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Does South Africa's energy regulatory framework promote renewable energy?

By

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Declaration

I, **Meshack Fhatuwani Netshithuthuni**, declare that this Research Report is my own unaided work. It is submitted in partial fulfillment of the requirements for the degree of Master of Laws (by Coursework and Research Report) at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

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Abstract

The South African economy heavily relies on fossil fuels such as coal as its major energy source. However, for more than fifteen years, South Africa has been faced with loadshedding and interrupted power cut, that results in persistent energy demand management. The cause is ascribed to *inter alia*, coal-fired power plants that are ageing, corruption, and lack of promotion of more renewables. The high dependence on coal-fired energy results in high significant environmental effects to the environment and human well-being. The environmental impacts include water and air pollution, climate change impacts due to GHG emissions. These emissions contribute to global warming, and diseases such as asthma, cancer, heart, and lung ailments. At the same time, South Africa has abundant renewable energy sources that can potentially reduce loadshedding, environmental effects or its energy deficit. The study accepts that renewable energy is sustainable, clean, and environmentally friendly in comparison to coal, although energy derived from renewables such as wind, solar, hydrogen cells and renewable-powered batteries also produce GHG emissions during manufacturing processes. The purpose of this study is to analyse and investigate the existing legal framework for promoting renewable energy sources as an alternative to non-renewable energy sources. In addition, this report seeks to determine whether the current regulatory framework sufficiently promotes and supports the integration of more renewables. It concludes that the current regulatory regime does not sufficiently promote and support the integration of renewable energy sources.

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1. INTRODUCTION

Energy is a fundamental input to human well-being.[1] Uninterrupted supply of energy is crucial for socio economic development[2] and economic growth is hampered when energy supply becomes erratic and unreliable. Our country depends heavily on conventional energy sources to power its energy needs, with coal traditionally being the primary or main source of energy.[3] The main reason for the country's reliance on coal is because of its historical affordability[4] and abundance.[5] The lower costs, however, did not take into consideration the environmental impacts such as pollution.[6] Coal-fired power releases greenhouse gases[7] ('GHGs') and other harmful particulate matter into the atmosphere.[8] These GHG emissions contribute to climate change.[9] From an environmental perspective, it is unsustainable to continuing the burning of these conventional energy sources.[10]

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[1] V Ndlovu & R Inglesi- Lotz 'The causal relationship between energy and economic growth through research and development (R&D): The case of BRICS and lessons for South Africa' (2020) 199 *Energy* 2. See L Du Toit 'Promoting renewable energy in South Africa: An overview of recent legal and policy developments' (2012) 1 *South African Journal of Environmental Law and Policy.* Everyone needs energy for their homes to power lights, refrigerators, air conditioners, and computers etc.

[2] C Arndt, R Davies, S Gabriel, K Makrelovv, B Merven, F Hartley, & J Thurlow (2016) 'A sequential approach to integrated energy modelling in South Africa' (2016) 161 *Applied Energy,* at 591-599.

[3] LA Steenkamp 'A review of policy options for clean electricity supply in South Africa' (2017) 1 *International Conference on Clean Electrical Power* 1. Coal is the primary source of power supply in South Africa. This is because South Africa have large deposits of coal.

[4] HA Strydom & AD Surridge '*Energy*' in Strydom HA & King ND *Environmental Management in South Africa* 2ed, (2009) 766-769. Historically, generating electricity from coal took place at a low cost, which is no longer the case.

[5] These factors *inter alia* contribute to the dependence on fossil sources. See Strydom & Surridge (note 4 above; 766-769).

[6] Spalding-Fecher & Matibe 'Electricity and externalities in South Africa' (2003) 31(8) *Energy* at 722. See Winkler 'Energy policies for sustainable development in South Africa - Options for the future*'* (2006) *Energy Research Centre University of Cape Town* at 81.

[7] GHG emissions includes carbon dioxide, which comes from the burning of coal. See K Fakier 'Women and Renewable Energy in a South African Community: Exploring Energy Poverty and Environmental Racism' (2018) 19 (165) *Journal of International Women's Studies*. See J Peel 'Climate Change: Emergence of a New Legal Discipline' (2008) *Melbourne University Law Review* at 922. See DBSA '*Programmes in support of transitioning South Africa to a green economy*,' Halfway House (2011).

[8] South Africa is ranked amongst the high global emitter of GHG in the continent, as it is highly dependent on coal as a primary source of energy. See G Ireland & J Burton 'An assessment of new coal plants in South Africa's electricity future: The cost, emissions, and supply security implications of the coal IPP programme' (2018) *Energy Research Centre,* University of Cape Town, Cape Town.

[9] South Africa is amongst the highest GHG and carbon dioxide emitter in the continent, coming from coal energy. This has resulted in environmental non-profit organisations such as Earthlife, Greenpeace and Centre for Environmental Rights protesting over high reliance on coal for power generation.

[10] The burning of coal results in significant environmental effects to the atmosphere and human health.

Despite the abundance of coal, the supply of by state-owned electricity provider Eskom has become a challenge.[11] The costs of maintaining coal-fired power stations are high.[12] The power utility is facing technical and financial challenges which has constrained it from providing an uninterrupted power supply.[13] Therefore, the importance of other alternative energy sources cannot be over- emphasised specifically in a country like South Africa.

It is important and necessary to transit to clean, renewable and sustainable energy sources.[14] Renewable sources can play a crucial role in mitigating climate change impacts[15] caused by GHG emissions from the burning of coal[16] and can offer a solution to the energy demand and energy security.[17] The government must promote and advocate for the deployment of sustainable energy sources as part of its commitment to curb climate change GHG emissions.[18] In addition, harnessing alternative energy sources may increase energy security for the national energy grid.[19] Renewables can also lead to the creation of job.[20] It is necessary to harness energy from sustainable technologies that provide clean energy.[21] The paper acknowledges that non-conventional sources such as wind, solar and geothermal batteries produce some

[11] B Ateba, J Prinsloo, & R Gawlik 'The significance of electricity supply sustainability to industrial growth in South Africa' (2019) *Energy Reports* 5 at 1324-1338.

[12] A Gets 'Powering the Future: Renewable Energy Roll-out in South Africa' 2013 *Greenpeace Africa Johannesburg* at 7. See Agama 'Energy Employment Potential of Renewable Energy in South Africa' (November 2003) available at http://www.agama.co.za/, accessed on 7 November 2021.

[13] The Zondo Report pointed that Eskom is rooted out of fraud and corruption within its ranks and supply chain. In the year 2019, 11 private contractors were investigated for corruption, theft, and fraud to the amount of R139 billion stemming from Medupi and Kusile. The South African Police Service is currently investigating 131 Eskom cases relating to fraud, corruption, and theft. The Hawks have 83 corruption related cases in provinces and 18 are of these cases are *sub judice* in court. The former Eskom CEO André de Ruyter indicated that fraud and corruption are amongst the issues hindering the monopoly Eskom to meet energy demand and supply.

[14] These are non-conventional energy sources.

[15] AB Rumsey and ND King ND 'Climate Change: Impacts, Adaptation, and Mitigation. Threats and Opportunities in HA Strydom and ND King (eds) *Fuggle and Rabie's Environmental Management in South Africa* 2nd ed (2009). See Dunmade, Madushele, Adedeji, & Akinlabi *A streamlined life cycle assessment of a coal-fired power plant*: the South African case study (2019) Environmental Science and Pollution Research 5.

[16] About Renewable Energy available at https://www.sanedi.org.za/Renewable%20Energy.html, accessed on 20 July 2021. See Gets (note 12 above; 7).

[17] LA Steenkamp 'Transitioning to Clean Energy - An Overview of Energy Taxes in BRICS' International *Conference on Clean Electrical Power* (2019) at 1-3.

