

A COMPARATIVE ANALYSIS OF THE REGULATORY FRAMEWORK GOVERNING ENERGY SOURCES: COAL

AND

RENEWABLE ENERGY

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DEDICATION

This research report is dedicated to my grandmother, who through great personal sacrifice, selfless and tireless hard work, made it possible for me attain all the formal education I have attained up to this point, on top of all the invaluable life lessons she has taught me. She continues to be the rock upon which all my academic and professional dreams are built.

ABSTRACT

As a natural resource coal has for a long time been the bedrock of South Africa's energy sector. South Africa is one of the richest countries in the world in terms of coal deposits. This abundance of coal deposits has resulted in coal playing a very significant role in meeting South Africa's energy needs, it accounts for 90% of South Africa's energy supply. On the other hand, the negative impact that the exploitation of coal continues to have on the environment poses serious challenges to South Africa's continued over-reliance on coal as the foundation of the country's energy sector. The universally accepted consensus is that greenhouse gas emissions must be kept to a minimum and the continuing over-reliance on coal, in the way it is currently processed, goes counter to this. The renewable energy sector in South Africa is still at a nascent stage, how it develops is going to be important in determining whether South Africa is successful in meeting her energy needs in an environmentally clean and sustainable manner whilst at the same time maintaining an acceptable degree of energy security. The critical balance between mitigating against the negative effects of being a coal intensive energy economy and maximizing the generation and intake of renewable energy onto the grid will only be achieved on the back of a sound regulatory framework, made up of articulate and effective laws.

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RESEARCH OVERVIEW

This research undertakes a comparative analysis of the regulation of the generation of electricity using coal as a raw material compared with the regulation of the generation of electricity from renewable sources of energy in South Africa, with a view to answering the question whether the regulation of energy sources in South Africa is adequate to ensure that energy is efficiently produced?

Significance of the Research

In light of the well documented challenges which have plagued the South African energy sector in the recent past, it is important to optimise the regulation of the sector as it is important to both the broader economy as well as individual lives of ordinary South Africans. In order for South Africa to successfully deal with the relevant challenges it will be absolutely important for South Africa to first establish whether the regulatory framework currently in place is adequate to ensure that energy is efficiently produced or not, so that any necessary improvements can be effected if necessary.

Scope and Limitations of the Research

The focus of the research is not to exhaustively analyse every single piece of legislation which is relevant to either coal or renewable energy generation processes, but rather the aim is to discuss those legislative pieces which are most central in the regulation of the energy sector in South Africa and not every single relevant statute, as this is a broad subject area with a plethora of regulations and statutes.

Summary of Findings

A challenge I encountered during the course of the research is the unavailability of up to date data and statistics, forcing me to resort to dated data on several instances. This research does suggest that broadly speaking, the two sources of energy are adequately regulated under South African law, despite the existence of a few specific limitations which I highlight in the conclusion of the research, which must be addressed in order for South Africa to meet its energy sustainability challenges.

Organisation of the Research

This research is made up of six parts. Part I gives an introduction to the research, sets out the research question and provides context for the research. Part II of the research focuses on the regulation of coal as an energy sources, whilst Part III looks at the regulation of renewable energy sources. Part IV deals with the procurement of energy once it has been generated, whilst Part V provides a comparative analysis between the two regulatory frameworks and Part VI provides conclusions from the research.

I. INTRODUCTION

Since the year 2007, Eskom has had insufficient electricity generation and reticulation capacity, this eventually forced the entity to resort to load shedding, a move which in the year 2008 alone reportedly saw the country's economic growth retrogress from 5.4% in the final quarter of 2007 to a low of 1.7% in the first quarter of the year 2008.¹ An adequate energy supply system is an important pillar for any economy and it impacts economic sectors as well as individual livelihoods.² The creation of a sound policy and regulatory framework that is able to deliver a sustainable and secure energy supply is one of the most important challenges facing governments today.³ The concept of energy security has been defined as the ability of a nation together with all or most of its citizens and business entities to access adequate energy supply, which is reasonably priced, without any serious risk of any major disruption for the foreseeable future.⁴

