explicit contemplation thereof. Therefore, the siloed growth of the energy and environmental laws in South Africa has had a detrimental effect on the deployment of renewable energy given its weak presence the country's energy mix.[240] Moreover, the environmental laws are aimed at the promotion of environmental protection and conservation as well the prevention of pollution; whereas the energy laws are aimed at expediting growth of the South African economy.[241] The siloed development of the energy and environmental laws

[236] As above.
[237] Mauger & Barnard (n 80) 2-3
[238] Murombo (n133) 53.
[239] Murombo (n 133) 54.
[240] As above.
[241] Murombo (n 133) 55.

has thus led to the lack of sectoral integration -[242] having dire consequences for the promotion of investment into renewables energy as the energy and environmental laws that make up the legal and regulatory framework for renewable energy are said to be weak and unstable.[243]

It would be unjust not to recognise the South African government's attempt to integrate the energy and environmental laws through the enactment of the crosscutting NEMA. Whilst the government's sought attempt is noble, the enabling NEMA can be characterised as a missed opportunity for promotion of renewable energy as its full harmonisation with the legal development in the energy sector is left wanting.[244] Failure to streamline and harmonise the renewable energy legal and regulatory framework, attributable to the slow and misapplication of the renewable energy strategy envisaged in the 2003 White Paper, "is ultimately resulting in a low level of urgently required investments" in renewable energy.[245]

Notwithstanding the above, the South African government is seen to have instilled some hope for climate activists, the international community and investors by decisively taking action to institute the REIPPPP in a response to the failing REFIT programme.[246] This swift behaviour fortifies hope that the government can, if willed, commit to growing the renewable energy industry. This, nonetheless, presupposes an acknowledgment of failure in the realisation of the strategic objectives within the 2003 White Paper and a willingness to address such failures with appropriate legal and regulatory responses.

2.6 Conclusion

In the final analysis of this chapter, renewable energy is identified as the golden key to unlocking and resolving a significant portion of South Africa's socio-economic and environmental challenges. However, its feature in the country's energy mix is rather insignificant when compared to fossil fuels. In order to improve its feature in the country's energy mix, enhancing investment into renewable energy is required if the South African

[242] Murombo (n 133) 54.
[243] Murombo (n 133) 131.
[244] Mauger & Barnard (n 80) 4.
[245] Ruppel & Ruppel- Schlichting (n92) at 145.
[246] Ruppel & Ruppel- Schlichting (n92) at 151.

government wishes to honour its international obligations - as investment drives the deployment of renewable energy. However, the lack of investment facing the renewable energy sector is ultimately a consequence of a lack of a supportive legal and regulatory framework necessary to drive the uptake of renewable energy in South Africa.[247] Therefore, in order to promote the deployment of renewable energy by attracting investment therein, it is imperative for the South African government to address the fragmentation, misalignment and evasiveness of its renewable energy legal and regulatory framework. By addressing the elements of fragmentation, misalignment and evasiveness within the legal and regulatory framework, the South African government will remove any doubt surrounding the sound and comprehensive state of its renewable energy strategy.

[247] E Gacheng 'Legal and policy frameworks for climate-friendly energy generation in Africa: Energy security for future development' in OC Ruppel & B Althusmann (eds) *Perspectives on energy security and renewable energies in sub- Saharan Africa: practical opportunities and regulatory challenges* (2016) at 182.

CHAPTER THREE:
THE FOUNDATIONS OF A COMPREHENSIVE LEGAL AND REGULATORY FRAMEWORK

3.1 Introduction

Energy security remains the key to unlocking the development of many countries in sub-Saharan Africa, especially South Africa.[248] Renewable energy provides South African citizens with "clean, reliable and affordable" energy whilst appeasing any energy security concerns that the country may have.[249] Nevertheless, South Africa is struggling to meet energy demands required to stimulate economic development -[250] load shedding being a consequence thereof.

South Africa's struggle to meet its energy demands and its global obligations emanate from the lack of supportive legal and regulatory frameworks which, amongst other factors, impede investment into renewable energy.[251] It has been established in Chapter Two that South Africa's legal and regulatory framework for renewable energy is fragmented, misaligned and evasive. It said that a supportive legal and regulatory framework should, thus, be easily understandable and make compliance with the laws uncomplicated.[252] Moreover, "the success of an increase in the deployment of renewable energy is dependent on an integrated structure of legislative and policy support regulating environmental, energy, and fiscal amongst other aspects."[253] Accordingly, this chapter aims to identify the legal mechanisms / instruments that are often utilised by governments to formulate a comprehensive legal and regulatory framework in addition to identifying national challenges to the implementation of the said framework.

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[248] Gacheng (n 247) at 173.
[249] Absa 'Africa needs a regulatory and policy framework to support investment in renewable energy' *BusinessDay* 31 July 2019 https://www.businesslive.co.za/bd/companies/financial-services/2019-07-31-regulatory-and-policy-framework-needed-to-support-investments-in-renewable-energy-projects-in-africa/ (accessed 13 August 2019).
[250] Gacheng (n 247) 173.
[251] As above.
[252] Honiball (n 121).
[253] As above.

3.2 Development of a Comprehensive Legal and Regulatory Framework

Legal and regulatory frameworks are realised through a variety of instruments and / or mechanisms which support renewable energy.[254] Countries often differ in relation to which combination of instruments they use to deploy renewables into their respective energy mix. A country can either utilise one instrument to implement its legal and regulatory framework or it can exploit the use of multiple instruments - depending on the local economic climate in the country at the time of legal and regulatory policy design; "the costs of fossil fuels relative to renewable technologies" and; the national energy strategy of the country.[255] These instruments constitute primary instruments that advance the deployment of renewable energy in a country and secondary instruments that seek to buttress the primary instruments. The instruments that are utilised are often broadly divided into three distinct categories - regulatory instruments; fiscal instruments and public finance measures.[256]

3.2.1 Regulatory Instruments

There exists a wide variety of regulatory instruments that bolsters legal and regulatory renewable energy frameworks globally, however, the most common regulatory instruments that promote the deployment of renewables into a country's energy mix includes,[257] *inter alia*, feed-in-tariffs; net metering; quantity based renewable energy portfolio standards or quotas and; trade renewable certificates.

Feed-in- Tariffs

Feed-in-tariffs (FITs), being a primary renewable energy deployment instrument, mandates a country's power distributors or utilities to connect independent power producers (IPPs) to their respective grids and acquire the electricity that the IPPs produce at a fixed and / or

[254] Gacheng (n 247) 173.
[255] GIZ 'Legal frameworks for renewable energy: Policy analysis for 15 developing and emerging countries' at 18 https://www.icafrica.org/fileadmin/documents/Knowledge/GIZ/Legal%20Frameworks%20for%20Renewable%20Energy.pdf (accessed 14 August 2019).
[256] Gacheng (n 247) 184.
[257] GIZ (n 255) 18.

predetermined tariff rate for a definitive period of time.[258] The most salient feature of FITs are the guaranteed payment of a fixed and / or predetermined rate to the IPP by the power distributor or utility.[259] The most germane design criteria for FITs ought to have: "guaranteed and preferential grid access and dispatch of electricity generated from renewables; legal securities for IPPs through the issuance of government guarantees; individual tariffs for each individual renewable technologies and; cost reduction potential".[260] When determining the appropriate level at which a tariff ought to be set at, governments need to take into account, amongst other criteria, the end price to the consumer.[261] In some instances, as was in the case in South Africa,[262] the cost of the tariff can be recovered by a levy per kilowatt on the consumers and / or taxpayers.[263] In the design of the FIT rates, policy makers and regulators should amortise the rates of the tariffs as the cost of renewable technologies are likely to decline over the years.[264]

The FIT system has not been implemented without challenge in some countries.[265] In order for a country to effectively determine whether FITs is a useful instrument to advance renewable energy, the policy makers or energy regulators need to weigh the advantages of the instrument against its disadvantages.[266] One of the main advantages of a well-designed FIT system is the creation of investment security which renders the renewable energy project bankable.[267] This essentially means that "project has sufficient collateral, future cash flow, and high probability of success, to be acceptable to institutional financiers for financing".[268] A further advantage of a well designed and implemented FIT system is that its job creation capabilities could emanate from an increase of IPPs.[269] Notwithstanding its advantages, one of its several disadvantages includes direct costs effecting an increase in the price of electricity which ultimately affects the consumers or results in the state subsidising such cost from its budgetary funds.[270] A further

[258] Gacheng (n 247) 185.
[259] GIZ (n 255) 18.
[260] As above.
[261] United Nations Industrial Development Organization 'Module 9: Regulatory and policy options to encourage development of renewable energy' at 9.7 http://africa-toolkit.reeep.org/modules/Module9.pdf (accessed 14 August 2019).
[262] Gacheng (n 247) 185.
[263] United Nations Industrial Development Organization (n 261) 9.7.
[264] As above.
[265] Gacheng (n 247) 185.
[266] As above.
[267] GIZ (n 255) 18.
[268] 'Bankable' http://www.businessdictionary.com/definition/bankable.html (accessed 14 August 2019).
[269] GIZ (n 255) 18.
[270] As above.

disadvantage of the FIT scheme is the difficulty that is presented in setting an appropriate tariff rate level. A tariff rate set at a too high or low level can have foreseen and unforeseen consequences for the advancement of renewables in a country's energy supply mix.[271] It is asserted that the FIT scheme thrives in countries where certainty in policy and legal security prevails.[272]

Net Metering

Net metering is a mechanism that is used to record the difference between a consumers consumption of electricity against the consumer's production of renewable generated electricity - resulting in a netted amount.[273] The consumer, in the event that it generates more electricity than what it consumed, is able to receive a retail credit against its electricity bill as the excess amount of electricity generated through renewable sources of energy is fed into the grid at a certain rate.[274] Net metering, therefore, incentivises investment in renewable technologies.[275] With due regard to the incentivisation of investment that net metering accords, net metering is said to be fairly easy for countries to realise in that it is premised on simple accounting principles and does not require distinct metering.[276] Nonetheless, it is worthy to note the downside of such an instrument when implemented in countries with hegemonic power utilities. In such an instance, consumers are subjected to the mercies of the monopolistic power utilities in attempts to negotiate rates as individual consumers lack collective bargaining power.[277]

Renewable Portfolio Standards or Quotas

The renewable portfolio standards (RPSs) are obligations regarding the minimum share of renewable energy in a country's overall energy supply mix.[278] RPSs are imposed by national governments upon consumers who are then obliged to source a portion of their energy from renewable energy or, in the case of electricity suppliers, acquire a certain amount of renewable

[271] As above.
[272] As above.
[273] Gacheng (n 247) 185.
[274]As above.
[275] GIZ (n 255) 20.
[276] As above.
[277] As above.
[278] GIZ (n 255) 19.

generated electricity for distribution.[279] In most instances, penalties for non-compliance with the RPSs are embedded in its design.[280]

The RPS system establishes a market for renewable energy producers.[281] Essentially, the government sets the quotas or standards but the price for the renewably sourced energy is determined by the market.[282] Therefore, it is said that the renewable energy market fosters the competitive nature of the RPS mechanism. Due to its competitive nature, the RPS mechanism is, thus, a strategic tool that can be exploited by policy makers and / or regulators to alleviate the cost burden on consumers as its inherent competitiveness drives down costs.[283] The efficient functioning of a renewable energy market created through RPSs are based within the parameters of competition, the design of the market and size. Thus, the effective promotion of renewable energy into a country's energy mix is contingent on the level at which the quotas or standards and penalties are positioned - low standards or quotas will not effectively stimulate a market for renewable energy producers and will consequentially result in the stagnation of investment in renewable energy projects.[284]

Trade Renewable Energy Certificates

Renewable Energy Certificates (RECs) are tradable certificates which demonstrate the production of a specific quantity of renewable energy.[285] These certificates support renewable-based generation of electricity.[286] RECs can be combined with the RPSs. For example, a certificate will be generated when an electricity supplier acquires the renewably generated electricity or when a renewable energy producer produces renewably sourced electricity.[287] If the supplier acquires more than the minimum standard or, if a producer produces an excess of renewable energy, then the excess amount in terms of the certificate can be sold to other parties who have not fulfilled their minimum standard.[288]

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[279] United Nations Industrial Development Organization (n 261) 9.7.
[280] GIZ (n 255) 19.
[281] Gacheng (n 247) 186.
[282] United Nations Industrial Development Organization (n 261) 9.7.
[283] United Nations Industrial Development Organization (n 261) 9.14.
[284] GIZ (n 255) 19.
[285] Gacheng (n 247) 186.
[286] United Nations Industrial Development Organization (n 261) 9.17.
[287] GIZ (n 255) 19.
[288] As above.

In relation to investment, it is worthy to note that RECs do not bolster investor confidence in renewable energy projects in the same manner in which other mechanisms or instruments may.[289] It is asserted that RECs provide insufficient support for the promotion of renewable energy and requires reinforcement by other mechanism which promote renewable energy.[290]

Public Competitive Bidding

In terms of the competitive bidding support mechanism, the national government of a country will call for tenders by requesting that project developers submit bids to develop renewable energy projects.[291] In terms of the public competitive bidding scheme, the price is determined competitively through the tender process. The price and the length of the project has the ability to build investor confidence depending on the term and price of the renewable energy project.[292] The public competitive bidding system is advantageous in that it encourages strong market positioning and competitive pricing.[293] Notwithstanding the advantages of a competitive bidding scheme, tender / bidding schemes are characterised by bidding rounds which can be indefinite and, in some countries, the rounds span years apart.[294] Such a 'stop-start' design discourages the development of a renewable energy market as no certainty is afforded.[295]

3.2.2 Fiscal Instruments

Fiscal instruments can be purposefully used to incentivise the uptake of renewable energy in an economy through, *inter alia*, "tax exemptions, deductions, tax credits, preferential tax treatments or deferral of tax liability" (Fiscal Instruments).[296]

The Fiscal Instruments are specifically designed to reduce the tax burden on renewable projects.[297] Whilst Fiscal Instruments may be advantageous for the development of renewable energy projects, they do not necessarily take into account the operational lifespan of the project which can lead to a waste of public funds due to underperforming projects.[298]

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[289] United Nations Industrial Development Organization (n 261) 9.17.
[290] As above.
[291] GIZ (n 255) 20.
[292] United Nations Industrial Development Organization (n 261) 9.17.
[293] GIZ (n 255) 22.
[294] United Nations Industrial Development Organization (n 261) 9.17.
[295] As above.
[296] Gacheng (n 247) 186.
[297] GIZ (n 255) 22.
[298] As above.