[18] Climate change is amongst the justification for the transition to renewable energy. See I Abedian & N Tsoanamatsie 'Policy Brief: Energy Transition for Post Covid-19 South Africa' (April 2021) *Wits School of governance*, at 3-10.

[19] H Tazvinga, O Dzobo, & M Mapako 'Towards sustainable energy system options for improving energy access in Southern Africa' (2020) *Journal of Energy in Southern Africa*, 31(2), 59-72. See L Du Toit (note 1 above; 1).

[20] L McDaid 'Renewable energy independent power producer procurement programme review': A critique of process of implementation of socio-economic benefits including job creation. Cape Town: AIDC (2016).

[21] H Papacostantis 'Renewable energy regulation in South Africa: lessons from the Chinese experience' *Comparative and International Law Journal of Southern Africa* (2017) 50(2) at 275-302. T Humby, LJ Kotzé, O Rumble & A Gilder Climate Change Law and Governance in South Africa 1st ed (2016) 18.

environmental impacts such as GHG emissions during the manufacturing processes, however, they produce clean energy as compared to coal.[22]

This paper will argue that the promotion of renewable energy as an alternative to coal depends on a solid regulatory framework that encourages investment.[23] Laws and policies can achieve this through 'either direct regulation or indirectly creating incentives for the transition'.[24] Murombo agrees that the potential solution to gradual transition to renewable energy can be achieved through an adequate and effective legal framework.[25] Glazewski observe that lack of an appropriate regulatory framework is amongst the barriers that hinders the promotion of renewable energy.[26] Effective regulation is the tool to facilitate transition to renewable energy.[27]

This report seeks to explore the extent to which South Africa's energy regulatory framework promotes investment in use of renewable sources. The study will explore whether the current legal framework enables the promotion of renewable energy. To do this, Part 2 will examine and evaluate South Africa's current energy system. Part 3 will analyse the existing energy regulatory framework (legislation, policies and plans and programmes) for promoting renewable energy. Finally, Part 4 will present the conclusion and remarks.

2. SOUTH AFRICA'S CURRENT ENERGY SYSTEM (AND BARRIERS TO RENEWABLE ENERGY INVESTMENT)

In order to understand South Africa's current energy system, it is necessary to distinguish non-renewable and renewable energy sources. Non-renewable energy is defined as 'energy sources that are not replaced once they are depleted.'[28] Examples of non-renewable energy are fossil

[22] The key to tackle GHG emissions is to end reliance on energy generated from fossil fuels.
[23] Other factors include lack of investment on renewable technologies, lack of political will and corruption.
[24] G Montmasson-Clair, K Moilwa & G Ryan 'Regulatory Entities Capacity Building Project Review of Regulators Orientation and Performance': Review of Renewable Energy Regulation. Johannesburg and Pretoria: University of Johannesburg and Trade and Industrial Policy Strategies (2014). A Eberhard, K Gratwick, E Morella & P Antmann 'Accelerating investments in power in sub-Saharan Africa' *Nature Energy* (2017) 2(2) at 1-3.
[25] T Murombo, *Law, Regulation and the promotion of Renewable energy in South Africa* (Unpublished LLD thesis, University of Witwatersrand, Johannesburg, 2015) 17.
[26] J Glazewski *The Legal Framework for Renewable Energy in South Africa* 2nd ed (2005) 14.
[27] The regulatory enviroment must be effective, solid, aligned and coherent.
[28] E Du Toit '*The Sustainable Energy Resource Handbook' South African Journal of Environmental Law and Policy* (2019) 9 at 17-23.

fuels such as coal, gas, and oil.[29] In this paper, reference is limited to coal because South Africa relies on coal as the major source of electricity. On the other hand, renewable energy refers to energy sources that are not depleted.[30] The renewable energy sources includes wind, solar, hydropower, biomass, and geothermal.[31]

South Africa has faced and is currently experiencing repeated load shedding, repeated power supply and energy security challenges in terms of energy demand and supply due to lack of investment in the maintenance, rehabilitation and strengthening of power sector infrastructure.[32] The potential solution to energy needs is to replace poor performing coal-fired power stations with sustainable energy sources.[33] In addition, energy security, affordability and climate change are amongst the crucial factors driving the call for the transition to renewables. Du Toit further asserts that about 50% of the existing coal deposits are already exhausted.[34] Although the country has abundance, the deposit of coal is becoming more difficult to reach because it is located far underground and it is obtained at a significantly high cost,[35] which necessitates a transition to renewables.[36]

For so many years, the government has been spending resources and efforts on coal-fired power stations instead of considering alternative sustainable sources.[37] Since then, although renewable energy has been introduced, the regulatory framework has not progressed much. As already indicated, our country heavily relies on coal to derive its electricity but must continue to make effort to gradually shift from coal-fired power.[38] South Africa must diversify its energy mix to with renewable energy sources to balance the effects of the emissions.[39]

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[29] Ibid.
[30] Ibid. See Winkler (note 6 above; 135). It is also known as non-depletable energy source.
[31] Ibid. See WC Turkenburg 'Renewable Energy Technologies' in United Nations Development Programme, United Nations Department of Economic and Social Affairs and World Energy Council *World Energy Assessment: Energy and the Challenge of Sustainability* (2000) at 220.
[32] South Africa is currently experiencing repeated load shedding and lack of reliable energy is crippling South Africa's economy.
[33] Due to electricity energy demands and the global commitment to reduce carbon emissions, renewable energy is the best solution.
[34] Du Toit (note 31 above; 19-20).
[35] The coal that our country depends on for electricity is becoming exhausted and uneconomically to access which will results to energy crisis if not supplemented by other alternative energy sources.
[36] Ibid.
[37] Gets (note 16 above; 7).
[38] https://www.iea.org/articles/south-africa-energy-outlook.
[39] Ibid. Diversifying energy mix will reduce environmental effects by the burning of coal.

The study acknowledge that our country has aspirations and desirability to transit to low carbon economy and has seen an increase of renewable energy projects necessitated by continuous interrupted power supply and failure by the national grid to meet the energy demand.[40] For example, the government introduced the REI4P to increase generation capacity with the aim to secure electricity from renewables through renewable energy projects such as solar photovoltaic, onshore wind, biomass, landfill gas, biogas, and small hydro.[41] The other purpose of the REI4P is to contribute to socio-economic development such as job creation.[42] Thus, it is aimed to bring addition power by diversifying the country's energy mix articulated in the 1998 White Paper on Energy Policy of South Africa.[43] The paper acknowledges that the REI4P has experienced setbacks due to *inter alia*, effective energy framework, insufficient investments and resources, lack of infrastructure, and political will.[44]

According to Climate Action Tracker, our country is amongst the highest carbon emitters as compared to other countries and this is due to high reliance on coal as our primary source of electricity.[45] The Climate Transparency report indicate that the country has the ability to increase the energy capacity and curb climate ambitions by moving away from coal-based energy and investing in renewable energy technologies.[46]

Renewable energy has generally attracted higher initial costs because of the relatively new technology and that would be considered a barrier as compared to fossil-fuels.[47] Despite the cost of conventional sources, in particular coal, Baker and Wlokas observe that the cost of generating electricity from renewables has declined and is estimated to continue decreasing until 2030.[48] Winkler, Hughes & Haw noticed that the cost to generate power from renewable technologies such as solar photovoltaic, onshore wind, and geothermal are close to, or below,