In the year 2015, the World Bank estimated that load shedding would probably result in the restriction of growth in South Africa's gross domestic product to 2% from 4.5% in the preceding year.⁵ This highlights how dire South Africa's electricity supply challenge is. Its resolution requires amongst other things, a concerted effort by the state towards the creation of the right regulatory environment for giving effect to the Integrated Resource Plan For Electricity 2010- 2030 (IRP) which 'identified the preferred generation technology (and assumed energy efficiency demand side management) required to meet expected demand growth up to the year 2030. The policy adjusted IRP incorporated a number of government objectives, including affordable electricity, carbon mitigation, reduced water consumption, localisation and regional development, producing a balanced strategy toward diversified electricity generation sources and gradual decarbonisation of the electricity sector in South Africa.'⁶

To achieve success in implementing the recommendations set out in the IRP, South Africa's energy sector must be appropriately regulated. In this Paper I will undertake a comparative analysis of the regulatory framework governing the generation of energy from coal and the regulatory framework governing the South African renewable energy sector. To contextualize the comparison, I will first discuss the regulatory framework for the two energy sources separately. Having set out the context, I will then provide a comparative analysis of the two regulatory frameworks, discuss the procurement of energy in South Africa from a regulation perspective, before providing a conclusion.

¹ R Inglesi & A Pouris 'Forecasting electricity demand in South Africa: A critique of Eskom's projections' (2010) 106 S Afr J Sci. 2010 4 .

² Integrated Energy Plan (2016) Department of Energy of the Republic of South Africa 3.

³ O Wyman 'World Energy Trilemma: Time to get real, the agenda for change Report' (2013) *World Energy Council* 1.

⁴ Barton, Redgewell, Rone and Zillman 'Energy Security: Managing Risk in a Dynamic Legal and Regulatory Environment' (2004) 7.

⁵ A Mbatha and P Tshandu 'Eskom is load shedding SA's GDP – World Bank' *Fin24* 14 April 2015, available at www.fin24.com/Economy/Eskom-is-load-shedding-SAs-GDP-World-Bank-20150414.

⁶ IRP 2010-2030 Update Report 10.

a. Purpose of the Research Report

Optimizing the effectiveness of the energy sector regulatory framework in South Africa will go a long way towards alleviating South Africa's energy constraints. The purpose of this study is to provide a comparative analysis of the regulation of energy sources in South Africa with an aim of identifying limitations in the way the energy sector is currently regulated.

b. Statement of the Problem

In the last few years, the country's electricity supply has been confronted by notable constraints, for example, Eskom had to resort to stage 3 load shedding in April 2015 due to unplanned outages as well as allegedly depleted diesel stocks.⁷ Load shedding is undesirable, as it brings considerable harm on an economy already experiencing slow growth.⁸ South Africa requires a sustainable solution to its current energy challenges.

c. Research Question

The objective of the Paper is to use comparative analysis of the regulatory framework for coal as an energy source and the regulatory framework for renewable energy as a basis for answering the question: what regulatory improvements should be considered in order for the South African energy regulation landscape to overcome the current energy challenges?

d. Background to the Study

There are several causal factors behind the energy supply challenges that have faced South Africa as stated above. Some of which are as follows:

1. Eskom has an ageing infrastructure,⁹ an unreliable grid as well as a maintenance backlog, particularly in the distribution sector;¹⁰
2. South Africa has a huge carbon footprint which stems largely from its dependence on coal for energy generation;¹¹ and
3. South Africa's economy is quite electricity intense.¹²

⁷ Business Day Live 'Friday brings more load-shedding' 17 April 2015, available at www.bdlive.co.za/business/energy/2015/04/17/friday-brings-more-load-shedding accessed on 29 May 2016.

⁸ P Lloyd 'Restructuring South Africa's Electricity Supply Industry' available at hsf.org.za/resource-centre/focus/focus-64/PhillipLlyod64.pdf/download accessed on 20 May 2016.

⁹ Eskom Presentation to the Portfolio Committee on Energy and Public Enterprises, 29 July 2014 14.

¹⁰ Esterhuizen 'Distribution maintenance backlogs threaten power supply' Engineering News 9 October (2012) 170.