3.2.3 Public Finance Support Measures

Public finance measures (PFMs) is a key renewable energy support instrument in that it facilitates investment in renewable energy projects. It is asserted that "the shift to renewable energy is a costly exercise with initial capital outlay being high and the return on investment being long-term and uncertain."[299] Such characteristics, therefore, necessitate the need for PFMs. Through the offering of capital subsidies; rebates; low interest loans and; loan guarantees, national governments aim to increase the commercial viability of renewable energy projects.[300] However, it is commonly noted that public financing measures are less effectual than private investment and, thus, it is imperative that policy makers create a policy framework for renewable energy which brews favourable legal and regulatory conditions for private investors.[301] PFMs, therefore, should be limited to markets which are not fairly established or where appropriate legal frameworks remain undeveloped.[302]

3.3 National Challenges to the Implementation of a Comprehensive Legal and Regulatory Framework

The implementation of a comprehensive legal and regulatory framework for renewable energy is challenged by several national factors which pose as additional barriers to investment in renewable energy. The successful implementation of the said framework will thus depend on whether the framework is able to withstand the political economy; legal enforcement concerns; social acceptance of projects; technology and infrastructure deficits; and the economy.

3.3.1 The Political Economy

The advancement of renewable energy in a country's energy supply mix and the transition from fossil fuel generated electricity to renewable generated electricity is marred by a political struggle.[303] The poor prevalence of renewable energies in the energy mix of countries in sub-

[299] Gacheng (n 247) 186.
[300] Gacheng (n 247) 187.
[301] GIZ (n 255) 22.
[302] GIZ (n 255) 21.
[303] M J Burke & J C Stephens 'Political power and renewable energy futures: a critical review' *Energy Research & Social Science* (2018) 35 at 78
https://reader.elsevier.com/reader/sd/pii/S2214629617303468?token=3E581A07D900D598BEFBC3F370FE36

Saharan Africa is the result of the constant volatility and change in policies and laws that affect existing commitments upon which investment is made. In order to secure an inclined trajectory of investment in renewable energy in sub-Saharan Africa, national governments would need to make "concerted, clear and stable commitments to potential investors of the government's willingness to honour its agreements" and policy statements.[304]

It has been surveyed that one of the greatest challenges that potential investors face when investing in energy projects globally are the regulatory risks that are associated with an energy project.[305] Thus, it is justifiably asserted that the legal and regulatory frameworks for renewable energy in South Africa, as with every other country in sub-Saharan Africa, "cannot be separated from the politics of a country as states are politically inherent institutions."[306] This assertion was supported by the chairperson of the South African Renewable Energy Council who stated, in an interview regarding the need for political will to prioritise renewable energy, that "no matter how good a project you have, if the policy and lawmakers do not buy into the process, it becomes a wasted effort".[307] Therefore, in order to attract and secure investment in renewables policy and law makers must - in their design of legal and regulatory frameworks - "restrain their 'opportunism', constrain their opportunistic behaviour, lessen the uncertainties of the investors, and guarantee policy consistency."[308]

The political economy of a country forms an integral part of an investor's risk assessment in its determination regarding investment into renewable energy projects as investors are sensitive to political risks, such as political stability within the country and the policy implementation stability.[309] That being said and, in light of the short-term electoral cycle of countries, governments are predisposed to making short-term decisions which affect long-termed investments.[310] The *lacuna* created by short-term electoral cycles and the long-termed

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04DE35C449F59D875F47FA78365D5A3BEE4B01BC3D7DC7C15B410BA6BB90AD22AA (accessed 14 August 2019).

[304] H Corder & T Andzenge 'Regulation as a catalyst for the electrification of Africa' in Y Omorogbe & AO Ordor (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (2018) at 93.

[305] As above.

[306] D de Jongh, D Ghoorrah & A Makina 'South African renewable energy investment barriers: an investor perspective' (2014) 25 *Journal of Energy in Southern Africa* at 15.

[307] T Lepule 'Election time and the policy is renewable' *IOL Weekend Argus* 31 March 2019 https://www.iol.co.za/weekend-argus/election-time-and-the-policy-is-renewable-20338597 (accessed 17 August 2019).

[308] Corder & Andzenge (n 304) 93-94.

[309] D de Jongh, D Ghoorrah & A Makina (n 306) 18.

[310] Corder & Andzenge (n 304) -94.

investment in renewable energy projects constrains the political will to support the promotion of renewable energy in a country, thereby undermining its legal and regulatory framework and discouraging investment. It is, therefore, correctly asserted that in order promote or secure investment in renewable energy, a complete paradigm shift is required regarding the assurance of the safety of investments in renewables which ought to be devoid of government interference.[311]

3.3.2 Legal Enforceability

The magnetism of investments in renewable energy projects is strengthened by the legal and regulatory frameworks for renewable energy and the availability, as well as the soundness, of legal enforcement mechanism.[312] Legal enforceability is a well-known barrier for the attraction of investment into projects in sub-Saharan Africa as law enforcement has not been without its challenges as legal disputes have incessantly overshadowed the success of project implementation.[313] If countries, such as South Africa, want to achieve the SDG pertaining to 'Affordable and Clean Energy', a dire need of investment in renewable infrastructure is required. However, the attraction of such investment is dependent on enabling laws and appropriate dispute resolution mechanisms.[314]

Against the backdrop of a country seeking modernisation of its laws through the institution of a comprehensive legal and regulatory framework, legal enforcement becomes an essential proponent for the validation of such frameworks as "the effectiveness and authority of the rule of law can only be maintained by strong and fearless law enforcement."[315] If the law is not implemented well then the resulting decline in legal efficiency can discourage investment into renewable energy projects.[316] Therefore, it is vitally important that countries, such as South Africa, formulate legal and regulatory frameworks that reverberate equality, reasonableness and non-discrimination in its law enforcement mechanisms so as to mitigate any negative impact on investment into renewable energy projects due to a lack thereof.[317]

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[311] Corder & Andzenge (n 304) 97-98.
[312] P O Idornigie 'Towards adopting an appropriate dispute resolution mechanism to promote investments to enhance energy access in Africa' in Y Omorogbe & AO Ordor (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (2018) at 147.
[313] K Chui & R Chen 'The rule of law in Africa: enforcing governance or scaring off foreign investors' *Go Legal* 07 March 2016 https://www.golegal.co.za/africa-foreign-investors/ (accessed 18 August 2019).
[314] Idornigie (n 312) 153.
[315] Chui & Chen (n 313).
[316] As above.
[317] As above.

That being said, on 13 July 2018, South Africa took a dubious stride towards "providing a degree of protection to its investors in relation to their investments" by activating the Protection of Investment Act 22 of 2015 (PIA). The PIA is aimed at strengthening South Africa's ability to attract foreign investment by striving to stabilise the business environment.[318] Some assert that the PIA offers investors some degree of protection against detrimental state actions impacting investments.[319] Notwithstanding this, the step towards activating the contended PIA is regarded as dubious as its commencement has garnered much opposition on the national and on the international front.[320] The EU Chamber of Commerce and Industry in Southern Africa has issued a stern warning that PIA "promotes discomfort leading to discouragement related to new investments".[321] In terms of the PIA, one of the more belligerent provisions is that which excludes foreign arbitration which forces foreign investors in South Africa to exhaust all local judicial options before an option of international arbitration is afforded to the investor- at the behest of the South African government.[322]

However, notwithstanding the opposing oratory regarding the PIA, the PIA was enacted as a response to the barrage of bewailing commentary regarding the uncertainty that permeates the enforcement of laws in South Africa-[323] which is said to hinder investment. The PIA's aim to afford investors with some certainty is articulated in section 13 of the PIA which sets out the dispute resolution procedures to be followed by aggrieved investors.[324] Whilst it can be surmised that the said section 13 of the PIA, as a whole, affords investors with a degree of certainty with regard to dispute resolution procedures, section 13 (5) paradoxically gives foreign investors discomfort as investors are forced to exhaust local remedies before an investor can approach an international dispute resolution body. To deepen the discomfort, the exercise

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[318] Department of Trade and Industry 'Protection of Investment Act in effect' https://legal.sabinet.co.za/articles/protection-of-investment-act-in-effect/ (accessed 18 August 2019).
[319] L Magubane 'Investment protection legislation in South Africa' *Return to Africa Connected* 05 November 2018 https://www.dlapiper.com/en/southafrica/insights/publications/2018/11/africa-connected-doing-business-in-africa/investment-projection-legislation-in-south-africa/ (accessed 18 August 2019).
[320] P de Wet 'Ramaphosa just activated a law that scares foreign investors- and makes it harder for them to fight expropriation' *Business Insider South Africa* 13 July 2018 https://www.businessinsider.co.za/protection-of-investment-act-commencement-gazetted-foreign-mediation-bee-section-25-constitution-2018-7 (accessed 18 August 2019).
[321] As above.
[322] de Wet (n 320).
[323] Magubane (n 319).
[324] As above.

of an international dispute resolution body is at the discretion of the national government.[325] It is asserted that section 13 (5) of the PIA undermines the importance of international arbitration.[326] The importance of international arbitration was articulated by the International Centre for Settlement of Investment Disputes (ICSID) in the *Gas Natural SDG, SA versus The Argentine Republic* case,[327] where "the court observed that independent international arbitration is overwhelmingly regarded as a 'crucial element' which is 'essential' to investment protection."[328] In light of the fact that the exhaustion of international dispute resolution mechanisms is at the undefined discretion of the South African government, South Africa demonstrates a vehement disregard of international jurisprudence which does not do much to comfort international investors nor does it do much for the attraction for the foreign direct investment into renewable energy.

3.3.3 Social Acceptance

The social acceptance of a renewable energy project aids the successful development and uptake of renewables.[329] The slow transition from conventional and environmentally unfriendly sources of energy to renewable sources of energy for the generation of electricity is said to be largely due to the lack of awareness of what renewable energy is and the benefits thereof.[330] Therefore, social acceptance, as a whole, is contingent on the awareness of the benefits of renewable energy.

The concept of social acceptance of renewable projects is compartmentalised into three components: socio-political, community and market acceptance.[331] Social-political acceptance regards the acceptance of renewable energy deployment by national and local authorities as well as the power utilities in the country.[332] Market acceptance comprises of the bankability of renewable energy projects and the willingness of consumers to pay for the electricity

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[325] D Swart 'Legal protection of foreign investment in South Africa' LLM thesis, University of Pretoria https://repository.up.ac.za/bitstream/handle/2263/58743/Swart_Legal_2016.pdf?sequence=1&isAllowed=y (accessed 22 August 2019) 37-38.
[326] As above.
[327] ICSID case number ARB/03/10.
[328] D Swart 'Legal protection of foreign investment in South Africa' LLM thesis, University of Pretoria https://repository.up.ac.za/bitstream/handle/2263/58743/Swart_Legal_2016.pdf?sequence=1&isAllowed=y (accessed 22 August 2019) 37.
[329] de Jongh, Ghoorrah & Makina (n 306) 17.
[330] K M Seetharaman & others 'Breaking barriers in deployment of renewable energy' (2019) 5 *Heliyon* at 4.
[331] de Jongh, Ghoorrah & Makina (n 306) 17.
[332] E M Nkoana 'Community acceptance challenges of renewable energy transition: A tale of two solar parks in Limpopo, South Africa' (2018) 29 *Journal of Energy in Southern Africa* at 37.

generated from renewably generated technologies.[333] Community acceptance refers to the consent by community members to the plans, construction and management of the renewable energy project.[334]

It is asserted that community social acceptance of renewable energy project starts at a point of the "inclusion of diverse [community] stakeholders in the renewable energy project planning, development and management."[335] It stands to reason why Nokoana asserts that local communities must be involved in the "planning, development and management" of renewable energy projects for the successful implementation of a renewable energy project.[336] There is a direct correlation between the degrees of acceptance of the renewable energy project by community stakeholders, comprising of ordinary community members and community-based organisations,[337] and the inclusion of the community in the said project.[338] The direct relationship between acceptance and inclusion is attributed to the increased awareness that comes from involvement of the community in the planning, development and management of renewable energy projects. Such involvement, participation and / or inclusion provides the community with knowledge of what renewable energies are and the benefits that can be derived therefrom. Including the local community and stakeholders in the planning, development and management of the renewable energy garners community support and ownership of the successful implementation of the project. Furthermore, such inclusions impart due respect to the community and fosters trust between the independent power producers and the community stakeholders.