[40] Gets (note 37 above; 7).
[41] Renewable Independent Power Producer Programme, South African Government. www.gov.za.
[42] [42] http://www.engineeringnews.co.za/print-version/copperton-wind-farm project-south-africa-2015-07-31.
[43] The REI4P has also been designed to contribute to a broader national developmental objective such as job creation, social upliftment, and economic transformation.
[44] https://sawea.org.za/blooming-renewables-sa/.
[45] https://climateactiontracker.org/countries/south-africa/2021-09-15/policies-action/. South Africa is particularly vulnerable to the impacts of climate change which have serious implications for food and water security.
[46] The Climate Transparency Report 2021: Comparing G20 Climate Action Towards Net Zero, Annual G20 Report. See https://www.engineeringnews.co.za/article/south-african-energy-sector-the-most-carbon-intensive-of-g20-nations-2021-10-18/rep_id:4136.
[47] Winkler (note 30 above; 19).
[48] L Baker & HL Wlokas 'South Africa's renewable energy procurement: A new frontier?' *Energy Research Centre, University of Cape Town* (2015) at 2. See DR Walwyn & AC Brent 'Renewable Energy Gathers Steam in South Africa' *Centre for Renewable and Sustainable Energy Studies, Stellenbosch University* (2015) at 2-3.

and/or equivalent to cost of energy generated from fossil fuels.[49] For example, Eberhard and Naude assert that the success of IPP's and investment in renewable energy projects will result in reduction costs oof electricity.[50] In addition, the introduction of IPP's to compete with the grid monopoly (Eskom) would allow for market forces to reduce the high costs of electricity.[51] Greenpeace highlighted that:

> 'if South Africa is serious about investing in renewable energy then it is critical that state owned utilities, in particular, Eskom urgently begins to shift its investments from coal to renewable energy on a far larger scale.'[52]

The study discovered that South Africa's energy regime is dominated by coal. Despite Eskom being the largest polluter,[53] it generates approximately 95% of South Africa's electricity.[54] On 9 February 2023, the honourable President Cyril Ramaphosa delivered the State of the Nation Address. Amongst the key points mentioned is to achieve energy security and demand supply, procure of energy from renewables (such as solar, gas, and battery storage), enable and open the renewable market to IPP's to improve generation capacity.[55] He indicated that government would finance Eskom's R400 billion debt and will provide Eskom with funding to purchase diesel for the 2023-2024 financial year. On the other hand, minister Enock Godongwana mentioned corruption, fraud and theft at Eskom being the main issues facing energy crisis.[56] In this regard, one can argue that these are amongst the barriers to promote renewable energy and should necessitate the government to transition to sustainable cleaner technologies. In addition, the department of Mineral Resources and Energy has delayed onboarding new renewable energy generation capacity.[57] Thus, if South Africa is serious about addressing climate change mitigation, electricity demand and supply, the government must move away from coal-based

[49] H Winkler, A Hughes & M Haw 'Technology learning for renewable energy: Implications for South Africa's long-term mitigation scenarios' *Energy Policy* (2009) 37 at 96.
[50] A Eberhard & R Naude 'The South African Renewable Energy IPP Procurement Programme' Review, Lessons Learned & Proposals to Reduce Transaction Costs*' University of Cape Town* 2016 at 89-90.
[51] Irena 'Summary for Policy Makers: Renewable Power Generation Costs' (2012) *Bonn: International Renewable Energy Agency* available at www.irena.org/publications, accessed on 28 May 2021.
[52] Gets (note 40 above; 21).
[53] L Myllyvirta 'Eskom is now the world's most polluting power company' (2021) Centre for Research on Energy and Clean Air at 2-6, available at https://energyandcleanair.org/October 2021, accessed on 20 November 2021.
[54] F Kruger 'The South African Wholesale Market for Electricity: Requirements for Renewable Energy Uptake' (2015) 1 *The Sustainable Energy Resource Handbook* at 31. Eskom proclaims that it supports renewables and a willingness to cooperate with IPPs, but its actions show a holding on to the conventional energy system.
[55] State of the Nation Address by honourable President Cyril Ramaphosa, 9 February 2023, Cape Town City Hall.
[56] Ibid 3.
[57] Eskom dominates the distribution, generation, and transmission of power. See Eberhard '*South Africa's power lies in breaking up Eskom's monopoly model*' 2016 at 3-4.

electricity towards renewable energy. The electricity distribution cannot be monopolised under Eskom.[58]

Eskom's role is one of the greatest challenges to the move towards renewables. The Independent Power producers have been lobbying the government to transit from the single buyer office.[59] In 2019, the government introduced an Independent System and Market Operator Bill ('ISMO') with the aim to lower the high costs of electricity.[60] The ISMO will serve as the buyer and distributor of electricity from the electricity generators[61] while Eskom will function as an electricity generator.[62] Thus, the ISMO can get rid of Eskom's monopoly on electricity generation.[63] On 15 February 2021, then Eskom CEO André de Ruyter stated that the ISMO will be in place by 2022. However, the ISMO is currently undergoing.

The role of the municipalities in renewable energy is also crucial. For example, Cape Town (Western Cape) provincial government has recently allocated almost R70 million in its new budget to help the municipality generate its own electricity and buy from IPPs over the next few years.[64] This will also help the province to reduce load shedding. Other municipalities that have embarked on renewable energy include eThekwini and Tshwane,[65] however discussion of each municipality is beyond the scope of this paper.

Recently, South Africa has secured $8.5-billion of funding for its just transition away from coal generated energy[66] with support from developed economies.[67] In November 2022, the government published the Just Energy Transition Investment Plan ('JET-IP'). The objective of the JET-IP is to move away from coal in order to prevent and avert climate change.[68] The JET-

[58] Gets (note 52 above; 18).
[59] A Eberhard, K Gratwick K, E Morella E, & P Antmann 'Independent power projects in sub-Saharan Africa: Investment trends and policy lessons' *Energy Policy* (2017) 108 at 390-424.
[60] Independent System and Market Operator Bill, 2019 ('ISMO').
[61] Eberhard, Gratwick, Morella, & Antmann (note 59 above; 390-424).
[62] The ISMO will serve as an electricity wholesaler to distributors.
[63] The ISMO will buy power from the electricity generators and sell to distributors.
[64] These municipalities include Drakenstein, Mossel Bay, Overstrand, Saldanha Bay, Stellenbosch, and Swartlan.
[65] Ibid.
[66] See 'The Presidential Climate Commission: Towards a just transition', available at www.climatecommission.org.za, accessed on 24 November 2021.
[67] These countries include Germany, France, United States, United Kingdom, and the European Union. For example, on 6 October 2021, the United Kingdom government has announced that it has granted financial support to 13 low-carbon projects in South Africa that includes Solar- power battery, available at https://www.energylivenews.com/2021/10/08/british-high-commission-announces-13-low-carbon-projects-in-south-africa/, accessed on 20 November 2021.
[68] Just Energy Transition Investment Plan (JET-IP) 2023-2027.

IP focuses on decarbonising three energy sectors namely, 'electricity, new-energy vehicles and green hydrogen'.[69] The JET-IP aims to ensure that the marginalised and vulnerable communities as well as women are not left behind during transition to low carbon economy and provided $98 billion towards energy transition to start the 20-year clean technologies transition.[70] The JET-IP is not set to override the country's existing plan but will serve as an alternative to South Africa's energy mix.[71]

Thus, to fast-track the deployment of renewable energy, investment in clean technologies is crucial.[72] Although it is not possible for renewable energy to replace fossil-fuels immediately, it is important to steer the current energy system towards clean technologies given their sustainability, health, and environmental benefits.[73] South Africa must move from coal dependency and diversify the energy mix towards sustainable energy sources. Fostering growth in clean energy requires a solid legal framework. The best solution to foster this transition is by ensuring that an effective regulatory framework in promoting renewables exists. It is thus appropriate to analyse the existing South African energy legal framework in the next part.