¹¹ National Development Plan 113, 168.

¹² National Development Plan 113, 164.

It is against this background that I will be examining the two regulatory frameworks for the generation of electricity, with a view to establishing whether the two frameworks are sufficient towards the alleviation of the aforementioned challenges.

II. REGULATION OF COAL AS AN ENERGY SOURCE

a. The Regulation of Coal Mining

The Mineral and Petroleum Resources Development Act, No. 28 of 2002 (MPRDA) is the primary piece of legislation governing all aspects of the South African mining and petroleum production process, primarily through the granting of regulatory authorisations for mining and mining-related activities.¹³

For any person to legally engage in any coal mining activities they would therefore first have to apply for a mining right in terms of section 22 of the MPRDA. Sub-sections 1 to 5 of the section set out all the procedural steps which must be followed by both the applicant for the mining right as well as the minister responsible for mineral resources (“MR Minister”), as the authority to whom the application is made, or the regional manager as the party to whom the MR Minister typically delegates the power to decide on applications.¹⁴ Section 10 of the MPRDA provides for a consultation process with interested and or affected parties to any application for a mining right. The provision requires the regional manager to notify interested or affected parties within 14 days of receiving an application for a right, made in terms of sections 16, 22 or 27, that an application for a right has been made and received by the manager.¹⁵ The regional manager is also required by the MPRDA to give such interested or affected parties 30 days from the notice date, to make their submissions regarding the application.¹⁶

Having followed the application procedure as outlined above, the MR Minister can grant the mining right in terms of section 23(1). The section sets out the requirements that have to be satisfied by an applicant before a mining license can be granted. I have highlighted the following 3 as the most salient:

- i. Access to financial resources and technical ability;¹⁷ and
- ii. Ensuring that the mining activities for which the license would be granted do not result in unacceptable levels of pollution or environmental degradation.¹⁸

The MPRDA does not set out a requisite monetary quantum that an applicant must have access to in order to meet the requirements of section 23. However, regulation 10 (1) (k) of the Regulations to the MPRDA (MPRDA Regulations) stipulates that an applicant must submit evidence of budgetary or financial resources as prescribed in the MPRDA Regulations.¹⁹

¹³ Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum, and South African National Biodiversity Institute. Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector (2013) 23.

¹⁴ Section 22 (2) of the Mineral and Petroleum Resources Development Act, No. 28 of 2002.

¹⁵ Section 10 (1) of the Mineral and Petroleum Resources Development Act, No. 28 of 2002.

¹⁶ Section 10 (1) (b) of the Mineral and Petroleum Resources Development Act, No. 28 of 2002.

¹⁷ Section 23(1)(b) of the Mineral and Petroleum Resources Development Act, No. 28 of the 2002.

¹⁸ Section 23(1)(d) of the Mineral and Petroleum Resources Development Act, No. 28 of 2002.

¹⁹ Regulation 10 (1) (k) of the Regulations to the Mineral and Petroleum Resources Development Act No. 28 of 2002.

With regard to the requirement on technical ability the MPRDA Regulations provide that the mining right applicant must submit documentation evidencing the requisite technical ability or access thereto in order to be able to carry out the mining operation.²⁰ The MPRDA Regulations further provide that a mining right applicant must be able to provide a 'description of how the applicant's technical ability will be provided by making use of in-house expertise, contractors, and consultants on the proposed mining operation.'²¹ The applicant must also provide evidence of how they are going to use their technical ability to mitigate against any potentially negative environmental impacts or degradation.²²

Another important piece of legislation that has to be adhered to in mining activities is the Constitution of South Africa which endows to all persons the right 'to an environment that is not harmful to their health or wellbeing,'²³ therefore all mining activities must be carried out with strict adherence to this constitutional law requirement, as set out in section 24 of the Constitution.

In line with section 24 of the Constitution, section 37(1) of the MPRDA, makes cross-reference to environmental management principles set out in section 2 of the National Environmental Management Act No. 107 of 1998 (NEMA).²⁴ Section 2 of the NEMA, provides a list of the environmental management principles. By cross-referring to these, section 37 of the MPRDA imports the principle and makes them applicable under the MPRDA as if they were part of the MPRDA text.