In order to facilitate the social acceptance of renewable energy projects, it essential that policy makers and regulators design legal and regulatory frameworks in a manner that compels the partaking of community stakeholders in such projects.[339] The objectives of social acceptance in the design of legal and regulatory frameworks need to be aimed towards the realisation of the social and economic rights of the vulnerable members of the community.[340] Once mechanisms aimed at aiding the realisation of social acceptance of renewables is carved out in

[333] As above.
[334] As above.
[335] Nkoana (n 332) 38-39.
[336] As above.
[337] As above.
[338] de Jongh, Ghoorrah & Makina (n 306) 17.
[339] Nkoana (n 332) 34.
[340] de Jongh, Ghoorrah & Makina (n 306) 17.

the design of the legal and regulatory framework, investment becomes a degree less risky for investors as social volatility is neutralised in terms of socio-political, market and community acceptance.[341]

3.3.4 Technology and Infrastructure

Notwithstanding the peripheral increase in the deployment of renewable energy technologies globally over the past two decades, technology is still a widely known barrier to the deployment of renewable energy into a country's energy supply mix -[342] exemplified by factors such as the dearth of infrastructure; inefficient skill and knowledge of operations and maintenance; insufficient research; and the lack of standards amongst others.[343]

Procuring renewable technologies in developing countries is much more challenging than the procurement of the more mature and favoured fossil fuel technologies.[344] The cost of renewable technologies are usually higher than those of fossil fuels, though the differential cost in margin between fossil fuel technologies and renewable energy technologies have and continue to decline over the years.[345]

It is asserted that through innovation, renewable energy costs can be reduced and is, therefore, necessary.[346] However, innovation requires the funding of research which is not necessarily forthcoming as fossil fuel technologies, being the cheaper electricity generation option for developing countries such as South Africa, "still attract substantial research and developmental funds to increase efficiencies".[347] The prevailing lack of investment into the research and development renewable energy renders renewable technologies uncompetitive against fossil fuels.[348]

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[341] de Jongh, Ghoorrah & Makina (n 306) 18.
[342] J P Painuly 'Barriers to renewable energy penetration: a framework for analysis' (2001) 24 *Renewable Energy* 73-89.
[343] Seetharaman & others (n 330) 6.
[344] H B Dulal 'Renewable energy diffusion in Asia: Can it happen without government support?' (2013) 59 *Energy Policy* at 301- 311.
[345] The United Nations Commission on Science and Technology for Development 'The role of science, technology and innovation in increasing substantially the share of renewable energy by 2030' E/CN.16/2018/2 at 4.
[346] de Jongh, Ghoorrah & Makina (n 306) 17.
[347] As above.
[348] Seetharaman & others (n 330) 6-7.

Moreover, grid integration is a major impediment to the development of renewable energy projects - owing to the lack of infrastructure in developing countries such as South Africa.[349] The dearth of network infrastructure and the limitations on the grid's ability to absorb variable renewables serves as a disincentive for the deployment of renewable technologies.[350] Needless to say that such bottlenecks contemporaneously discourages renewable energy markets and investment therein.[351] The development of renewable energy projects become less viable and more costly when existing grids do not cater for the integration of renewable technologies and would require additional investment into the upgrade or modification thereof. The problem of grid integration implicates further costs eroding the financial feasibility of an investment into a renewable energy project.

Fossil fuel technologies are recognised as more mature technologies that often more effectively understood by governments of a country whereby there is a significant reliance on fossil fuel generated electricity.[352] Therefore, it can be inferred that the nature and maturity of energy technologies has an impact on the risk assessment by a potential investor into the feasibility of the renewable energy project. Amongst the various renewable sources of energy, renewable technologies that are mature and more widely understood - as opposed to newer emerging renewable technologies - attract more investment.[353]

Legal and regulatory frameworks play a vital role in overcoming technological barriers that hinder the deployment of renewable energy into a country's energy mix and, thus, discouraging investment into renewables. It is fundamental for policymakers to acknowledge that technological innovation is often driven by competition and cooperation on an international platform.[354] In light of the fact that many developing countries domestically lack funding; knowledge and expertise; infrastructure and; standards, internationalisation of innovation through competition and cooperation has the potential to establish economic specialisation within a developing country.[355] Therefore, legal and regulatory frameworks must be designed in a manner that embraces competition and cooperation domestically as well as internationally.

[349] As above.
[350] The United Nations Commission on Science and Technology for Development (n 345) 4.
[351] As above.
[352] de Jongh, Ghoorrah & Makina (n 306) 18.
[353] de Jongh, Ghoorrah & Makina (n 306) 18.
[354] The United Nations Commission on Science and Technology for Development (n 345) 6.
[355] As above.

3.3.5 The Economy

There are several factors which directly influence the economic and financial barriers to the deployment of renewable energy, thereby, preventing it from becoming widespread in a country. Such factors include, *inter alia*, high capital requirements; the lack of investors; resilient competition from fossil fuels and lower subsidies compared to that of fossil fuels.[356]

Several countries in sub-Saharan Africa, particularly South Africa, are heavily reliant on fossil fuels for the generation of electricity and will continue to rely on such energy for the foreseeable future.[357] Developing countries, especially those countries with socio-economic challenges, rely on fossil fuels as it is a much cheaper source of energy than renewable energy.[358] However, it has been argued through calculation that renewable sources are relatively cheaper and more attractive than conventional fossil fuels when the cost to the natural environment and human health is factored into the price of fossil fuels.[359] Taking into account that the cost of damage to the natural environment and human health are not factored into the cost of fossil fuel energy, it is deducible that the lower uncompetitive price of fossil fuels increases the barriers to entry of the energy market. The low cost of fossil fuels bolsters the resilience of fossil fuels as a renewable energy competitor.[360] Furthermore, it can be established that in an economy where fossil fuels dominate the energy sector, government subsidies are naturally skewed in favour of such an energy source. This cost-bias can, therefore, be a disincentive for investment into renewable energy.

To further reinforce the economic and financial barrier to the deployment of renewable energy, there are a limited number of financial instruments - such as green bonds amongst others - that are available to fund renewable energy projects in developing countries.[361] A green bond is a financial instrument that "help[s] to unlock the investment potential of green infrastructure, technologies and services" in terms of which the proceeds from the issuance thereof are "exclusively used for the financing or re-financing of new or existing eligible green

[356] Seetharaman & others (n 330) 5.
[357] Papacostantis (n 73).
[358] Seetharaman & others (n 330) 5.
[359] P Rafaj and S Kypreos 'Internalisation of external cost in the power generation sector: Analysis with global multi-regional MARKAL model' (2007) 35 *Energy Policy* 828- 843.
[360] Seetharaman & others (n 330) 5
[361] Seetharaman & others (n 330) 6.

projects".[362] For example, South Africa has only three listed green bonds upon which IPPs could capitalise off in financing the renewable energy projects.[363] The slow trajectory of developing financial instruments which support renewable energy projects supports the assertion that investments into renewable energy is considered "somewhat risky".[364]

The high capital injection that is required in the development of renewable energy projects buttresses the economic and financial barriers of the deployment of renewable energy.[365] Renewable energy projects are associated with initial high capital costs and long-termed realisation of a return on capital, rendering renewable energy projects risky for prospective investors.[366]

All things considered, the factors which influence the economic and financial barriers to the deployment of renewable energy increases the risk profile of renewable energy projects. It is affirmed that the elevation of the risk profile of investments in renewable energy potentially makes renewable energy projects unviable as higher risk portfolio investors expect a higher return on their investments.[367] Nonetheless, in spite of such an affirmation, Matthews *et al* argues that a reduction of costs associated with renewable energy projects will result in increased economic viability of the said projects.[368]

3.4. Conclusion

In order to keep up with the rate of deployment of renewable energies globally, countries in sub-Saharan Africa need to reconfigure or redesign its legal and regulatory frameworks for renewable energy. The reconfiguration or redesign of such frameworks can be done, by policymakers, using any combination of the earlier mentioned support instruments /

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[362] 'Green bonds' https://www.jse.co.za/trade/debt-market/bonds/green-bonds (accessed 25 August 2019).
[363] K Khumalo 'Investors snap up Nedbank green bonds' *IOL Business Report* 02 May 2019 https://www.iol.co.za/business-report/markets/investors-snap-up-nedbank-green-bonds-22348716 (accessed 14 August 2019).
[364] Seetharaman & others (n 330) 6.
[365] As above.
[366] Papacostantis (n 73) 285.
[367] de Jongh, Ghoorrah & Makina (n 306) 18.
[368] J A Matthews and others 'Mobilizing private finance to drive an energy industrial revolution' (2010) 38 *Energy Policy* at 3263-3265.

mechanisms which must be domestically adapted. To this end it is concluded that a comprehensive legal and regulatory framework varies from country to country. It is deduced that what may seem comprehensive for one country may not be effective for another country. When deliberating on the legal instruments / mechanisms that should be used to make up a comprehensive framework, a country needs to be cognisant of the following national factors: the political economy; legal enforcement concerns; social acceptance of projects; technology and infrastructure deficits; and the economy. As a result of such factors, renewable energy legal and regulatory frameworks should evolve in a manner that is "more holistic and sophisticated to reflect the transformative changes induced by the energy transition on the energy sector, society and economy."[369] It is imperative that the design of a comprehensive legal and regulatory framework accounts for the said national factors if such a framework is to entice investments into renewable energy.

[369] The International Renewable Energy Agency's 'Renewable energy policies in a time of transition' ISBN 978-92-9260-061-7 at 11 https://www.irena.org/publications/2018/Apr/Renewable-energy-policies-in-a-time-of-transition (accessed 24 August 2019).

CHAPTER FOUR:
CHILE'S LEGAL AND REGULATORY FRAMEWORK ON RENEWABLE ENERGY: LESSONS FOR SOUTH AFRICA

4.1 Introduction

As established in Chapter Two of this research, renewable energy holds the key to unlocking and resolving some of the challenges that faces South Africa. However, the fragmented, misaligned and evasive nature of its legal and regulatory framework averts renewable energy investments thereby impeding the deployment of renewable energy into the country's energy mix. Therefore, the current nature of South Africa's legal and regulatory framework and the potentials that lie in the legal instruments examined under Chapter Three, makes it essential to compare South Africa's said framework to that of a country with a similar international standing. To this extent, this chapter seeks to compare South Africa's said framework for renewable energy to that of Chile's for the following reason: South Africa and Chile are both classified as a Global South countries – countries that are deemed to be less wealthy and socio-economically developed.[370] The fact that Chile and South Africa are both Global South countries makes the comparison of its respective frameworks compelling as both countries are seen to face similar challenges. Hence, the Chilean government's role in balancing its national and global challenges can also be likened to that of a pivot on a seesaw.

In light of the above, the objective of this chapter is to set out the Chilean legal and regulatory framework for renewable energy before embarking on a comparative analysis of Chile's and South Africa's legal and regulatory frameworks.

4.2 Chile's Legal and Regulatory Renewable Energy Framework

[370] 'What is Global South' https://www.igi-global.com/dictionary/a-new-colorful-pathway-chosen/62929 (accessed 06 September 2019).

Since the early 1990s Chile's economy had a steadfast growth trajectory which foresaw an energy crisis loom over the country as it had experienced a steep increase for the demand of electricity which brought energy supply and the security thereof to the fore of the Chilean government's concern.[371] Consequently, the Chilean government recognised the importance of renewable energy by identifying the significant role that renewable energy would play in achieving energy security within the country whilst simultaneously addressing its environmental goals and international obligations.[372] A strategic decision was, therefore, taken by the "Chilean government to include renewables as part of the solution to meet [Chilean] energy needs."[373] Chile has a remarkable potential for renewable energy sources and, as a result of exploitation of such energy sources, renewable energy accounted for above 25 percent of its total primary energy supply in 2016.[374] To further entrench its commitment towards promoting the deployment renewables into its energy supply mix, the Chilean government sanctioned the Paris Agreement in a commitment to developing climate change policies and to reach its sustainable development targets.[375] It can, thus, can be argued that the will of the Chilean government is causal for the Chilean renewable energy market being the focus of much investor interest in recent years as investors latch onto the potential of growth within the Chilean renewable energy industry.[376]

BloomberNEF, in a report which analyses the policies regarding renewable energy in over 100 countries globally,[377] stated that the Republic of Chile recorded the highest growth rate of renewable energy technologies in the world.[378] To evidence this growth rate, between the years 2013 and 2016, Chile doubled its installed renewable capacity in the country's energy mix.[379]

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[371] S Nasirov, C Silva & CA Agostini 'Investors' perspectives on barriers to the deployment of renewable energy sources in Chile' (2015) 8 *Energies* at 3795.
[372] As Above.
[373] As above.
[374] The International Energy Agency 'Energy policies beyond IEA countries: Chile 2018' at 142 https://www.flandersinvestmentandtrade.com/export/sites/trade/files/attachments/EnergyPoliciesBeyondIEACountriesChile2018Review.pdf (accessed 31 August 2019).
[375] Y Simsek & others 'Review and assessment of energy policy developments in Chile' (2019) 127 *Energy Policy* at 87.
[376] Norton Rose Fulbright 'Renewable energy in Latin America' February 2017 at 15 https://www.nortonrosefulbright.com/-/media/files/nrf/nrfweb/imported/renewable-energy-in-latin-america.pdf?la=en&revision=66edb636-af27-43d7-8c44-c65564b1833b (accessed 29 August 2019).
[377] BloombergNEF 'Climatescope: emerging markets outlook' November 2018 http://global-climatescope.org/assets/data/reports/climatescope-2018-report-en.pdf (accessed 26 August 2019).
[378] A Bertaglio 'Developing countries are the new leaders in renewables' *Enel Green Power* 16 January 2019 https://www.enelgreenpower.com/stories/a/2019/01/developing-countries-and-renewable-energy-for-a-sustainable-future (accessed 22 July).
[379] Norton Rose Fulbright (n 376) 15.

To further exemplify Chile's success in the renewable energy sector, in 2015 it was recorded that Chile had attracted more than 50 percent of investment into renewable energy within the Latin American and Caribbean market for that specific year.[380] It is said that Chile's remarkable achievements in the deployment of renewable energy is attributable to the "soundness of its policies, the acquired experience in managing clean energy investments and a lasting commitment on decarbonisation regardless of power network limitations."[381] However, Chile's achievements with regard to the deployment of renewable energy is not an overnight success story. In fact, Chile's achievements necessitate an introspection into the roadmap of policies, laws and regulations it has formulated over the years to achieve its current successes.

4.2.1 The Historical Development of Chilean Renewable Energy Policy

The development of the Chilean renewable energy policy primarily stems from the Chilean government's concern regarding energy security and recognising the importance of generating energy in a manner which is sustainable. The Chilean renewable energy policy development spans over several years through the scrutiny and formulation of the Chilean energy policy.