3. THE REGULATORY FRAMEWORK AND PROMOTION OF RENEWABLE ENERGY

As demonstrated in part II above, renewable energy sources offer many advantages compared to fossil fuels. It is no longer an option for our country, but a necessity to shift from fossil fuels to renewable energy sources. However, the study acknowledges that the desired energy transition cannot take place overnight. The success of gradual transition to low-carbon economy requires an effective legal framework. South Africa does not have an overarching statute that provides for renewable energy provisions or mandatory provisions that obligates the regulators to integrate renewables. Uncertainty in legislation has made the progress of renewable energy deployment very slow. Even though there is no overarching statute, there are various pieces of legislation and policies aimed at regulating renewable energy.[74] The

[69] Ibid 25.
[70] Ibid. A call for energy reform is vital to promote the use of renewable technologies in larger scale and to fight climate change.
[71] It will assist the country to reduce reliance on fossil fuels.
[72] Winkler (note 47 above; 135-136).
[73] The most important key to reduce emissions is through increased deployment of renewable energy.
[74] Uncertainty in legislation, incoherence of policies and disparate laws are hindering the transition towards renewable energy.

regulatory framework will be analysed below starting with the legislations, followed by policy instruments and lastly, plans and programmes.

(a) Policy Instruments

(i) The White Paper on Energy Policy, 1998

The first overarching policy to provide for the South Africa's energy needs is the White Paper on Energy Policy[75] ('Energy White Paper'). The Energy White Paper is an important policy in the energy sector that guides all subsequent legislation and policies.[76] This policy provides five key objectives namely, to: 'increase energy security, affordable energy; energy governance; harmonise economic development; monitor environmental and health effects.'[77] The Energy White Paper acknowledges the potential role that the renewable energy plays in the energy sector such as contributing towards a long-term sustainability.[78]

This policy indicate that renewable energy sources play a small role in the South Africa's energy mix.[79] It recognises coal to be the major energy source for electricity in South Africa.[80] The Energy White Paper also pointed that biomass play a key role in rural areas.[81] The policy assert that coal will remain the main source of electricity but the country should consider clean technologies to minimise the environmental impacts caused by the burning of coal.[82] The Energy White Paper was aimed to develop strategies that will advocate the utilisation of clean technologies and address the constraints hindering the realisation of alternative environmentally friendly sources. This policy appreciates the needs to move from non-renewables, but its policy position shows a regulatory framework where fossil fuels dominate. One can argue that the policy is outdated and out-of-touch with rapidly developing and changing technological systems. The Energy White Paper led to the formulation of the National

[75] South Africa dpt. of Minerals and Energy *White Paper: Energy Policy of South Africa* (1998) 56.
[76] Glazewski (note 26 above; 3).
[77] Energy White Paper 8. See Winkler (note 72 above; 8).
[78] Ibid at 14.
[79] Ibid at 8.
[80] Ibid at 79-80.
[81] Ibid.
[82] Ibid at 9. See Du Toit L & Glazewski J '*Energy Law and the Environment*' 14.

Energy Act 34 of 2008, the Electricity Regulation Act 4 of 2006, and the National Energy Regulator Act 40 of 2004 as discussed below.[83]

(ii) White Paper on the Renewable Energy Policy, 2003

The White Paper on Renewable Energy Policy[84] ('Renewable White Paper') provided policy goals, strategies, and objectives for promoting the use of renewable energy sources. It recognises technologies such as solar, wind, hydro, and biomass.[85] The Renewable White Paper pledges the government to integrate the renewable energy sources in the South Africa's energy mix and this policy a complementary to the Energy White Paper of 1998s.[86] Despite the fact that renewable energy technologies were underdeveloped, costly and risky investments at the time, the Renewable White Paper recognises the optimisation and integration of renewable energy technologies.[87] Its objectives are *inter alia* to:

(a) 'ensure that an equitable level of national resources is invested in renewable technologies;

(b) direct public resources to implementation of renewable energy technologies;

(c) introduce suitable fiscal incentives for renewable energy; and

(d) create an investment climate for the development of the renewable energy sector.'[88]

The overall goal of the Renewable White Paper is to achieve:

> 'an energy economy in which modern renewable energy increases its share of energy consumed and provides affordable access to energy throughout South Africa and contributing to sustainable development and environmental conservation.'[89]

It acknowledges that dependence on fossil fuels for energy causes environmental impacts (i.e climate change and GHG emissions) and the costs to remedy the impacts are high.[90] It recognises the promotion and utilisation of sustainable renewable technologies as a response

[83] W Du Plessis & T Murombo 'Energy' in AA Du Plessis (ed) *Environmental Law and Local Government in South Africa* (2015) 890 at 886.
[84] South Africa dpt. Department of Minerals and Energy White Paper: *Renewable Energy Policy of the Republic of South Africa* (2004) 2004.
[85] The Renewable White Paper sets out the targets to integrate renewable energy such as solar, wind, biomass, and small-scale hydro.
[86] Glazewski & Du Toit (eds) *Environmental Law in South Africa* 3rd ed (LexisNexis Butterworths Durban 2013) 18 at 15.
[87] Ibid.
[88] Renewable White Paper (note 84 above; 26).
[89] Glazewski & Du Toit (note 86 above; 18).
[90] Renewable White Paper (note 88 above; 26).

to climate change.[91] It appreciates the need to consider generating energy from renewable energy sources to mitigate the environmental effects from fossil fuels.[92]

It further acknowledges the necessity to maintain and implement provisions within the legal framework to promote the utilisation of clean energy sources.[93] It emphasises the importance of appropriate legislative and policy framework in integration of renewable energy market.[94] In this regard, it states that:

> if the use of renewable energy is to be successful, the government should create an enabling environment through the introduction of fiscal and financial support mechanisms within an appropriate legal and regulatory framework, to allow renewable energy technologies to compete with fossil-based technologies.[95]

The gradual transition to renewable technologies depends on the legal regulation that will convince and assure investors with positive confidence to invest in renewables.[96] The Renewable White Paper did not go so far as mandating the utilisation of renewables and the support for non-renewable sources perpetuated by the current energy framework distorted the deployment of renewable energy sources.

(iii) National Climate Change Response White Paper, 2011

The National Climate Change Response White Paper[97] ('Climate Change White Paper') encompasses the commitment towards reducing GHG emissions and the duty to combat climate change.[98] The Climate Change White Paper provides key objectives *inter alia* to:

> 'Effectively manage inevitable climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response

[91] Ibid at 13.
[92] Ibid at 20 & 43.
[93] Ibid at 16.
[94] Ibid at 14.
[95] Ibid at 15-16.
[96] A Eberhard, J Kolker & J Leigland 'South Africa's Renewable Energy IPP Procurement Programme: Success Factors and Lessons' (2014) 7 World Bank Group, Washington, available at https://openknowledge.worldbank.org/handle/10986/20039, accessed on 20 November 2021. See P Lowe 'Regulating Renewable Energy in the European Union' (2010) 1 *Renewable Energy Law and Policy Rev* 17 at 17-18.
[97] South Africa Department of Minerals and Energy: *National Climate Change Response White Paper* (2011).
[98] Ibid at 2-4.

> capacity and make a fair contribution to the global effort to stabilise greenhouse gas emissions considering economic, social, and environmental sustainability concerns.[99]

The Climate Change White Paper advocates for long-term sustainability through emission reductions in the energy sector and emphasises the importance of mitigation and adaptation efforts.[100] It assert that government must make efforts to increase energy efficiency by encouraging the utilisation of renewable technologies for the country's energy needs.[101] Amongst others, the Climate Change White Paper sets out various strategic priorities, *inter alia*, integration of new technologies, research, risk reduction and management.[102] Furthermore, it also introduced the Renewable Energy Flagship Programme for purposes of accomplishing mitigation and adaptation goals. The programme was intended to function in congruence with the IRP2010, with the objectives of attempting to reach the renewable energy targets *inter alia*, utilisation of local technologies and manufacturing capacity.[103]

Policy and regulatory coherent is amongst the strategic priorities contained in the Climate Change White Paper.[104] The emissions are highly caused by the burning of fossil fuels and the study observes that the mitigation of these significant environment effects can be achieved by increasing investment in renewable technologies.[105] Climate change provisions can be the key enabler for the country to shift towards sustainable clean energy sources. In this regard, these provisions will pressurise the energy sector to consider low-carbon energy sources.[106]

The Climate Change White Paper accordingly provided a starting point to launch more renewables in South Africa. The Climate Change White Paper is fundamental to the socio-economic development of South Africa. This policy contains key principles that are lacking in the current energy regime *inter alia*, the precautionary, polluter-pay and sustainable development principles. The discussion of these principles is beyond the scope of this paper, but they are fundamental to the integration of renewable energy sources.