Another important environmental management tool is the One Environmental System Agreement of 2013 (OESA). This Agreement which was entered into in terms of section 50A (2) of the NEMA, between the MR Minister, the ministers for the departments of environmental affairs as well as water and sanitation respectively.²⁵ The resultant effect of the OESA is that all environmental aspects of mining must be regulated through the NEMA, as the principal Act. Secondly, the environmental affairs minister is now responsible for setting the regulatory framework, and other departments must implement the provisions of the NEMA as the principal Act, in as far as they relate to prospecting, exploration or mining operations.²⁶

Another significant impact of the OESA is that it made the MR Minister responsible for issuing environmental authorisations in terms of the NEMA for prospecting, exploration, mining operations, with the water and sanitation affairs minister being the appeal authority for these authorisations.

²⁰ Regulation 10 (1) (h) of the Regulations to the Mineral and Petroleum Resources Development Act No. 28 of 2002.

²¹ Regulation 10 (1) (j) of the Regulations to the Mineral and Petroleum Resources Development Act No. 28 of 2002.

²² Regulation 10 (1) (k) of the Regulations to the Mineral and Petroleum Resources Development Act No. 28 of 2002.

²³ Section 24 (a) of the Constitution of the Republic of South Africa, 1996.

²⁴ Section 37 of the Mineral and Petroleum Resources Development Act No. 28 of 2002.

²⁵ D Fisher One Environmental System IAIA Annual Conference, 'Integrated Environmental Management Support', 10 August 2015.

²⁶ Ibid

The alignment brought about by the OESA as discussed above, in terms of environmental management in the mining process is a very positive and commendable regulatory intervention, in my opinion, as it enhances coordination, and minimises duplicity of processes, thereby making overall environmental management regulation more efficient.

Regulation 68 (1) of the MPRDA Regulations cross references the National Water Act²⁷ (NWA), for purposes of mitigating against pollution as well as for purposes of appropriate water management.²⁸ This therefore means for coal mining activities to be carried out appropriately, such activities must be conducted in line with the provisions of the NWA. Relevant sections of the NWA include section 4 thereof, which sets out the basis which give rise to an entitlement for water use, as well as chapter 4 of the NWA dealing with the uses of water, including the equitable allocation and beneficial use of water in the public interest.

In terms of water use authorisations, the NWA requires coal mining right applicants to make provision both in terms of water quality and quantity, primarily for purposes of meeting ecological needs for freshwater systems and basic human needs for downstream communities.²⁹ In fulfilling this requirement, it is important for applicants to also pay attention to the Mine Water Regulations.³⁰

b. The Regulation of Coal For Electricity Generation

The Electricity Regulation Act³¹ is the primary regulation instruments for the generation of electricity in South Africa. The preamble of the ERA sets out the following as the main objects of the ERA:

“to establish a national regulatory framework for the electricity supply industry; to make the National Energy Regulator the custodian and enforcer of the national regulatory framework; to provide for licenses and registration as the manner in which generation, transmission, distribution, trading and the import and export of electricity are regulated; and to provide for matters connected therewith.”³²

The ERA is also the enabling statute for the National Energy Regulator of South Africa (NERSA), which replaced its predecessor the National Energy Regulator in 2005, as specified in the National Energy Regulator Act³³ (NERA),

²⁷ No. 36 of 1998.

²⁸ Regulation 68 (1) of the Regulations to the Mineral and Petroleum Resources Development Act, No. 28 of 2002.

²⁹ Ibid 13.

³⁰ GN R704.

³¹ No. 4 of 2006.

³² Electricity Regulation Act, No. 4 of 2006.