Mitigation action plans and scenarios (2011 – 2016)

The mitigation action plan and scenario project (MAPS) is a three phased project that was instituted by the Chilean government. MAPS sought to develop projections and mitigation scenarios to reduce the levels of GHG emissions within the country from 2007 to 2030.[382]

Energy Scenarios Platform

In terms of the Energy Scenarios Platform, different stakeholders in energy related matters partook, from 2009 to 2013, in multi-sectorial dialogue regarding matters that related to energy within Chile.[383] The objectives of the Energy Scenarios Platform included, *inter alia*, debates about the "different scenarios for electric energy generation by 2030 and the generation of tools for the formulation of a public energy policy."[384]

The Energy Agenda of 2014

[380] As above.
[381] Bertaglio (n 378).
[382] Y Simsek & others (n 375) 91.
[383] Y Simsek & others (n 375) 93.
[384] As above.

In 2014, the Ministry of Energy in Chile established an urgent agenda in terms of which a national action plan was designed for reliable and sustainable energy.[385] The energy agenda of 2014 resulted in the development of new strategic roles of the Chilean government to aid the stabilisation of long-term energy planning in Chile.[386]

Road Map 2050

Road Map 2050 was devised in 2015, as a precursor to the 'Energy 2050' policy, by an advisory committee to the Chilean government in terms of which a map leading Chile towards a sustainable and inclusive energy future was charted.[387] Notably included in the Road Map 2050 is the promotion of renewable energy into Chile's energy mix.[388]

National Energy Policy 2050

The National Energy Policy 2050 (NEP 2050) was a monumental creation by the Chilean government in 2015. The NEP 2050 canvasses the Chilean government's long-term energy vision by enunciating distinct objectives and measures.[389] A fundamental cornerstone of NEP 2050 is the vision of environmentally friendly energy.[390] The said vision articulates the incumbent relationship between energy and the environment. The NEP 2050 reverberates an integrated relationship by articulating that "the development of the energy sector cannot be separated from local or worldly environmental impacts."[391] A fundamental goal of the NEP 2050 is the setting of medium-term and long-term targets to "provide 60 percent of electricity generated from renewable energy sources by 2035, and at least 70 percent by 2050."[392]

Climate Change Adaption Plan of 2017

The Climate Change Adaption Plan of 2017 was commissioned by the Chilean government to develop strategies to mitigate climate change and promote renewable energy. This plan had identified the impacts of climate change; observed and projected Chile's present climate trend;

[385] As above.
[386] As above.
[387] As above.
[388] As above.
[389] The International Energy Agency (n 374) 30.
[390] Y Simsek & others (n 375) 94.
[391] As above.
[392] The International Energy Agency (n 374) 34.

assessed the vulnerability of the energy sector climate change and; finally, developed an action plan for the impacts of climate change on the country.[393]

Energy Route 2018 to 2022

The Energy Route 2018 to 2022 was a policy document published which expressly supported the promotion of renewable energy, particularly on a small scale, by aiming to quadruple the capacity of small-scale renewable energy generation.[394] Moreover, to further the promotion of renewable energy, the Chilean government mandated that the regulatory framework for energy efficiency in the industry, mining and transport sectors must "be developed to have a sustainable energy utilisation."[395]

4.2.2 Legal and Regulatory Framework

Chile is one of the very few countries in the world that has successfully promoted investment into renewable energy without the use of fiscal incentives.[396] Typically, the most fundamental policy tools used to promote the deployment of renewable energy as well as investment therein includes fiscal incentives, public finance and regulations.[397] At present Chile's renewable energy legal and regulatory framework constitutes, *inter alia*, renewable energy targets; quota obligations; auctions; net metering; certificate systems; and grid access amongst various laws.[398] To this juncture, this research will proceed to expand on how Chile utilised the aforesaid legal instruments to attract investment and enhance the deployment of renewable energy into its energy mix.

Law 19.940

In 2004, Chile took its first step towards attracting investment in renewable energy and promoting the deployment thereof into its energy mix by enacting Law 19.940. Law 19.940 essentially made it permissible for any company within the Chilean energy sector to sell energy into the electricity market.[399] Consequentially, such an enactment opened up the electricity market to smaller companies thus enabling small scale renewable energy generating operations

[393] Y Simsek & others (n 375) 93.
[394] Y Simsek & others (n 375) 95.
[395] As above.
[396] Y Simsek & others (n 375) 97.
[397] As above.
[398] As above.
[399] S von Hatzfeldt 'Renewable energy in Chile: barriers and the role of public policy' (2013) 66 *Journal of International Affairs* at 203.

to become a more viable concern.[400] In a paper on the Chilean barriers to renewable energy, Hatzfeldt logically asserts that the enactment of Law 19.940 has resulted in the electricity market being opened up to nurture greater competition.[401] Hatzfeldt further asserts that such expansion of competition in the electricity market has been instrumental "in driving down the costs of nonconventional energy technology [thereby] sending price signals that incentivised investment" into renewable energy technologies.[402]

Law 20.936

The General Law of Electric Services was enacted in 1982 and was primarily aimed at privatising the electricity industry in Chile.[403] However, the Chilean government realised that it was necessary to develop a national electricity system based on the immense potential of renewable sources of energy in the country and, thus, foresaw the need to take control over some functions that were held by the private sector.[404] It is asserted that "the lack of transmission led to curtailment of renewables which resulted in only 16 percent of electricity generated from renewables in 2017."[405] As a consequence thereof, the Chilean government enacted Law 20.936, otherwise known as the Transmission Law, with an explicit objective to encourage renewable electricity generation.[406] The Chilean government foresaw that the development of the distribution / transmission infrastructure was essential to encouraging renewable electricity generation. The Chilean electricity grid was initially segmented into four systems.[407] The Transmission Law principally established Chile's current National Electricity System through an interconnection between two of its main electricity systems:[408] (i) *Sistema Interconectado del Norte Grande* (SING) which primarily serves industry and (ii) *Sistema Interconectado Central* (SIC) which serves 90 percent of the Chilean population. The Transmission Law enables the interconnection between the SING and SIC to diversify sources of electricity generation.[409] The diversification of sources for electricity generation was key for Chile to realise its energy security aspirations.

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[400] As above.
[401] As above.
[402] As above.
[403] The International Energy Agency (n 374) 91
[404] As above.
[405] BloombergNEF (n 377) 54.
[406] The International Energy Agency (n 374) 91.
[407] BloombergNEF (n 377) 54.
[408] The International Energy Agency (n 374) 91.
[409] As above.

Furthermore, the Transmission Law, in realising its objective to enhance renewable electricity generation in Chile, tasks the Chilean government to set up development zones in areas which have potential for the generation of electricity from renewable sources of energy.[410] These zones were envisaged to serve as an enablement to generate electricity from renewable sources of energy as well as open the market for renewable energy projects.[411]

Renewable energy quota obligations

The implementation of quotas and setting of targets is commonly the starting point which governments use in most renewable energy legal and regulatory frameworks.[412] Chile was no exception. To further promote the deployment of renewable energy and investment therein, in 2008, Chile took regional pioneering action by instituting a quota system via its legal framework.[413] The enactment of the Non-Conventional Renewable Energy Law (NCRE) - Law 20.257 - brought about renewable energy quota obligations in Chile.[414] The primary objective of the NCRE is the pacification of the Chilean government's energy security concerns by aiming to fulfil future energy demands through encouraging the development of non-conventional renewable sources of energy for the purposes of electricity generation.[415] In seeking to fulfil its objectives, the NCRE punitively mandates any company operating within the electricity sector to fulfil specific renewable energy quotas or be fined with a penalty for non-compliance with the law.[416] In terms of the said legislated quota, all companies generating more than 200 megawatts of electricity within the sector became obligated to ensure that at least five percent of the electricity it generated came from renewable sources of energy.[417] Furthermore, such quotas were mechanised in manner that it incrementally increases by half of a percent annually from 2015 and shall continue to do so until the year 2024 when the companies within the electricity generating sector become obliged to ensure that ten percent of the electricity it generates comes from renewable sources of energy.[418] The short-term target of ten percent of electricity to be generated from non-conventional renewable energy sources by 2024 was, subsequently in 2013, increased by Law 20.698 to 20 percent by the year 2025.[419]

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[410] BloombergNEF (n 377) 54.
[411] As above.
[412] The International Energy Agency (n 374).
[413] von Hatzfeldt (n 399) 203.
[414] A above.
[415] The International Energy Agency (n 374).
[416] von Hatzfeldt (n 399) 203.
[417] As above.
[418] As above.
[419] The International Energy Agency (n 374) 146.

The penalties that a company within the electricity generation sector faces includes an initial fine which equates to 0.4 percent of tax units per megawatt of the target shortfall.[420] The penalties increase in wake of a company's persistent non-compliance with legislated quotas. Conversely, the law does permit the selling of renewable energy generated surplus power to enable other electricity generators to fulfil their quota obligations.[421] In light of its punitive nature, the response to the legislated quotas instituted by the Chilean government is said to have been favourable as it has been documented that the minimum quotas were exceeded year-on-year by large margins - approximately 300 percent in 2016.[422]

The success of the quota obligations, through the implementation of Chile's renewable energy targets, can thus been inferred as one of Chile's imperative policy tools to promote the deployment of renewable energy into its energy supply mix.[423] The exceeding of the quota obligations demonstrates a prominent existence of renewables within the electricity / energy market and the viability of renewable energy projects in Chile. It can be hypothesised, from its design and the proved success of the quota obligations, that such quotas provides investors with a long-term assurance of a market for renewables in Chile as the government strives for 70 percent of its electricity to be generated through renewable sources of energy by the year 2050. Such an assurance has a positive impact on the viability of and return on investment into Chilean renewable sources of energy as the quota obligations ensures a prominent position for renewables within the electricity sector for years to come.

Auctions

Auctions are an additional instrumental policy tool utilised by the Chilean government to advance its policy targets.[424] There are various types of auctions to promote the deployment of renewable energy in Chile. With regard to the technology-neutral auctions, independent power producers (IPPs) are enabled to enter into long-term power purchase agreements (PPAs) with electricity / energy distribution companies.[425] The PPAs are known to be entered into for

[420] The International Energy Agency (n 374) 147-148.
[421] As above.
[422] As above.
[423] Y Simsek & others (n 375) 97.
[424] As above.
[425] The International Energy Agency (n 374) 148.

ten to twenty year periods.[426] It can be construed that the long-termed nature of the PPAs between electricity / energy generators and distributors guarantees a distribution of renewable generated electricity for ten to twenty years. As a result, a degree of certainty is afforded to renewable energy projects as distributors are locked into a distribution contract for ten years on pre-negotiated terms. It can be ascertained that the certainty that is afforded by the long-term PPAs reduces the risk embedded in renewable energy projects and, therefore, elevates the attractiveness of investment therein as certainty on a return on investment is assured through the ten-year PPAs.

Net Metering

The Chilean government has also instituted the use of net metering as a regulatory instrument to promote renewable energy in its electricity sector. Net metering became operational in 2014 through Law 20.571.[427] In terms of net metering, the ordinary non-regulated Chilean consumer is permitted to "produce their own electricity from renewable energy sources and inject [surplus] generation into the grid."[428] In short, the electricity generated from the consumer is netted off against the electricity consumed by the same consumer, with any surplus electricity generated being injected back into the electricity grid.[429] Thus, the Chilean consumer is enabled to sell their surplus power - generated from nonconventional renewable sources of energy - directly to an electricity distributor without having to participate in the electricity wholesale market.[430] The regulation further allows for an exemption of grid access fees for those consumers whom generate under nine megawatts of electricity from renewable sources of energy.[431] It is asserted that the Chilean consumers whom make use of the net metering scheme benefit from the "very simple connection procedures and simplified billing system."[432] Therefore, it can be inferred that the ease of use of the net metering scheme in Chile, promotes the deployment of renewables into the Chilean electricity sector as the said scheme buttresses an increase in demand for renewable technologies within the Chilean electricity sector. An increase in demand for such technologies is inclined to jolt investment opportunities pertaining to the development and supply of renewable technologies within the country.

[426] Y Simsek & others (n 375) 97.
[427] The International Energy Agency (n 374) 95.
[428] Y Simsek & others (n 375) 97.
[429] The International Energy Agency (n 374) 95.
[430] As above.
[431] Y Simsek & others (n 375).
[432] The International Energy Agency (n 374) 95.

Other laws and regulations

The other various laws and regulations that are ancillary to the promotion of renewable energy deployment in Chile include Law 20.698 (20 / 25 Law); Law 20.018 (Short Law) and Law 20.417 (General Environmental Law).

20 / 25 Law supports the auction policy tool implemented by the Chilean government in that it lawfully introduces an auction system for the periods when obligatory quotas are not met.[433] Furthermore, Law 20.698 serves to make lawful the short-term target of generating 20 percent of electricity from renewable sources of energy by the year 2015.[434]

The Chilean Short Law seeks to merely enhance competition within the electricity generation sector through the promotion of auction systems as oppose to having the price at which electricity is purchased from generators by distributors being set by the regulator.[435]

The General Environmental Law was implemented by the Chilean government under its environmental legal framework to establish the country's Environmental Assessment System - a system which sets the quality and carbon emission standards amongst other functions.[436]

Considering the above, it is notable that Chilean government has made considerable efforts - some small and some big - with regards to legal, regulatory and policy mechanisms to facilitate the fulfilment of the targets stipulated in the Chilean NEP 2050. Despite its success story regarding the deployment of renewable technologies in the country, there are some experts who assert that Chile needs to do more if it is to realise its medium and long-term targets.[437] Notwithstanding the said assertion, the Chilean legal and regulatory framework for renewable energy must be given its due credit for enabling investment into renewable energy over the years. Despite not having a single all-encompassing piece of legislation for renewable energy, Chile's legal and regulatory framework is hereby hypothesised to be integrated and comprehensive.

[433] The International Energy Agency (n 374) 36.
[434] As above.
[435] As above.
[436] As above.
[437] von Hatzfeldt (n 399) 201.