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[99] Ibid at 14.
[100] Ibid at 26 & 29.
[101] Ibid at 26.
[102] Ibid at 14-15.
[103] Ibid at 31.
[104] Ibid.
[105] Ibid at 30-31.
[106] Ibid 15. See Eberhard, Kolker & Leigland (note 96 above; 1- 48).

(b) Legislation

(i) The Constitution of the Republic of South Africa, 1996

The Constitution is the supreme law of the land.[107] While the Constitution does not specifically provide for renewable energy, section 24 of the Constitution specifically provides the right to 'an environment that is not harmful to one's health or well-being', [108]as well as the right to have 'the environment protected for the benefit of present and future generations, through reasonable legislative and other measures'[109] that –

(a) 'prevent pollution and ecological degradation;

(b) promote conservation; and

(c) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.'[110]

The study submit that section 24 is a fundamental provision that can be used to shift towards renewable energy sources because generation of energy from coal depletes natural resources and results in environmental and greenhouse gas effects.[111] This provision guarantees a healthy environment to every person and the duty of the State to protect the environment. This can be achieved and fulfilled by energy framework that promote sustainable renewable sources.[112] The transition from non-renewables to renewable energy will flourish within the constitutional aspirations and values taking into account socio-economic and environmental factors.[113]. Section 24 is better upheld when the energy mix of the country includes a diverse of energy sources that are environmentally friendly.[114] This environmental right acts as a push factor for the advancement of renewable sources. One can argue that section 24 is vital for the call to shift to renewable sources. The provisions mandated by section 24 should therefore be geared towards the utilisation of renewable energy sources for power generation.

[107] The Constitution of the Republic of South Africa, 1996.
[108] Ibid, section 24(a).
[109] Ibid section 24(b).
[110] Ibid, section 24(b)(i) to (iii).
[111] Glazewski (note 76 above; 8).
[112] T Murombo 'The utility of environmental rights to sustainable development in Zimbabwe: A contribution to the constitutional reform debate' (2011) *AHRLJ* 120(14) at 125.
[113] In order to gradual shift towards clean technologies, a reform of regulatory approach is also required.
[114] TB Johansson & J Goldemberg 'The Role of Energy in Sustainable Development: Basic Facts and Issues' in TB Johansson & J Goldemberg (eds) *Energy for Sustainable Development: A Policy Agenda* (2002) 25 at 28-29.

(ii) National Environmental Management Act, 1998

The National Environmental Management Act[115] ('NEMA') is the framework environmental legislation which provides for the environmental management principles that must be considered in all matters concerning the environment.[116]. As far as it relates to renewables, NEMA[117] requires that:

(a) *'pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;'*[118]

(b) *'the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;'*[119]

(c) *'the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;'*[120] *and*

(d) *'negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied'.*[121]

The above principles are relevant in all matters concerning the environment and can drive the transition towards utilisation of renewable energy sources.[122] The principle of sustainable development drives NEMA.[123] Sustainable development principle is beyond the scope of this study, however, the aim is to ensure access to affordable, reliable and sustainable energy. Thus, the notion encompasses that the development must be 'environmentally and economically sustainable' to serve 'present and future generations.'[124] The above factors all deal with the environmental obligation to avoid certain harm, and where such harm cannot be avoided, to minimise (mitigate) and remedy such harm. One can argue that these elements establish a duty of care that we owe to the environment.[125] Further, the elements provide a duty to every person

[115] 107 of 1998.
[116] Section 2.
[117] Section 2.
[118] Section 2(4)(a)(ii).
[119] Section 2(4)(a)(v).
[120] Section 2(4)(a)(v).
[121] Section 2(4)(a)(viii).
[122] Glazewski (note 111 above; 8).
[123] Section 2.
[124] Ibid, section 24(b)(iii). See J Glazewski 'The National Environmental Management Act' in J Glazewski and L Du Toit (eds) *Environmental Law in South Africa* (2013) at 33.
[125] Ibid, section 28.

to promote conservation and ensure sustainable development by taking reasonable measures to prevent environmental impacts. Therefore, sustainable development is promoted when the country's energy mix includes potential alternative energy sources.

(iii) National Energy Act, 2008

The South Africa National Energy Act[126] ('NEA') is the umbrella statute which regulate the energy sector in South Africa. Amongst the objectives is to increases generation capacity of energy from diverse energy sources, energy security and alleviate environmental impacts.[127] This is an indication by the government to acknowledge the need to promote alternative energy sources into the South Africa's energy mix[128] but mere recognition is not enough.

The NEA merely mention the need to increase the use of renewables but there are no binding tangible provisions to affirm the government's position on how it will be achieving the integration of renewable technologies.[129] It does not provide specific or express provisions mandating the use of renewable energy sources. One can argue that, by not being certain or specific in its call for renewable energy, to a certain extent the Act perpetuates reliance on fossil-fuels.[130]

The NEA differs with the National Energy Bill, which was published in 2004 for comment.[131] The Bill provided the section entirely for the promotion of renewable energy in terms of which the Minister 'must optimise the contribution of renewable energy to the national energy supply.'[132] Further, the Minister is tasked by Bill to promote renewable energy.[133]

(iv) Electricity Regulation Act, 2006

[126] 34 of 2008.
[127] Ibid, preamble.
[128] W Du Plessis & T Murombo (note 83; 890).
[129] J Jooste *Towards a workable renewable energy framework* (unpublished LLM Research Report, University of Cape Town, 2010) 64.
[130] Section 5(2) & 17.
[131] In terms of GN 2151 in *Government Gazette* No. 26848 dated 8 October 2004.
[132] National Energy Bill, section 17(1).
[133] Ibid, section 17(3).

The Electricity Regulation Act[134] ('ERA') regulate the electricity supply in South Africa. Section 2 of the ERA set-out the objectives which *inter alia* include, the government duty to invest resources in the energy sector and the promotion of the use of diverse energy sources which arguable include the use of renewable energy sources.[135]

Further, section 34 of the ERA requires the Minister to increase generation capacity of energy.[136] This paper argued that this provision indicates that South Africa recognises the need to increase capacity for energy security.[137] The Ministerial determination indicated that a new generation capacity should be procured from renewable technologies with a target of 14 771 MW. In this regard, the new generation capacity shall be generated in accordance with the following MW allocation per technology; 3940 MW for Solar PV, 9600 MW for Wind and 1231 MW for Energy Storage.[138] The research discovered that section 34 determinations do indicate that the procurement of new capacity should also come from renewables. However, the Minister has a discretion to procure the energy from non-renewable energy sources. Thus, the mandate provided by this provision is unclear and ambiguous for a transition towards an economy where renewable energy plays a role.

Although it contains provisions that recognise the use of diverse energy, its provisions do not sufficiently provide for a legal governance for the promotion of renewable energy sources. The provisions of the ERA must be aligned to ensure that they provide legal certainty for the realisation of renewable energy sources. Without strong legislative provisions, promotion of renewable energy will be hampered.

(c) Plans and programmes

(i) Integrated Energy Plan 2003

[134] 4 of 2006.
[135] Ibid, section 2.
[136] Ibid, section 34.
[137] The Minister has discretionary powers to decide the types of energy to generated.
[138] section 34(1).