In light of the aforementioned hypothesis, it is worthy to compare the Chilean legal and regulatory framework to that of South Africa's as lessons can be drawn from Chile's success in deploying renewable energy into its energy mix. To this extent, this research will proceed to conduct a comparative analysis on the legal and regulatory frameworks in Chile and South Africa.

4.3 Comparative Analysis of the Legal and Regulatory Frameworks in Chile and South Africa

South Africa and Chile are two countries, each located on different continents sharing one commonality with regards to renewable energy - they both have a strategic advantage in that South Africa and Chile have a remarkable potential for renewable sources of energy as they exist in abundance in each of the countries.[438] However, despite the shared commonality between the two countries, a disparity exists with regards to the deployment of renewables in each of the country's electricity supply. In the 2018 BloombergNEF report, Chile was recorded as having one of the highest growth rates of renewable technologies in the world.[439] Whereas South Africa did not feature in the top fifteen countries of the approximately 100 countries that were analysed.

It is apparent, from the previous section of this chapter and Chapter Two, that Chile's achievements regarding the deployment of renewable energy into its country starkly contrasts that of South Africa. It, thus, can be alluded that the variance regarding the deployment of renewables into the respective countries is due to the construct of each country's legal and regulatory framework for renewables. Such an allusion is based on the assertion that Chile's top renewable energy ranking is underpinned by the "soundness of its policies, the acquired experience in managing clean energy investments and a lasting commitment on decarbonisation regardless of power network limitations."[440] Therefore, this research advances to comparatively analyse South Africa's and Chile's the policy and legal framework for renewable energy.

[438] Ruppel & Ruppel- Schlichting (n92) at 142.
[439] BloombergNEF (n 377) 23.
[440] Bertaglio (n 378).

4.3.1 Policy Frameworks

Chile's renewable energy policy framework is embedded in a compilation of numerous studies and documents. However, its most fundamental policy regarding renewable energy is embedded within the Chilean NEP 2050. As mentioned in the previous sections of this chapter, the NEP 2050 is a policy document that is not primarily focused on renewable generation of electricity but it is rather a general energy policy regarding the concerns of energy security in terms of which the Chilean government recognises the strategic importance that renewable energy has regarding energy security. South Africa, on the other hand, has two major policy documents: (i) the 1998 White Paper on Energy Policy which lays down the foundation of South Africa's general energy policy and (ii) the 2003 White Paper on the Promotion of Renewable Energy and Clean Energy Development which is primarily dedicated to deployment and promotion of renewable sources of energy. However, South Africa's core policy document regarding renewable energy remains the 2003 White Paper on the Promotion of Renewable Energy and Clean Energy Development (2003 White Paper).

Despite South Africa implementing a policy document restricted to renewable energy, the 2003 White Paper only sets out a medium-term target for renewable energy and no long-term targets.[441] The 2003 White Paper sets a target of 10 000 gigawatts of electricity to be supplied by renewable sources of energy over a ten year period from 2003 to 2013.[442] However, whilst such ambitious targets are initially enticing for potential investment into the sector, it has been asserted that "less than ten percent of the targeted new renewable energy had been achieved" by February 2014.[443] This is primarily due to low levels of implementation of renewable energy policy as well as low levels of capacity and activity for renewable energy at the Department of Energy.[444] Furthermore, the decreased revision of targets through South Africa's 2010-2030 Integrated Resource Plan projected a perception within the South African

[441] H Winkler 'Renewable energy policy in South Africa: policy options for renewable electricity' (2005) 33 *Energy Policy* at 27 https://conferences.ufs.ac.za/dl/Userfiles/Documents/00000/555_eng.pdf (accessed 01 September 2019).
[442] (n 441) 30
[443] H Trollip and A Marquard 'Prospects for renewable energy in South Africa- climate change' *Henrich Böll Stiftung Cape Town* 3 February 2014 https://za.boell.org/2014/03/03/prospects-renewable-energy-south-africa-climate-change (accessed 01 September 2019).
[444] As above.

economy that electricity generation from renewable sources of energy has a diminishing medium-term role in the country's energy supply mix.[445]

Chile's NEP 2050 is a general electricity policy with one of its cornerstone pillars being environmentally friendly energy.[446] As discussed in the previous section of this chapter, the NEP 2050 sets renewable energy targets which are both medium-term and long-term. The NEP 2050 policy is unique in that the Chilean government sought to involve the public in the formulation of the policy through inclusive consultations.[447] Lauded by the international community as an outstanding example of public consultations on energy policies,[448] such steps by the Chilean government can be analysed to be strategic in that it facilitates ownership and public acceptance of the deployment of renewables into electricity sector through allaying nimbyism (not-in-my-back-yard).[449] Furthermore, it serves as a check and balance for the Chilean government as it places itself under the constant scrutiny of the public - as a result of the allayment of nimbyism - with regard to the continuous deployment of renewables into the electricity sector.

Moreover, unlike the South Africa government, the Chilean government can be seen to be devoted towards achieving its long-term targets through continuous multiple reforms in its legal and regulatory frameworks over the years.[450] The recent establishment of the Transmission Law demonstrates that over the years, the Chilean government has continued to accentuate its role in energy policy having privatised the electricity sector through the enactment of the General Law of Electric Services in 1982.[451] Upon an analysis of the historical development of Chile's renewable energy policy and the numerous reforms in the electricity sector aimed at supporting long-term renewable energy targets, heightened levels of activity and implementation measures are continuously seen on the part of the Chilean Ministry of Energy in respect of renewable sources of energy.

4.3.2 Legal Framework

[445] Murombo (n 133) 135.
[446] Y Simsek & others (n 375) 94.
[447] The International Energy Agency (n 374) 11.
[448] As above.
[449] The International Energy Agency (n 374) 39.
[450] The International Energy Agency (n 374) 38.
[451] The International Energy Agency (n 374) 90.

The Chilean legal and regulatory renewable energy framework is - in some respects - similar to that of South Africa in that an array of regulatory and fiscal mechanisms are used to deploy renewables into the economy and attract investment therein. However, in 2008 through the enactment of Law 20.257, Chile formulated explicit law out of its policy regarding renewable energy by introducing a law which is succinct and dedicated to the promotion of electricity generated from renewable sources of energy thereby delineating conventional sources of energy from renewables in the Chilean Energy mix. Aside from Law 20.257, Chile has enacted ancillary laws over the years which appears to reinforce Law 20.257 and strengthen its renewable energy policy. South Africa, nonetheless, still lacks comprehensive law which advances the promotion of renewable energy in its energy mix. Instead, South Africa's renewable energy laws are, directly and indirectly, scattered across in various provisions of an array of statutory acts. Furthermore, South Africa's renewable energy law is developed through inferences made in its energy and environmental legal framework.

With regard to regulatory mechanisms, the most notable distinction between the regulatory mechanisms utilised by the said governments is that of feed-in-tariffs (FITs). FITs have been observed to be one of the most popular regulatory mechanisms used by governments across the world to attract investment into renewable sources of energy and increase the deployment of renewables into its economy.[452] Notwithstanding the said observation, Chile has successfully promoted the production of electricity from renewable sources of energy without making use of FITs.[453] South Africa, on the other hand, has utilised the FITs as a regulatory mechanism - to much dismay as it has proved to be unsuccessful in the country. The REFIT scheme in South Africa was perceived to be at odds with its supreme law as the predetermined tariffs were viewed not to be "fair, equitable, transparent, competitive and cost-effective".[454] The FITs scheme has been identified by some analysts to be "an obstacle to developing free market competition".[455] In contrast, Chile recognised from the outset in its National Energy Policy 2050 that competitive prices "are an essential condition for sustainable development" within its energy sector.[456] In light of this and to reinforce its energy policies, Chile took steps towards enacting laws, such as the Short Law (Law 20.018), which is primarily aimed at enhancing

[452] Y Simsek & others (n 375) 100.
[453] As above.
[454] The Constitution of the Republic of South Africa Act 108 of 1996 s27(1).
[455] Nasirov, Silva & Agostini (n 371) 3796.
[456] The International Energy Agency (n 374) 33.

competition in the electricity generation sector by promoting auctions.[457] Chile's drive to promote competition and the competitive pricing of renewable sources of energy makes it clear to ascertain why it has chosen not pursue FITs as a regulatory measure to promote the generation of electricity from renewable sources of energy. Consequently, South Africa only introduced a competitive auction / bidding system in a response to the failed REFIT scheme. Whilst the REIPPPP is hailed a success in South Africa regarding attracting investment and private sector expertise in the renewable energy sector,[458] the transition from the REFIT scheme to the REIPPPP did very little to fortify confidence in investors.

Chile and South Africa have both seen success when the countries each implemented auctions as an instrument to deploy renewables into each respective country's energy mix. In Chile, the technology-neutral energy auctions "have been the main driver of growth in large-scale electricity from renewables that competes, without additional support, with traditional generation."[459] On the other hand, South Africa was at one stage ranked within the top ten countries globally for attracting investments into renewable energy projects via its auction / bidding system, the REIPPPP.[460] It appears that auctions has been a key instrument for policymakers and regulators, in South Africa and Chile, to drive investment in generating capacity from renewables and to have effective control over the deployment of renewables and decreasing the cost of projects.[461] However, Chile has gone a step further to enable the auction based systems within its country by enacting the Law 20.698 (20/25 Law).

Notwithstanding the success of the REIPPPP in South Africa, such success is said to have not reached its optimal levels due to the lack of Eskom's transmission planning.[462] It has been theorised that Eskom's failure to effect transmission planning constrains electricity, generated by renewable sources of energy, from accessing the national grid for distribution.[463] Chile faced a similar problem when it experienced that a lack of transmission capabilities led to a curtailment in the renewable energy generation sector. In a response to the lack of transmission, Chile recently took definitive steps to resolve the said issue by enacting its

[457] The International Energy Agency (n 374) 36.
[458] White Paper on Renewable Energy (n 65).
[459] The International Energy Agency (n 374) 157.
[460] Eberhard, Kolker & Leigland (n 460).
[461] BloombergNEF (n 377) 30.
[462] Eberhard, Kolker & Leigland (n 460) 35.
[463] M Coetzer 'A legal framework for the promotion of renewable energy in South Africa through fiscal instruments' LLM thesis, North-West University at 42.

Transmission Law which saw the development of an interconnection between two of Chile's major electricity grids, the SING and SIC. South Africa is yet to make notable strides in the modernisation and development of its electricity grid despite proposed plans.[464]

An instrument which has been influential in assisting Chile to meet its policy targets is that of renewable energy quota obligations. The quota obligations have been concretised by law, namely Law 20.257, and is penal in nature should any company within the electricity generation sector fail to meet the obligation set out therein. The renewable energy quotas have been analysed to be Chile's most effective supporter of renewable energy electricity generation and blends in well with other regulatory and policy instruments, thereby supporting the other instruments, such as net-metering.[465] Both renewable energy quota systems and net-metering facilitate a spin-off market in which renewable energy certificates can be trade by those who produce excess renewable generated electricity to those who are not able to meet their quota obligations and face a penalty as a result. South Africa has yet to implement such a regulatory measure. The effectiveness of such instruments, as demonstrated within the Chilean context, can do much to increase the percentage of renewable sources of energy deployed into its energy mix as well as entice investment into renewables and the emergence of a market whereby renewable energy certificates can be traded.

Unlike Chile which has merely adopted a carbon tax, South Africa has adopted a few fiscal instruments which encourages investment in renewable energy. Given the meagre representation of renewables in the South African energy mix, it can be inferred that the fiscal incentives have not done much to entice investment into renewables for South Africa. Conversely, Chile has placed miniscule reliance on fiscal incentives to entice investment into renewables and despite doing so has managed to achieve the highest growth rate of investment into renewable energy technologies globally.

4.4 Conclusion

[464] R Lilley 'South Africa's electricity system to change dramatically' *EE Publishers* 26 October 2018 https://www.ee.co.za/article/south-africas-electricity-systems-are-about-to-change-dramatically.html# (accessed 24 September 2019).
[465] The International Energy Agency (n 374) 117.

The comparative analysis of Chile's and South Africa's legal and regulatory framework on renewables makes it easy to establish the importance of selecting a suitable mix of legal, regulatory and policy instruments / mechanisms that is supportive of a country's strategic objectives in relation to energy. To simply follow a the 'northern' trend regarding the institution of legal instruments to deploy renewable energy – as South Africa did regarding FITs – can be detrimental for investment into renewable energy. Chile's refusal to adopt the FITs scheme demonstrates that deviation from populistic mechanisms / instruments can benefit the deployment of renewables in a country, rather than hinder prospects of investment into renewables. It is, thus, crucial for national governments – such as South Africa – to extract the following lessons the Chilean case study: (i) look at the overall strategy concerning renewables, (ii) develop concise policy in respect of the renewable energy strategy, (iii) effect the policy through the enactment and implementation of legal and regulatory instruments and (iv) constantly review the progress the instruments implemented with a view of adapting the legal and regulatory framework should a need arise. The said actions are, however, principled on the political will of a government to transition its dependency on conventional sources of energy to nonconventional sources such as renewable energy. In the final analysis of this chapter, it is just to conclude that the comparative analysis into Chile's and South Africa's legal and regulatory frameworks have exposed shortcomings in South Africa's renewable energy strategy which ultimately impacts enticement of investment therein.

CHAPTER FIVE
CONCLUSION

5.1. Introduction

Renewable energy is one of the world's greatest, underrated commodities. In its nature lies a formidable solution for many countries in sub-Saharan Africa and elsewhere in the world. Against the backdrop of a failing, coal-reliant power utility; socio-economic concerns and; international climate mitigation pressures, the appeal of renewable energy as a solution to balancing the South Africa's multifaceted challenges can no longer be denied. There is a growing need for South Africa to transition its coal-reliant economy to one that is driven by renewable-energy. It is undeniable that investment into renewable energy will remain a tool to fuel such a transition. However, the attraction of investment into such a commodity requires an enabling legal environment. This research was, therefore, aimed at: (i) examining South Africa's legal and regulatory framework with a view of assessing the impact thereof on investment and (ii) exploring the various legal instruments / mechanisms that would make up a comprehensive and integrated legal and regulatory framework amongst identifying national challenges that would impeded the successful implementation thereof.