The Integrated Energy Plan[139] ('IEP') is the South Africa's overall energy plan[140] envisaged in the White Paper on the Energy Policy of 1998.[141] It provide the roadmap for the energy sector in South Africa.[142] Amongst the objectives includes the generating energy from renewables to minimise environmental effects from conventional energy sources; energy security and demand.[143] The purpose of the IEP was:

> 'to balance energy demand with supply resources in concert with safety, health, and environmental considerations with the aim of developing a framework within which specific energy policy and development decisions could be made'.[144]

One can argue that the idea was to build on where the Energy White Paper had left off. The IEP acknowledges that that coal will continue dominating the electricity sector for the next few decades.[145] Renewable energy was categorised as having significant potential if harnessed and used correctly, and it can significantly contribute to the energy security.[146] This plan acknowledge that promotion and deployment of alternative resources are critical to the sustainability of the energy grid.[147] The IEP further recognises wind, biomass and solar as the intermittent sources of energy.[148] According to this plan, renewable energy technologies were not fully developed and were expensive at the time.[149] However, the IEP noted that the start-up costs of renewable energy may be higher but renewable sources offers more advantages as compared to coal and considered renewable energy sources sustainable and environmentally friendly. Legislation and policy implementation are the necessary tool for the transforming the energy industry towards the utilisation of renewables.[150]

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[139] Department of Minerals and Energy Integrated Energy Plan for the Republic of South Africa 2003 ('IEP').
[140] K Akom, T Shongwe and MK Joseph; South Africa's integrated energy planning framework, 2015-2050 *Journal of Energy in Southern Africa* 32(1): 68 - 82, University of Cape Town at 69.
[141] https://www.energy.gov.za/files/iep_frame.html. See A Eberhard, T Kâberger (note 181 above; 190-193).
[142] M Chudy, J Mwaura, D Walwyn and J Lalk, 2015, September. The effect of increased photovoltaic energy generation on electricity price and capacity in South Africa in *Africon 2015* (pp. 1-6).
[143] IEP (note 139 above, 25). See http://www.energy.gov.za/files/IEP/presentations/Integrated-Energy-Plan-22-Nov-2016.pdf.
[144] Renewable energy can provide energy security and stability in a country like South Africa.
[145] IEP (note 143 above; 26).
[146] Renewable energy is considered as being part of the energy supply in South Africa and it will become more significant in future.
[147] Alternatives to coal were identified as being critical for the purposes of mitigating harm to the environment.
[148] IEP (note 145 above; 28). J Shaw *Assessing the sustainability of an independent power producer's social investment in a community: A case study of Scatec Solar* (Unpublished MPA dissertation, Stellenbosch University) 1.
[149] Ibid 29.
[150] Ibid.

Following the IEP, the Integrated Resource Plan which will be analysed in the following section was promulgated to back up the Minister in making determinations on the generation capacity required.[151]

(ii) Integrated Resource Plan 2010-2030

Section 35(4) of the Electricity Regulation Act, 2006 read with item 4 of the Electricity Regulations on New Generation, 2011, empowers the Minister of Mineral Resources and Energy to publish and implement the Integrated Resource Plan[152] ('IRP'). The IRP is an electricity capacity plan,[153] and it gives effect to Integrated Energy Plan.[154] It was enacted to determine the long-term electricity demand. It lays out the proposed power generation for 2010-2030 and it assert the need to procure the diversified energy sources minimise the reliance on conventional sources. It is described as a 'living plan'.[155] Amongst the policy strategies is to achieve the lessening of carbon emissions and increasing energy security by 34% by the year 2030 and diversifying energy supply to reduce heavy dependence on coal electricity.[156] Notable is the reduction in the coal supply from 80% to 46% by 2030.[157] Of importance, the IRP acknowledges that the shift to towards clean technologies must consider socio-economic factors such as the potential impacts on jobs and the environment.

Walwyn pointed that the IRP is a key policy to reduce emissions as well as mitigating environmental effects associated with burning of coal for power.[158] From a regulatory point of view, the IRP provides confidence and guarantees to investors that they will receive their returns on renewable projects.[159] The study observes that with policy framework such as IRP and REI4P, one can submit that the government is taking the promotion of renewable energy. However, more can and must still be done.

[151] The IEP is not an energy plan but electricitypPlan.
[152] Integrated Resource Plan for Electricity 2010-2030 ('IRP 2010-2030').
[153] The IRP is an electricity plan.
[154] The IEP provides roadmap and guidance regarding the future of energy.
[155] IRP 2010-2030 (note 152 above; 5 - 7).
[156] Du Toit (note 34 above; 121-122).
[157] Ibid. see IRP 2010-2030 (note 155 above; 8-9).
[158] DR Walwyn & AC Brent 'Renewable energy gathers steam in South Africa' (2015) 41 *Renewable and Sustainable Energy Reviews*, 390-401. See T Hancock 'Decarbonising of local power generation sedate' Engineering News, David Walwyn, Hancock (17 April 2020).
[159] L Baker, P Newell & J Phillips J 'The Political Economy of Energy Transitions: The Case of South Africa' (2014) 19 *New Political Economy* at 804.

On 18 October 2019, the Minister of Mineral Resources and Energy, Gwede Mantashe gazetted the Integrated Resource Plan 2019[160] ('IRP 2019'). The IRP2019 is an electricity plan which takes into account the energy security, demand and the environment.[161] It identified wind and solar PV to be the dominant technologies, with wind being the strongest.[162] In addition, the IRP 2019 provided that procurement of nuclear power should be done in an efficient manner taking into account the government costs to decommission coal plants.[163] The new allocations in the plan are as follows: 6000 MW for Solar PV; 14 400 MW for Wind; 4000 MW for Landfill Gas; and 2088 MW for Energy Storage.[164]

The IRP 2019 acknowledges that coal will continue to be the major source to derive electricity in the country due to its abundance. However, it further states that new investments with low emissions will need to be integrated into the energy. The IRP 2019 entails that 6000 MW of solar PV, and 14400 MW of wind will be commissioned by 2030.[165] Therefore, of essential is section 10(2)(g) of Electricity Regulation Act which indicates that renewable projects above 10 MW will seek exemption approval from the Minister before an application can be submitted to NERSA.[166]

The IRP 2019 supports a diverse energy mix, and this plan is crucial for the procurement of generation capacity up to 2030. South Africa is in desperate need of innovative energy solutions to address the energy crisis such as loadshedding. and there is a need to drastically increase the deployment of alternative renewable resources. In order to make the energy transition a success, the government must have adequate energy framework tailored to drastically increase the promotion of renewable energy technologies. The transition will also benefit the South African citizens by increasing energy security, job creation as well as economic growth.

[160] Integrated Resource Plan ('IRP 2019').
[161] Ibid. The IRP 2019 should be revised regularly in concurrence with NERSA.
[162] Wind technology is allocated 1600 MW commencing in the year 2022 up to 2030 and 1000 MW for solar PV allocation per year over the period up to 2030. 2000 MW of gas is expected 2027. The IRP 2019 provides 1860 MW of nuclear power to be commissioned by 2024.
[163] IRP 2019 (note 161 above; 11-12).
[164] Ibid 13.
[165] The IRP 2019 is South Africa's electricity plan to which the country's energy mix is determined and it should be revised regularly.
[166] Section 10(2)(g) of Electricity Regulation Act, 2006.