The first part of this study, Chapter Two, laid out the renewable energy landscape in South Africa. It considered and examined South Africa's theoretical legal and regulatory framework for renewable energy. Upon closer examination of South Africa's legal and regulatory framework for renewable energy, it became apparent that the country's said framework is fragmented, misaligned and evasive. It has been found that a framework characterised by fragmentation, misalignment and evasiveness does not bolster investor confidence. Thus, such a framework presents a deterrent for investment into renewable energy rather than enabling a market for renewable energy to grow.

The second substantive chapter, Chapter Three, advanced to contemplate the constitution of a comprehensive and integrated legal and regulatory framework for renewable energy. It, thereafter, identified national challenges that would impede the successful implementation of the said framework. It was found that an array of legal instruments / mechanisms can be used to formulate a comprehensive and integrated legal and regulatory framework. However, it has

been found to be vital that the mix of legal instruments / mechanisms adopted by a country addresses the country's strategic renewable energy objectives and, thus, should be adapted to withstand peculiar national challenges such as the political economy; technological and infrastructure deficits; the enforcement of laws; social acceptance of energy projects and the economy.

The final substantive chapter, Chapter Four, of this research is aimed at comparing South Africa's legal and regulatory framework for renewable energy to that of Chile's. The comparison exposed shortcomings in South Africa's legal and regulatory framework for renewable energy – thereby having a negative impact on investment. It was revealed that Chile's success in attracting investment into renewable energy is a result of a focused renewable energy strategy; concise policy; appropriate enactment of law and regulations which deviated from global trends and; the continual review, development and alignment of its legal framework.

5.2. Implications of South Africa's Legal and Regulatory Framework

South Africa presently has little to no energy security. As each day dawns, South African's embark on their daily routine unbeknown as to whether the country's electricity supply will be enough to carry the demand constraining the grid. The lack of the country's energy security has heightened in recent years as Eskom glares down the barrel of bankruptcy due an approximation of half a billion rand worth of debt that sits within its financial books.[466] With regards to Eskom's state of affairs, South Africa's economy hangs on a distressed thread as Eskom's continued viability lies in the contraction of the economy.[467] Economic growth in South Africa will lead to an increase in demand for electricity and, thus, necessitate Eskom to implement load-shedding as it cannot accommodate an increase in demand for electricity.[468] This situation has left South Africa in a precarious situation where a recessionary economy will aid its autocratic power utility to keep the lights on but will do little to no good for the

[466] Sguazzin (n 107).
[467] F Njini and P Burkhardt 'Eskom says economic growth will lead to load-shedding' *BusinessDay* 21 August 2019 https://www.businesslive.co.za/bd/national/2019-08-21-eskom-says-economic-growth-will-lead-to-load-shedding/ (accessed 06 September 2019).
[468] As above.

growth and development of South Africa itself.[469] In light of such a gloomy state of affairs and statistics, the South African government through its energy and environmental ministries is encouraged to take decisive action by encouraging more investment into renewable energy through the entry of more independent power producers (IPPs).

This research, thus, concludes that the solution to South Africa's energy crisis lies in the generation of electricity through renewables sources of energy by way of more meaningful private sector inclusion. In order to entice more IPPs to enter into the market, the South African government would need to encourage investment into the renewable energy market by integrating its legal, regulatory and policy framework to develop a framework that is comprehensive and enabling.[470] It is asserted that the right policies holds the key that strategically unlocks a business environment in which private participation in the renewable energy sector can materialise.[471] The right policies, however, are only given life by reforming the legal and regulatory renewable energy framework in a manner which creates the optimal achievement of attracting the desired investment into renewable sources of energy and technologies.[472] If it holds true that investment and private sector participation is the answer to South Africa's energy quandary then it is imperative that the right legal and regulatory renewable energy frameworks accompany clearly defined and succinct policy for renewable energy as it is commonly known that "investment [does not] flow into places where acceptable legal frameworks do not exist".[473]

Currently South Africa's renewable energy framework is fragmented, misaligned and evasive.[474] South Africa's energy quandary is seemingly contributed by a lack of political will to transition the generation of electricity from conventional sources of energy to renewable sources of energy;[475] a lack of an effective solution that will save Eskom from the crisis it faces

[469] As above.
[470] Gacheng (n 247) at 182.
[471] Y Omorogbe 'Universal access to modern energy: the centrality of the law' in Y Omorogbe & AO Ordor (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (2018) at 47.
[472] Y Omorogbe 'Universal access to modern energy: the centrality of the law' in Y Omorogbe & AO Ordor (n 471) at 50.
[473] As above.
[474] Ruppel & Ruppel- Schlichting (n92) 145.
[475] L Mkentane 'Lack of political will in SA over renewable energy' *IOL Cape Times* 30 July 2017 https://www.iol.co.za/capetimes/news/lack-of-political-will-in-sa-over-renewable-energy-10554459 (accessed 07 September 2017).

and;[476] and a political reluctance to privatise Eskom.[477] In light of the said contributory factors, encouraging an influx of investment and private sector participants to enter into the renewable energy market glaringly emanates as the most ideal solution to solving South Africa's energy security problem albeit in a sustainable manner.[478] However, due to the fact the energy industry is nationalised in South Africa, the law regulating the industry is currently rendered superfluous as the only control over Eskom is a political one.[479] Thus, in order to lure an influx of private sector investment through IPPs and in order for investments into renewable energy technologies to be a viable concern, the renewable energy legal and regulatory framework needs to be reinvigorated by an overhaul of the current framework. An overhaul of the current framework would reinforce the importance of generating electricity from renewable sources of energy as well as "give confidence to the public as to the government's intentions."[480] It is widely known that the uncertainty in policies and laws adversely affect many current commitments upon which investments were made.[481] A case in point is the years in delay / suspension of the REIPPPP in South Africa due to, *inter alia*, Eskom's refusal to sign power purchase agreements with IPPs.[482] The delay in the REIPPPP saw strain being placed on domestic manufacturing facilities that were established were established to supply components to renewable energy projects.[483]

In light of South Africa's current legal and regulatory framework for renewable energy and the current statistic that renewable sources of energy only comprise of nine percent of the total energy mix in South Africa, it can be established that South Africa's law on renewable energy is not conducive to a framework that enables renewable energy and investment therein to thrive. This research finds that South Africa's legal, regulatory and policy framework is fragmented,

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[476] S van Niekerk 'A different Eskom: achieving a just energy transition for South Africa' *Daily Maverick* 07 July 2019 https://www.dailymaverick.co.za/article/2019-07-04-a-different-eskom-achieving-a-just-energy-transition-for-south-africa/ (accessed 07 September 2019).
[477] C Smith 'Ramaphosa: Eskom will not be privatised' *Fin24* 07 March 2019 https://www.fin24.com/Economy/Eskom/ramaphosa-eskom-will-not-be-privatised-20190307 (accessed 07 September 2019).
[478] Corder & Andzenge (n 304) 96-97.
[479] A J Bradbrook 'Achieving access to modern energy services: a study of legal strategies' in Y Omorogbe & AO Ordor (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (2018) at 62.
[480] As above.
[481] Corder & Andzenge (n 304) 93.
[482] S Liedtke 'Coega Development Corporation welcomes the signing of the IPP contracts' *Engineering News* 06 April 2018 https://www.engineeringnews.co.za/article/coega-welcomes-the-signing-of-the-ipp-contracts-2018-04-06 (accessed 07 September 2019).
[483] As above.

misaligned and evasive. The implementation of concise and sound regulatory measures is a necessary tool to attract and retain private sector participation as regulations are "principally targeted at addressing the concerns and fears of the investing private sector".[484] The credibility and quality of laws and regulations as well as succinct policy directives in Chile clearly demonstrates the successful impact that is had on the deployment renewable energy technologies as well as investment therein.[485]

To this extent, this research progresses to make recommendations as to what mechanisms and actions would comprise a comprehensive legal, regulatory and policy framework for renewable energy in South Africa.

5.3. Recommendations

Stemming from an analysis of South Africa's legal and regulatory renewable energy framework, this research puts forth an overarching recommendation that investment into renewable energy and strides towards attaining energy security in a sustainable manner in South Africa can be achieved through the enactment of laws and regulations which are comprehensive as well as enabling for stimulated private sector participation.

5.3.1 Recommendation One

Presently, it has been examined herein that South Africa ideally has only one supportive regulatory measure which has been the effective and instrumental in the deployment of renewable energy in South Africa- albeit a slow development. This measure is the REIPPPP. The REIPPPP is a South African version of the auctions system deployed by the Chilean government in its legal and regulatory renewable energy framework. The success of the auction / bidding system has been demonstrated to be effective in both countries and thus seen as effective in achieving the objective of deploying further renewables into a country's energy mix. Furthermore, the said auction / bidding system is modelled specifically for private participation in the energy / electricity sector and has demonstrated to generate billions of South

[484] Corder & Andzenge (n 304) 93.
[485] Bertaglio (n 378).

African Rands in private investments with respect to renewable energy projects.[486] In 2018, the South African Energy Minister signed 27 new IPP contracts amounting to an investment value of approximately ZAR 56 billion.[487] It is assessed that such an investment will go a long way to realise some of the socio-economic rights of South African citizens as it is anticipated that 58 000 new jobs will be created as a result.[488] This validates the assertion that "the REIPPPP is designed to contribute to meeting the national renewable energy target while encouraging foreign-direct investment and developing socio-economic and environmentally sustainable growth."[489] Furthermore, the REIPPPP is also seen to aid the mitigation of slowed economic development in South Africa that is owed to Eskom's unpredictable provision of power within the economy.[490] Thus, the REIPPPP is a regulatory measure that is recommended not be dispensed with as it remains a fundamental component, via private sector investment, to the solution of meeting South Africa's energy demand as well ensuring energy security.[491]

5.3.2 Recommendation Two

It is recommended that the REFIT programme initiated by the South African government should be dispensed with in totality. The REFIT programme has been seen to be widely unsuccessful as it has been shot down by legitimate constitutional issues before it could really take flight in South Africa. Though the REFIT scheme is a widely popular mechanisms utilised by governments internationally, Chile is one of the very few countries globally that has managed to successfully attract investment into renewable technologies and deploy an increased amount of renewable sources of energy into its energy mix by not using the competition-deficient scheme within its legal and regulatory framework. Whilst there may be an allusion that the REFIT scheme no longer forms part of South Africa's legal and regulatory framework for renewable energy due to its unpopularity, there is still an inclination by the

[486] J Glazewski, L Steenkamp & P K Oniemola 'Promoting renewable energies in African countries: an outline of fiscal and financial incentives in South Africa and Nigeria' in Y Omorogbe & AO Ordor (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (2018) at 196.
[487] T Creamer 'Radebe says signing of 27 IPP agreements a "new dawn" for renewables in South Africa' *Engineering News* 04 April 2018 https://www.engineeringnews.co.za/article/radebe-says-signing-of-27-ipp-agreements-a-new-dawn-for-renewables-2018-04-04 (accessed 07 September 2019).
[488] As above.
[489] J Glazewski, L Steenkamp & P K Oniemola 'Promoting renewable energies in African countries: an outline of fiscal and financial incentives in South Africa and Nigeria' in Y Omorogbe & AO Ordor (n 486) 196.
[490] As above.
[491] As above.

South Africa government that there exists a need to redesign the original REFIT programme.[492] This research recommends that the South African government should follow the lead taken by the Chilean government and dispense with the REFIT scheme as there are other regulatory mechanisms that are more successful in encouraging private investment into renewable sources of energy.

5.3.3 Recommendation Three

It is further recommended that the South African government should institute renewable energy portfolio standards or quotas as a regulatory tool to encourage the further deployment of renewable energy into its current energy mix, thereby attracting more investment into the renewable energy sector. As demonstrated in the previous chapters of this research, quota systems mandates consumers as well as generators of electricity to ensure that a predetermined percentage of electricity is sourced from renewable energy. In the event that the quota or standard is not met, the said consumer or generator of electricity will face a penalty. The mere legal requirement to generate a certain minimum percentage of electricity from renewable sources of energy creates an open renewable energy market which invites private investors to participate in. Moreover, the quota inherently guarantees the perpetuation of a renewable energy market, thus, stimulating investment into renewable energy as it affords investors a degree of certainty in their investments into renewable energy sources and technology.

Furthermore, stemming from the market inherently created by the quota system, a permeation of RECs results. Such permeations allow consumers or generators of electricity to sell their excess renewable energy credits to those market participants who fall short of meeting their quota requirements. The RECs are classified as commodities and are, therefore, seen by commodity brokers as an innovative tool to stimulate investment in the use and production of renewable energy within the financial markets.[493] In recent years, the Johannesburg Stock Exchange has taken decisive action to assist with the "positioning of the South African financial markets for a more resilient and green economy."[494] The steps taken by the

[492] The Department of Energy 'State of renewable energy in South Africa' (2017) http://www.energy.gov.za/files/media/Pub/2017-State-of-Renewable-Energy-in-South-Africa.pdf (accessed 08 September 2019).
[493] 'Renewable energy certificates' https://commodity.com/renewable-energy-certificates/ (accessed 08 September 2019).
[494] 'Nedbank limited lists a green bond on the Johannesburg Stock Exchange' https://www.jse.co.za/articles/Pages/Nedbank-Limited-lists-a-Green-Bond-on-the-Johannesburg-Stock-Exchange-(JSE).aspx (accessed 08 June 2019).