(iii) Renewable Energy Independent Power Producer Procurement Programme

The Renewable Energy Independent Power Producers Programme[167] ('REI4P') was identified by the National Climate Change Response White Paper that would provide foundation and basis for rollout of renewable energy technologies in South Africa.[168] It was initially established as Renewable Energy Feed-In Tariff ('REFIT') in 2007 championed by the National Energy Regulator, National Treasury, Department of Public Enterprises, and the Department of Environmental Affairs.[169] This REFIT was declared illegal by the National Treasury reason being that the tariff would fall during the procurement process.[170] The REFIT was substituted by the bidding system namely, the REI4P.[171] In terms of the REFIT, the renewable energy is set at a fixed price.[172]

The REI4P was aimed at increasing generation capacity power onto the grid through renewable energy investments such as solar power, onshore wind, biomass, landfill gas and small hydro technologies.[173] The REI4P was geared towards viable renewables projects.

The REI4P is accordingly a tender system or competitive bidding for the generation of renewable energy.[174] Eberhard & Leigland observes that the REI4P is the 'first renewable electricity initiative to receive support in South African government at national level.'[175] The

[167] Renewable Energy Independent Power Producer Procurement Programme available at http://www.ipprenewables.co.za, accessed on 29 May 2021 ('REI4P').
[168] L McDaid 'Renewable Energy Independent Power Producer Procurement Programme Review' *Cape Town: Electricity Governance Initiative of South Africa* (2014). See W Kruger & A Eberhard 'Renewable energy auctions in sub-Saharan Africa: Comparing the South African, Ugandan, and Zambian Programs' *Energy and Environment* (2018) 1 at 1-13.
[169] A Eberhard 'Feed-in tariffs or auctions? Procuring renewable energy supply in South Africa' The World Bank Group, Viewpoint, Note Number 338, April 2013. See Du Toit (note 19 above; 78).
[170] T Creamer 'Renewables bid represents substantive progress but raises compliance burden' *Engineering News* (August 2011) available at http://www.engineeringnews.co.za/article/renewables-bid-represents-substantive-progress-but-raises-compliance-burden-2011-08-23, accessed on 20 November 2021.
[171] Ibid 20 & 21.
[172] A Eberhard & T Kåberger 'Renewable energy auctions in South Africa outshine feed-in tariffs' (2016) *Energy Science & Engineering* 4(3) at 190-193.
[173] L Tait, HL Wlokas, & B Garside 'Making communities count: Maximising local benefit potential in South Africa's Renewable Energy Independent Power Producer Procurement Programme' *Cape Town: International Institute for Environment and Development* (2013) at 35. The REI4P seeks to encourage reliance on renewable energy source.
[174] A Eberhard & R Naude *(*note 50 above; 1-14).
[175] A Eberhard & J Leigland 'Localisation barriers to trade: The case of South Africa's renewable energy independent power programme' (2018) at 569-588. See B Bekker, A Eberhard, T Gaunt & A Marquard 'South Africa's rapid electrification programme: Policy, institutional, planning, financing, and technical innovations' (2008) 36 *Energy Policy* at 3125-3137.

REI4P has the desirability and potential to move the South African energy sector from conventional energy towards clean technologies, and this programme is a strategy envisaged to reduce effects of GHG emissions.[176]

The implementation of this programme showed that South Africa is committed to open the market for renewable projects.[177] It is envisaged that 17 800 MW of newly generated power is targeted to be developed from renewable energy sources by 2030.[178] This programme is currently the most important driver of renewable energy investment in South Africa and it is the most significant step towards greater use of alternative sources.[179] Designed to encourage private sector investment, such as solar and photovoltaic (PV) etc, it is also contributing to alleviating loadshedding, supply energy demand and it also contribute to socio-economic development.[180]

According to Baker and Wlokas, following the adoption of the REI4P in 2011, our country has desires for 'investment in renewable energy,'[181] and about 6,327 MW generation have been procured from renewables.[182]

(iv) National Development Plan, 2011

The National Development Plan[183] ('NDP') sets out the objectives plans of the country to meet its socio-economic and environmental goals by 2030. It emphasises the necessity to minimise dependence on non-renewable sources.[184] Of importance, the NDP encourage the use of renewable energy to achieve a low-carbon economy by opening the market for renewable projects to reduce GHG emissions.[185] This plan contend that the country should have a diverse

[176] A Eberhard, J Kolker & J Leigland (note 173 above; 19). The REIPPP is designed to reduce South Africa's carbon emissions, thereby addressing concerns over its present dependence on coal as primary energy sources.
[177] The REI4P committed that the 17 800 MW will be generated from renewable energy projects.
[178] See REI4P *(*note 167 above). See T Murombo, *Law, Regulation and the promotion of Renewable energy in South Africa* note 25 above; 252).
[178] A Eberhard & J Leigland (note 175 above; 567&569).
[179] Ibid.
[180] Gets (note 58 above; 7 & 21).
[181] Ibid. See A Lawrence *South Africa's Energy Transition, Progressive Energy Policy* 1st ed, Palgrave Pivot (2020) 12-13.
[182] Ibid 371. See A Eberhard & R Naude *(*note 174 above; 1-14).
[183] National Planning Commission *National Development Plan: Vision for* 2030, 2011.
[184] A key objective of the NDP 2030 is that South Africa needs to be running on a low-carbon economy.
[185] National Development Plan 2030 at 167-168.

energy sources that is reliable and environmentally sustainable by year 2030 and amongst these energy sources are, solar, wind and hydro, and battery storage.[186] The plan provides ambitious mitigation responses[187], specifically the integration and expansion of renewable energy technologies.[188] However, no concrete mandatory obligations are proposed in the plan. It envisages that:

> 'South Africa's electricity plan needs to balance decarbonisation of the power sector and increased use of new and renewable energy technologies with established, cheaper energy sources that offer proven security of supply'.[189]

Many of the issues that arise within the vision of the NDP in relation to the energy sector have over time been found to be contradictory, because the dependence on conventional sources such as coal as the primary source of generating electricity has not been reduced to make way for renewable energy sources. The actions of Eskom and government do not support what the NDP proposes regarding the electricity generation in future.[190]

Review of legislations, policy instruments, and plans

Through the Energy White Paper of 1998, the government established that there are barriers hindering the deployment of renewable technologies, however, the government failed to develop policy strategies that will champion the necessity of transition to sustainable renewable energy sources. Therefore, to some extent one can argue that the Energy White Paper perpetuates the utilisation of fossil fuels. Nothing was implemented from the Renewable Energy White Paper apart acknowledging the negative effects of fossil fuels to the environment.[191]

As demonstrated above, the Climate Change White Paper contains strategic priorities *inter alia*, policy and regulatory alignment. Thus, from a climate change perspective, this strategy seeks to address the advantages of using renewable energy technologies to curb the environmental

[186] Ibid at 128.
[187] Ibid at 68-70.
[188] Ibid at 180.
[189] Ibid at 144. See also https://www.iea.org/articles/south-africa-energy-outlook.
[190] T Creamer 'Eskom letter sends shock waves through private power sector' (July 2016) *Creamer Media's Engineering News*, available at: http://www. engineeringnews.co.za/article/eskom-letter-sends-shock-waves-through private-power-sector, accessed on 20 November 2021.
[191] It does not provide and/or articulate strategies to ensure sustainable energy.

effects such as GHG emissions which contribute to climate change. This paper submits that climate change provides a starting point to launch more renewables in South Africa. In light of this, climate change policies which encompasses climate change mitigation measures will obligate or pressurise the energy sector as well as government to utilise non-conventional sources.

As demonstrated above, legal framework can be used as a key enabler to promote renewable energy sources. For example, the constitutional environmental right in section 24 is vital to the realisation of non-conventional energy sources. Thus, considering the South Africa's energy demand and security, the transition towards low-carbon energy can be achieved and attained by laws and policies that promote the use of renewable energy sources. The provisions of section 24 specifically, 'an environment not harmful to health and wellbeing'[192] can be achieved by the policy framework that support the renewables. The study established that the principles envisaged in section 2 of NEMA can be incorporated into existing energy framework such as the ERA and NEA to promote the use of renewables.[193] For example, the polluter-pay[194] and precautionary principles.[195] These principles can also influence the NEA[196] to stimulate and promote deployment of sustainable energy sources.[197] These principles are lacking in the current energy laws. The NEA does not have stringent provisions regarding the promotion of renewable technologies. Thus, the study argue that the NEA encourages the use of fossil fuels.

The ERA makes reference to the use of diverse energy sources,[198] but this provision is not mandatory to the regulators to champion the integration of renewable energy sources. It is arguable that, the regulator is not obliged to procure energy from renewable technologies.

[192] Section 24.
[193] Section 2.
[194] The polluter must be responsible and liable for the cost of pollution and pay for the environmental damage caused to the environment.
[195] Actions shall be taken to avoid or diminish the harm. It advocates action to anticipate and avert environmental harm.
[196] Section 2(b), (j) & 5(1).
[197] The principles envisaged in section 2 of NEMA can be used to steer the energy sector to discourage the reliance on non-renewable sources.
[198] ERA, section 2(e).

The IEP considered renewable energy technologies environmentally sustainable as compared to conventional energy sources. It emphasised wind and solar as the intermittent sources of energy. One can argue that the IEP supports the promotion of renewable energy. The IRP supports the transition from conventional sources to achieve climate change objectives. The IRP provides investors with positive confidence and one can argue that it is a key policy to reduce emissions and ensure that the country have access to reliable and sustainable energy. The IRP 2019 do support the use of alternative energy sources wherein renewable technologies should play a role. However, there is a room of improvement to a low carbon economy.

On the other hand, the REI4P is aimed to integrate the South Africa's energy mix as well as transition away from coal. Its objective is to increase generation capacity coming from renewables, to enhance energy security, and to address climate. [199] The REI4P is the most successful programme advocating transition to renewable energy sources. The REI4P is not law but a mere programme.

The NDP contains provisions to curb reliance on conventional sources. It recognises the promotion of alternative sustainable energy sources to reduce GHG emissions.[200] This paper submits that the NDP is a sound policy document that can guide the country towards renewable energy sources.

4. CONCLUDING REMARKS AND RECOMMENDATIONS

As highlighted in parts I and II, South Africa's derive its energy from fossil fuels with coal being the major or primary source. The country's reliance on coal for its energy needs cannot be displaced overnight. Energy generated from conventional sources will remain in place in our country's energy mix for the next few decades. Despite this, it is possible for the country to move from non-renewable sources to harness energy from cleaner technologies. With the increase in electricity prices, repeated loadshedding and the need for security of supply, it is important to harness energy from renewables. In order to shift to alternative sources, a solid regulatory framework is necessary to drive the promotion of sustainable sources.

[199] https://sawea.org.za/blooming-renewables-sa/.
[200] National Development Plan 167-168.

The objective of the report was to examine the existing legal framework in promoting renewable energy in South Africa. The study discovered that a rethinking of existing laws and policies that mandate the utilisation of renewable energy sources is necessary. The study established that there is a room within the current energy regulatory regime to promote renewables. However, the mandate is not obligatory. It is necessary to harmonise legislations as well as policies governing energy framework in order to stimulate the promotion of renewable energy. Thus, the existing legal framework is uncertain and must be reformed. It must include provisions that mandate regulators to generate power from renewable energy sources. Absence this, the legal framework perpetuates the reliance on fossil fuels that protects Eskom, constrains municipalities, and stifles private companies from entering the renewable energy market. South Africa requires an effective regulatory regime to shift to cleaner technologies. Therefore, the current regulatory framework does not effectively and adequately promote the deployment of renewable energy and without a strong regulatory framework in place, renewable energy cannot be realised.

The study discovered that policy developments acknowledge the need to promote renewable energy, however, such policies are not mandatory to regulators to advocate the transition to renewables into its energy mix. The existing regulatory framework is framed on sound policy, but the actual laws are still championing the dominance of fossil-fuels. Legislative and policy formulation is required as it could unlock barriers to transition. Reforming current energy framework will unlock significant investment in new generation capacity from renewable energy sources.

This paper recommends the establishment of an overarching statute that provides for renewable energy to ensure the effective regulation and promotion of renewable energy. This renewable energy statute will contain mandatory provisions that will advocate the importance and the necessity to promote the renewable energy technologies. In addition, the study recommends the transformation of the policy papers into legally binding documents to ensure an effective legal framework.

Note on the current regulatory framework and the promotion of renewable energy!

The historical and continued reliance on non-renewables results in inter alia, significant environmental effect such as GHG emissions and pollution due to the burning of conventional sources. Taking into account the continuous loadshedding and repeated interrupted power supply, renewable energy offers the potential solution not only to the climate change crisis, but to the country's socio-economic development. This paper submits that the promotion of renewable energy can be successfully achieved by laws that are effective and absent the appropriate legal framework, it could take longer than necessary to move towards clean sources.[201] The transition to renewable technologies depends on *inter alia*, on an enabling and appropriate regulatory framework that facilitates rather than hampers a transition towards renewable energy.[202] Legislation provides a platform upon which renewable energy can be generated on a commercially viable scale. It has been found that 'law plays a crucial facilitative role in promoting renewable energy'.[203] The laws and policies must play a crucial role in enabling clean technologies in such a manner that will attract and give investors' confidence.[204]

Glazewski observes that the current renewable energy framework is 'uncoordinated.'[205] The delay in transition to renewable energy is not because of lack of resources, investments or technology, but due to lack of solid legal framework.[206] In addition, 'there are a number of loopholes and gaps in the energy framework, and until these loopholes are attended to, the promotion of renewable energy will be hindered.'[207] Further, lack of co-operation between government departments and policy discordance remains a challenge. Creating one institutional agency[208] that deals with renewables would bring coordination.[209] These will ensure effective implementation of existing energy framework, effective governance and departmental coordination that has hindered and impeded renewables. For example, a one environmental system that advocates synchronisation and coordination by government

[201] Glazewski (note 122 above; 9).
[202] Gets (note 180 above; 22).
[203] W Du Plessis & T Murombo (note 128 above; 886).
[204] The existing legal framework requires harmonisation to cater the renewables.
[205] Glazewski (note 201 above;13).
[206] OM Akinbami, SR Oke & OM Bodurnin 'The state of renewable energy development in South Africa: An overview' (2021) 60 *Alexandria Engineering Journal* 5077-5093 at 5080.
[207] Ibid.
[208] Glazewski & Du Toit (note 93 above; 2).
[209] K Müller 'Environmental Governance in South Africa' in HA Strydom & ND King (eds) *Fuggle and Rabie's Environmental Management in South Africa* (2009) 68.

departments.[210] It is submitted that through appropriate legal framework, more renewables could be promoted, integrated, and developed. The regulatory environment that do not support the deployment of renewable energy will hinder the economic growth of the country.

Without laws that are aligned, and coherent, the renewable energy cannot be fulfilled. For example, the desire to promote 'an environment not harmful to health and wellbeing'[211] can be fulfilled by adequate laws that promote renewables. The legal framework to promote renewable energy must consider social, economic, and environmental factors such as climate change. Constitutional environmental rights and climate related provisions can facilitate a gradual shift towards renewable energy sources. In addition, regulation of environmental impacts such as pollution control provisions can be used to steer the energy sector from fossil fuels to clean technologies.

The existing energy regulation has not sufficiently done enough to steer the energy regime in favour of renewable energy. Unless the legislation and policies underlying the white papers are consolidated and integrated into law, deployment of renewable energy sources will be hampered. Without a solid and effective regulatory framework, the renewable energy will be overlooked. The regulatory reform is required to speed up the transition to renewable energy.

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[210] Lack of political will and institutional fragmentation will be addressed if South Africa limits discretionary powers of regulators on what energy sources should be promoted, and this can be achieved by adequate legal framework.
[211] See section 24.

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