Johannesburg Stock Exchange will penetrate the achievement of national renewable energy targets by opening up the renewable energy sector to the financial markets. This shall encourage more stimulated private sector participation and investment into renewable energy without the government expending much on renewables itself. Therefore, in light of the manner in which renewable energy standards / quotas encourage private participation and investment into the renewable energy sector, it is hereby recommended that the quota system should be adopted as a regulatory instrument / mechanism as it would render the legal and regulatory renewable energy framework comprehensive and integrated due to the inclusive renewable energy market it can potentially create.

5.3.4 Recommendation Four

In furtherance of Recommendation Three, it is additionally recommended that the net metering should form part of a comprehensive legal and regulatory renewable energy framework. Net metering seeks to reinforce the quota regulatory instrument in that it encourages the entry of private participation in the renewable energy sector as consumers are allowed to generate their own electricity via renewable sources of energy, net such generation against their consumption and pass any remaining electricity into the grid for distribution. The encouragement of consumers to produce their own electricity goes a long way to alleviating the demand of electricity on the constrained South African national grid as well as mitigate any load-shedding threats made by Eskom. It can thus be seen as an instrument that is used to facilitate economic growth and seeks to alleviate energy security concerns that a government may have. It is seen as a complimentary instrument that works well with the renewable energy quota system in that excess energy credits can be sold by the consumer to those who do not meet their quota obligations. Net metering entices investment into renewable technologies as consumer demand for renewable energy technologies are expected to rise. In addition to attracting investment into renewables, an increased demand in renewable technologies can invigorate the manufacturing sector to produce renewable components thus creating jobs for a significant portion of unemployed South Africans. Other than the initial roll out the metering system, the net metering system requires very little intervention after implementation. However, this regulatory measure assumes that the national grid can cater for bouts of energy generated to be fed back into the grid. In the event that South African electricity grid is unable to cater for energy to be sold back into the grid, the government would be required to outlay capital for the development of infrastructure.

5.3.5 Recommendation Five

It is recommended that South Africa retains the current financial and fiscal incentives / disincentives it has adopted. These incentives are conferred in terms of the Income Tax Act 58 of 1962 (as amended) and include - but is not limited to - capital allowances for machinery used in the production of renewable energy (section 12B); an allowance for industrial policy projects (section 12I); and exemption for certified emission reductions (section 12K); and an allowance for energy efficiency savings (section 12L).[495] The International Energy Agency has noted that South Africa's incentives are well designed for low carbon and private investment.[496] It is viewed that the array of fiscal and financial incentives afforded to participants in the renewable energy sector only seeks to attract investment into renewable energy and not deter it. The Chilean government has successfully encouraged investment in renewable technologies without much fiscal incentives. Considering this, it can be justly asserted that fiscal and financial incentives serve to reinforce investment into renewable technologies rather than deter it. South Africa has a comprehensive fiscal and financial incentive framework that can only contribute towards a comprehensive legal and regulatory renewable energy framework.

5.3.6 Recommendation Six

Since South Africa lacks succinct legislation with regards to renewable energy, it is recommended that a distinct piece of legislation should be enacted to promote the deployment of renewable energy and investment therein. South Africa's legal framework is described as patch and varied.[497] Thus, it would be beneficial to formulate a legislative framework that is integrated in structure "regulating environmental, energy, fiscal and other aspects"[498] of the law. Currently, renewable energy is governed under a plethora of energy and environmental acts.[499] However, such statutory acts fail to distinctly carve out the law regarding renewable energy. Legislating renewable energy in this manner can be somewhat confusing particularly for foreign-direct investment as investors try to map out the lawful landscape of renewables in South Africa. The recommendation of a cohesive piece of legislation for renewable energy must seek to arterially link the energy legal framework and environmental legal framework

[495] J Glazewski, L Steenkamp & P K Oniemola 'Promoting renewable energies in African countries: an outline of fiscal and financial incentives in South Africa and Nigeria' in Y Omorogbe & AO Ordor 202.
[496] As above.
[497] Ruppel & Ruppel- Schlichting (n92) 145.
[498] Honiball (n 121).
[499] Honiball (n 121) 35-51.

into one document that should offer a degree of certainty to potential investors as they assess their legal risks with regards to their investments in South African renewable energy projects and technologies.

In the final analysis of investment into renewable energy in sub-Saharan Africa - with specific focus on South Africa - legal, regulatory and policy frameworks for renewable energy has a fundamental role when it comes attracting investment therein. The certainty and clarity in a legal and regulatory framework, achieved through legal integration, is essential "for the purposes of attracting the levels of investment required for sustainable energy in [South] Africa."[500]

5.4. Conclusion

South Africa is a country that has found itself facing calamitous challenges nationally and globally. Nationally, it struggles to overcome years of socio-economic injustices of its past whilst facing a dire energy crisis. Internationally, it faces pressure from the international community to transition its economy from a carbon-based economy – fuelled by a coal reliant public power utility – to a green economy supported by the renewable generation of electricity. If South Africa is to remain relevant internationally, it cannot persist to ignore the global challenge of climate change in favour traditional fossil fuels for the generation of electricity. Renewable energy has been found to be a source of energy that serves to lessen the effects of socio-economic, energy security and climate degradation challenges. Whilst the South African government is no current position to effect an immediate transition from conventional sources of energy to renewable energy - given the peculiarities of its domestic economy - it needs to start taking incremental steps towards attracting private investment into renewable energy in order to increase the deployment of renewable energy in the electricity sector.

To do so, South Africa requires an overhaul of its current legal and regulatory framework by implementing a framework which enables investment and the growth of a privatised renewable electricity market – one which is free of political influence and where the price of electricity is

[500] Y Omorogbe & A Ordor 'Achieving effective law and policy frameworks for access to sustainable energy in Africa: a multidimensional effort' in in Y Omorogbe & AO Ordor (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (2018) at 291-292.

self-regulated through competitive tools. A legal and regulatory framework that enables investment must be designed in a manner that is responsive to and cognisant of South Africa's precarious social, political and financial economy. Moreover, the said framework for renewable energy must be designed to comprehensively include regulatory instruments / mechanisms that are concise, flexible and reflective of the government's strategic objectives regarding the enhanced deployment of renewables into its energy mix. To formulate a comprehensive and integrated legal and regulatory framework that enables investment into renewable energy, is an opportunity to afford the ordinary South African citizen – and those in sub-Saharan Africa - a chance at a brighter future.

BIBLIOGRAPHY

Books

Bradbrook, A J 'Achieving access to modern energy services: a study of legal strategies' in Omorogbe, Y & Ordor, A O (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (Oxford University Press 2018).

Chiguvare, Z & Chiguvare, T M 'The state of renewable energy technologies and applications in sub-Saharan Africa- Where do we stand, and where do we go?' in Ruppel, O C & Althusmann, B (eds) *Perspectives on energy security and renewable energies in sub- Saharan Africa: practical opportunities and regulatory challenges* (MacMillan Education Namibia 2016).

Corder, H & Andzenge, T 'Regulation as a catalyst for the electrification of Africa' in Omorogbe, Y & Ordor, A O (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (Oxford University Press 2018).

Gacheng, E 'Legal and policy frameworks for climate-friendly energy generation in Africa: Energy security for future development' in OC Ruppel & B Althusmann (eds) *Perspectives on energy security and renewable energies in sub- Saharan Africa: practical opportunities and regulatory challenges* (MacMillan Education Namibia 2016).

Glazewski, J & others 'Promoting renewable energies in African countries: an outline of fiscal and financial incentives in South Africa and Nigeria' in Omorogbe, Y & Ordor, A O (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (Oxford University Press 2018).

Idornigie, P O 'Towards adopting an appropriate dispute resolution mechanism to promote investments to enhance energy access in Africa' in Omorogbe, Y & Ordor, A O (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (Oxford University Press 2018).

Omorogbe, Y 'Universal access to modern energy: the centrality of the law' in Omorogbe, Y & Ordor, A O (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (Oxford University Press 2018).

Omorogbe, Y & Ordor, A 'Achieving effective law and policy frameworks for access to sustainable energy in Africa: a multidimensional effort' in in Y Omorogbe & AO Ordor (eds) *Ending Africa's energy deficit and the law: achieving sustainable energy for all in Africa* (Oxford University Press 2018).

Ruppel, O C & Ruppel-Schlichting, K 'Comparative legal aspects of the potential of renewable energy to promote security, sustainable development and climate change mitigation: Germany, South Africa and Namibia' in Ruppel, O C & Althusmann, B (eds) *Perspectives on energy security and renewable energies in sub- Saharan Africa: practical opportunities and regulatory challenges* (MacMillan Education Namibia 2016).

Zillmann, D & others *Innovation in energy law and technology: dynamic solutions for energy transitions* (Oxford University Press 2018).

Case Law

Gas Natural SDG, SA versus The Argentine Republic, ICSID case number ARB/03/10

Journal Articles

Burke, M J & Stephens, J C 'Political power and renewable energy futures: a critical review' (2018) 35 *Energy Research & Social Science* at 78. Available at: https://reader.elsevier.com/reader/sd/pii/S2214629617303468?token=3E581A07D900D598BEFBC3F370FE3604DE35C449F59D875F47FA78365D5A3BEE4B01BC3D7DC7C15B410BA6BB90AD22AA

de Jongh, D & others 'South African renewable energy investment barriers: an investor perspective' (2014) 25 *Journal of Energy in Southern Africa* at 15.

Dulal, H B 'Renewable energy diffusion in Asia: Can it happen without government support?' (2013) 59 *Energy Policy* at 301

Eberhard, A & others 'South Africa's renewable energy IPP procurement program: success factors and lessons' (2014) *Public-Private Infrastructure Advisory Facility* at 1. Available at: http://www.gsb.uct.ac.za/files/PPIAFReport.pdf

Matthews, J A & others 'Mobilizing private finance to drive an energy industrial revolution' (2010) 38 *Energy Policy* at 3263.

Mauger, R & Barnard, M 'Addressing fragmentation in the South African renewable energy governance effort- lessons to be learnt from France' (2018) 29 *Journal of Energy in Southern Africa* at 1.

Nasirov, S & others 'Investors' perspectives on barriers to the deployment of renewable energy sources in Chile' (2015) 8 *Energies* at 3795.

Nkoana, E M 'Community acceptance challenges of renewable energy transition: A tale of two solar parks in Limpopo, South Africa' (2018) 29 *Journal of Energy in Southern Africa* at 37.

Painuly, J P 'Barriers to renewable energy penetration: a framework for analysis' (2001) 24 *Renewable Energy* 73.

Papacostantis, H 'Renewable Energy Regulation in South Africa: Lessons to be learnt from the Chinese Experience' (2017) L2 *Comparative and International Law Journal of South Africa* 275.

Rafaj, P & Kypreos, S 'Internalisation of external cost in the power generation sector: Analysis with global multi-regional MARKAL model' (2007) 35 *Energy Policy* 828.

S von Hatzfeldt 'Renewable energy in Chile: barriers and the role of public policy' (2013) 66 *Journal of International Affairs* at 203.

Seetharaman, K M & others 'Breaking barriers in deployment of renewable energy' (2019) 5 *Heliyon* at 4. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6351575/pdf/main.pdf

Simsek, Y & others 'Review and assessment of energy policy developments in Chile' (2019) 127 *Energy Policy* at 87.

Winkler, H 'Renewable energy policy in South Africa: policy options for renewable electricity' (2005) 33 *Energy Policy* at 27. Available at: https://conferences.ufs.ac.za/dl/Userfiles/Documents/00000/555_eng.pdf

Reports and / or Papers

African Development Bank Group, 'Electricity Regulatory Index for Africa 2018' (2018). Available at: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Electricity_Regulatory_Index_2018.pdf

BloombergNEF 'Climatescope: Emerging markets outlook 2018' (2018). Available at: http://global-climatescope.org/assets/data/reports/climatescope-2018-report-en.pdf

GIZ 'Legal frameworks for renewable energy: Policy analysis for 15 developing and emerging countries' Available at: https://www.icafrica.org/fileadmin/documents/Knowledge/GIZ/Legal%20Frameworks%20for%20Renewable%20Energy.pdf

Hogan Lovells 'Power and energy infrastructure in Africa- Financing for the future' (2016). Available at: https://www.hoganlovells.com/en/publications/power-and-energy-infrastructure-in-africa

Norton Rose Fulbright 'Renewable energy in Latin America' (2017). Available at: https://www.nortonrosefulbright.com/-/media/files/nrf/nrfweb/imported/renewable-energy-in-latin-america.pdf?la=en&revision=66edb636-af27-43d7-8c44-c65564b1833b

The Boston Consulting Group and the African Finance Corporation 'Infrastructure Financing in Sub- Saharan Africa: Best Practices from Ten Years in the Field' (2017). Available at: https://www.africafc.org/Publications/Publications-Documents/BCG-Report-Africa-May-2017-Electronic-v12-may.aspx

The Department of Energy 'South African Energy Sector Report' (2018). Available at: http://www.energy.gov.za/files/media/explained/2018-South-African-Energy-Sector-Report.pdf

The Department of Energy 'The state of renewable energy in South Africa" (2015). Available at: http://www.energy.gov.za/files/media/Pub/State-of-Renewable-Energy-in-South-Africa.pdf

The Department of Energy 'State of renewable energy in South Africa' (2017). Available at: http://www.energy.gov.za/files/media/Pub/2017-State-of-Renewable-Energy-in-South-Africa.pdf

The International Energy Agency 'Energy policies beyond IEA countries: Chile 2018' (2018). Available at: https://www.flandersinvestmentandtrade.com/export/sites/trade/files/attachments/EnergyPoliciesBeyondIEACountriesChile2018Review.pdf

The International Energy Agency 'Renewable energy policies in a time of transition' ISBN 978-92-9260-061-7 (2018). Available at: https://www.irena.org/publications/2018/Apr/Renewable-energy-policies-in-a-time-of-transition

The United Nations 'Transforming our world: The 2030 agenda for sustainable development' Available at: https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

The United Nations Commission on Science and Technology for Development 'The role of science, technology and innovation in increasing substantially the share of renewable energy by 2030' E/CN.16/2018/2 at 4 (2018).

The United Nations Industrial Development Organization 'Module 9: Regulatory and policy options to encourage development of renewable energy' Available at: http://africa-toolkit.reeep.org/modules/Module9.pdf

World Bank Group 'Doing Business 2019' (16th edition) https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.pdf

Policies, Legislation and Regulations

Electricity Regulation Act 4 of 2006.

'Energy Efficiency Strategy of the Republic of South Africa' GN 908 in GG 32342 of 26 June 2009.

GN 4 in GG 25088 of 4 July 2003. Available at: http://www.energy.gov.za/files/policies/Free%20Basic%20Electricity%20Policy%202003.pdf

National Energy Act 34 of 2008.

National Environmental Management Act 107 of 1998.

Protection of Investment Act 22 of 2015.

The Constitution of the Republic of South Africa Act 108 of 1996.

The Department of Minerals and Energy 'White paper on the energy policy of the Republic of South Africa' (1998). Available at: http://www.energy.gov.za/files/policies/whitepaper_energypolicy_1998.pdf

White Paper on the Renewable Energy Policy of the Republic of South Africa (2004). Available at: https://www.gov.za/sites/default/files/gcis_document/201409/261691.pdf

Theses and Dissertations

Coetzer, M 'A legal framework for the promotion of renewable energy in South Africa through fiscal instruments' LLM thesis, North-West University (2014). Available at: https://repository.nwu.ac.za/bitstream/handle/10394/14911/Coetzer_M.pdf;sequence=1

Honiball, H 'Legal framework for the promotion of renewable energy in South Africa: a critical analysis' LLM thesis, North-West University (2013). Available at: https://dspace.nwu.ac.za/bitstream/handle/10394/11724/Haniball_H.pdf?sequence=1

Murombo, T 'Law, regulation, and the promotion of renewable energy in South Africa' PhD Thesis, University of Witwatersrand (2015). Available at: http://wiredspace.wits.ac.za/jspui/bitstream/10539/22155/1/Law%20Regulation%20and%20the%20Promotion%20of%20Renewable%20Energy%20in%20South%20Africa.pdf

Swart, D 'Legal protection of foreign investment in South Africa' LLM thesis, University of Pretoria (2016). Available at: https://repository.up.ac.za/bitstream/handle/2263/58743/Swart_Legal_2016.pdf?sequence=1&isAllowed=y

Articles

Adam, F 'Free basic electricity: a better life for all' (2010). Available at http://www.earthlife.org.za/wp-content/uploads/2010/03/Free-Basic-Electricity-Final-Low-res.pdf

Africa Oil and Power 'Beating Africa's Power Problem: The Issues Holding Africa Back' (2017). Available at: https://africaoilandpower.com/2018/12/27/beating-africas-power-problem-the-issues-holding-africa-back/

'Africa needs a regulatory and policy framework to support investment in renewable energy' *BusinessDay* (2019). Available at: https://www.businesslive.co.za/bd/companies/financial-services/2019-07-31-regulatory-and-policy-framework-needed-to-support-investments-in-renewable-energy-projects-in-africa/

Bega, S 'Too often, environmental impact assessments (EIAs) are tipped in favour of development in South Africa, say experts' *IOL Saturday Star News* (2018). Available at: https://www.iol.co.za/saturday-star/news/too-often-environmental-impact-assessments-eias-are-tipped-in-favour-of-development-in-south-africa-say-experts-15102592

Bertaglio, A 'Developing countries are the new leaders in renewables' *Enel Green Power* (2019). Available at: https://www.enelgreenpower.com/stories/a/2019/01/developing-countries-and-renewable-energy-for-a-sustainable-future

Bungane, B 'Energy infrastructure an important factor I the IRP draft' *ESI Africa* (2018). Available at: https://www.esi-africa.com/industry-sectors/business-and-markets/energy-infrastructure-an-important-factor-in-the-irp-draft/

Burkhardt, P & Cohen, M 'Power Shortages in South Africa could get a whole lot worse' *Bloomberg* 07 (2019). Available at: https://www.bloomberg.com/news/articles/2019-04-08/power-shortages-in-south-africa-could-get-a-whole-lot-worse

Chui, K & Chen, R 'The rule of law in Africa: enforcing governance or scaring off foreign investors' *Go Legal* (2016) https://www.golegal.co.za/africa-foreign-investors/

Creamer, T 'Radebe says signing of 27 IPP agreements a "new dawn" for renewables in South Africa' *Engineering News* (2018). Available at: https://www.engineeringnews.co.za/article/radebe-says-signing-of-27-ipp-agreements-a-new-dawn-for-renewables-2018-04-04

de Wet, P 'Ramaphosa just activated a law that scares foreign investors- and makes it harder for them to fight expropriation' *Business Insider South Africa* (2018). Available at: https://www.businessinsider.co.za/protection-of-investment-act-commencement-gazetted-foreign-mediation-bee-section-25-constitution-2018-7

Ebrahim, T & Masiangoako, T 'Reflecting on South Africa's socioeconomic progress' Available at: https://www.constitutionhill.org.za/blog/reflecting-on-south-africas-socioeconomic-progress

Grosling, M 'SA could have a major advantage with renewable energy, say experts' *Fin24* (2019). Available at: https://www.fin24.com/Economy/sa-could-have-major-advantage-with-renewable-energy-20190205

Henley, J 'Climate crisis blamed as temperature records broken in three nations' *The Guardian* (2019). Available at: https://www.theguardian.com/world/2019/jul/24/summers-second-heatwave-set-to-break-records-across-europe

Hughes, M 'Why access to energy should be a basic human right' *Forbes* (2018). Available at: https://www.forbes.com/sites/mikehughes1/2018/12/10/why-access-to-energy-should-be-a-basic-human-right/amp/

Jackson, A 'The 10 most serious problems in the world, according to millennials' *Business Insider South Africa* (2017). Available at: https://www.businessinsider.com/world-problems-most-serious-according-to-millennials-2017-8?IR=T

Khumalo, K 'Investors snap up Nedbank green bonds' *IOL Business Report* (2019) https://www.iol.co.za/business-report/markets/investors-snap-up-nedbank-green-bonds-22348716

Lepule, T 'Election time and the policy is renewable' *IOL Weekend Argus* (2019) https://www.iol.co.za/weekend-argus/election-time-and-the-policy-is-renewable-20338597

Liedtke, S 'Coega Development Corporation welcomes the signing of the IPP contracts' *Engineering News* (2018). Available at: https://www.engineeringnews.co.za/article/coega-welcomes-the-signing-of-the-ipp-contracts-2018-04-06

Lilley, R 'South Africa's electricity system to change dramatically' *EE Publishers* (2018). Available at: https://www.ee.co.za/article/south-africas-electricity-systems-are-about-to-change-dramatically.html#

Magubane, L 'Investment protection legislation in South Africa' *Return to Africa Connected* (2018). Available at: https://www.dlapiper.com/en/southafrica/insights/publications/2018/11/africa-connected-doing-business-in-africa/investment-projection-legislation-in-south-africa/

Mkentane, L 'Lack of political will in SA over renewable energy' *IOL Cape Times* (2017). Available at: https://www.iol.co.za/capetimes/news/lack-of-political-will-in-sa-over-renewable-energy-10554459

Moyo, A 'Time ripe for SA renewable energy investments' *ITWeb* (2019) https://www.itweb.co.za/content/Kjlyr7wdw3yMk6am

'Nedbank limited lists a green bond on the Johannesburg Stock Exchange' Available at: https://www.jse.co.za/articles/Pages/Nedbank-Limited-lists-a-Green-Bond-on-the-Johannesburg-Stock-Exchange-(JSE).aspx

Niselow, T 'Load shedding through the years and how Eskom has struggled to keep the lights on' *Fin24* (2019). Available at: https://m.fin24.com/Economy/Eskom/sunday-read-load-shedding-through-the-years-and-how-eskom-has-struggled-to-keep-the-lights-on-20190324

Njini, F & Burkhardt, P 'Eskom says economic growth will lead to load-shedding' *BusinessDay* (2019). Available at: https://www.businesslive.co.za/bd/national/2019-08-21-eskom-says-economic-growth-will-lead-to-load-shedding/

Ontieno, M O 'What is Global South' *World Atlas* (2019). Available at: https://www.worldatlas.com/articles/what-is-the-global-south.html

Phakati, B 'SA urged to speed up transition to money-saving renewable energy' *Business Day* (2019). Available at: https://businesslive.co.za/bd/national/2019-03-31-sa-urged-to-speed-up-transition-to-money-saving-renewable-energy

Power Africa, 'Understanding power project financing'. Available at: http://cldp.doc.gov/sites/default/files/UnderstandingPowerProjectFinancing.pdf

Santiago, J '15 quotes on climate change by world leaders' *World Economic Forum* (2015). Available at: https://www.weforum.org/agenda/2015/11/15-quotes-on-climate-change-by-world-leaders/

Schwab, K 'The Fourth Industrial Revolution' *World Economic Forum.* Available at: https://www.weforum.org/about/the-fourth-industrial-revolution-by-klaus-schwab

Sguazzin, A 'Eskom wants most of R440bn of debt transferred to the government' *BusinessDay* (2019) https://www.businesslive.co.za/bd/companies/energy/2019-08-07-eskom-wants-most-of-r440bn-of-debt-transferred-to-the-government/

Sguazzin, A & Goko, C 'Eskom gets bailout funding. Now it needs a rescue plan' *Fin24* (2019). Available at: https://www.fin24.com/Economy/Eskom/eskom-gets-bailout-funding-now-it-needs-a-rescue-plan-20190726

Smith, C 'Load shedding threatens jobs, economic recovery, says consumer body' *Fin24* (2019). Available at: https://www.fin24.com/Economy/Eskom/load-shedding-threatens-jobs-economic-recovery-says-consumer-body-20190320

Smith, C 'Ramaphosa: Eskom will not be privatised' *Fin24* (2019). Available at: https://www.fin24.com/Economy/Eskom/ramaphosa-eskom-will-not-be-privatised-20190307

Tandwa, L 'Ramaphosa tells South Africa that energy is a basic human right and the current crisis will pass' *News24* (2019). Available at: https://www.news24.com/SouthAfrica/News/ramaphosa-tells-south-africans-that-energy-is-a-basic-human-right-and-current-crisis-will-pass-20190321

The Department of Trade and Industry 'Protection of Investment Act in effect' (2018). Available at: https://legal.sabinet.co.za/articles/protection-of-investment-act-in-effect/

Trollip, H & Marquard, A 'Prospects for renewable energy in South Africa- climate change' *Henrich Böll Stiftung Cape Town* (2014). Available at: https://za.boell.org/2014/03/03/prospects-renewable-energy-south-africa-climate-change

van Niekerk, S 'A different Eskom: achieving a just energy transition for South Africa' *Daily Maverick* (2019). Available at: https://www.dailymaverick.co.za/article/2019-07-04-a-different-eskom-achieving-a-just-energy-transition-for-south-africa/

Veras, O 'Urbanisation in sub- Saharan Africa: access to electricity' *Africa Business Insight* (2018). Available at: https://www.howwemadeitinafrica.com/urbanisation-in-sub-saharan-africa-access-to-electricity/

Ward, J 'The growing importance of renewable energy in Africa' (2017). Available at: www.howwemadeitinafrica.com/growing-importance-renewable-power-africa/

Zama, Z 'Did you know? SA exports electricity to seven countries in Southern Africa' *702* (2018). Available at: http://www.702.co.za/articles/323093/did-you-know-sa-exports-electricity-to-seven-countries-in-southern-africa

Websites

Alternative Energy 'Renewable energy'. Available at: http://www.altenergy.org/renewables/renewables.html

‘Bankable’ Available at: http://www.businessdictionary.com/definition/bankable.html

‘Coal resources’ Available at: http://www.energy.gov.za/files/coal_frame.html

Energy Alabama ‘What is sustainable energy?’ Available at: https://alcse.org/what-is-sustainable-energy/

‘Green bonds’ Available at: https://www.jse.co.za/trade/debt-market/bonds/green-bonds

‘Renewable energy’ Available at: http://www.energy.gov.za/files/renewables_frame.html

‘Renewable energy certificates’ Available at: https://commodity.com/renewable-energy-certificates/

Science Daily ‘Renewable energy’. Available at: https://www.sciencedaily.com/terms/renewable_energy.htm

‘South Africa Power Fact Sheet’ Available at: https://www.usaid.gov/powerafrica/south-africa

‘South Africa signs Paris Agreement on climate change’ (2016). Available at: https://www.environment.gov.za/mediarelease/southafricasignsparisagreementonclimate

‘State members of the United Nations and state members of specialized agencies’. Available at: https://sustainabledevelopment.un.org/memberstates

‘Sustainable Development Goals’ Available at: https://sustainabledevelopment.un.org/?menu=1300

‘The causes of climate change’ Available at: https://climate.nasa.gov/causes/

The United Nations Development Programme ‘Goal 7: Affordable and clean energy’. Available at: https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-7-affordable-and-clean-energy.html

The United Nations ‘Universal Declaration of Human Rights of 1948’. Available at: https://www.un.org/en/udhrbook/pdf/udhr_booklet_en_web.pdf

‘United Nations Framework Convention on Climate Change’ (1992). Available at: https://unfccc.int/resource/docs/convkp/conveng.pdf

University of Calgary ‘Renewable and sustainable energy’. Available at: https://energyeducation.ca/encyclopedia/Renewable_and_sustainable_energy

‘What are greenhouse gases?’ Available at: https://www.myclimate.org/information/faq/faq-detail/detail/News/what-are-greenhouse-gases/

‘What is climate change?’ Available at: https://www.acciona.com/climate-change/

‘What is Global South’ Available at: https://www.igi-global.com/dictionary/a-new-colorful-pathway-chosen/62929

‘What is load shedding?’ Available at: http://loadshedding.eskom.co.za/LoadShedding/Description