³³ No. 40 of 2004.

section 4(c).³⁴ Any person, natural or juristic, who is desirous of generating (as defined in the ERA) energy in South Africa, must first apply for a licence with NERSA in terms of section 11 of the ERA.³⁵

Worth noting is that the electricity sector in South Africa does not have a 'comprehensive set of rules or regulations on the licensing procedure.'³⁶ The ERA does not set out requirements that must be met by an applicant when applying for a generation licence. The ERA does however, set out a non-exhaustive list of conditions which NERSA could make the granting of a licence subject to. These include amongst others: the regulation of the revenues to be made by the licensee, the quality of the electricity supply and service, the type of energy sources from which electricity must or may be generated, bought or sold, to list a few.³⁷

Eskom is 'the largest electricity generator and supplier in Africa'³⁸. Eskom enjoys dominance, with the vast majority of its output coming from coal fired power plants. Eskom is the largest consumer of coal in South Africa.³⁹ In 2016, the Chamber of Mines reported that Eskom had purchased approximately 66% of all the coal that was sold in South Africa in 2015.⁴⁰ In the 2015-16 financial year, Eskom reported that coal was used for generating 91% of its electricity (Eskom, 2016). Based on Eskom's report in the context of Eskom's combined power stations producing approximately 95% of the electricity in South Africa,⁴¹ the inference can be made that in 2016, coal was the source for the generation of at least 82% of all electricity produced in South Africa.

Whilst Eskom produces the bulk of coal generated electricity and as stated above, the bulk of all South African generated electricity in general, it is however, not the only producer of electricity from coal. Pursuant to the provisions of section 34(1) of the ERA, the Minister made a determination (this is discussed further under the section on Procurement, in Part IV of Paper) in December 2012⁴² to the effect that the country needed new base load energy generation capacity of 2500MW to be generated from coal, in accordance with the capacity allocated to coal under the heading "New Build", for the period 2014 to 2024, under Table 3 of the IRP, to enhance energy security. This determination has seen private baseload producers getting involved in the generation of electricity from coal. I discuss this development further in the section on Procurement.

³⁴ Section 4 (c) of the National Energy Regulator Act 40 of 2004.

³⁵ Section 11 of the Electricity Regulation Act No. 4 of 2006.

³⁶ A Klees 'Electricity Law In South Africa' (2014) 44.

³⁷ Energy Regulator Act No 40 of 2004.

³⁸ Ibid 36.

³⁹ M Thobejane 'An Assessment Of The Security Of Coal Supply To Eskom In The Short And Medium Term' a research report presented to the Graduate School of Business, University of Cape Town (2016) 4.

⁴⁰ Ibid.

⁴¹ Ibid 36.

⁴² Government Gazette No. 36005, of 19 December 2012.

Coal is clearly an important component of the coal generation process which yields electricity. There however isn't any legislation or regulation regulating the quality, grade or specifications of coal which must be used in the electricity generation process. Due to the lack of regulation of the quality and actual characteristics of the coal as the raw material in the generation process, I have concluded that this is left to be contractually determined between the supplier of coal and the buyer of coal through coal supply contracts, and not by legislation.

Below I discuss an important aspect of the coal to electricity generation process which is the impact it has on pollution and the environment.

c. The Impact of Coal for Electricity Generation on Pollution

Under the National Environmental Management Air Quality Act⁴³ ("NEMAQA"), industrial processes that negatively impact air quality, have been documented and categorised as Listed Activities under section 21 of the NEMAQA.⁴⁴

South Africa's economy is overly dependent on coal, and this overdependence is exacerbated by the fact that the good quality coal is exported leaving the lesser quality coal to be used by South Africa's coal-fired power stations thereby worsening South Africa's carbon footprint and emissions.⁴⁵

Between the years 2005 and 2008, the South African Cabinet mandated a process known as the Long-Term Mitigation Scenario (LTMS) formulation, aimed at climate change and pollution mitigation, while fully recognizing that South Africa's economy had been built around energy intensive industry, which relies quite heavily on coal.⁴⁶

In 2016 South Africa signed the Paris Agreement, which was adopted on 12 December 2015 as an international agreement aimed at addressing climate change and it requires deeper emission reduction commitments from all countries.⁴⁷ Signature of the Paris Agreement is a step away from ratification, which means that 'when a country signs the Paris Agreement it is obliged to refrain from acts that will defeat its object and purpose. The next step, ratification, signifies a country's intent to be legally bound to the terms of the treaty at an international level.'⁴⁸

Signature without ratification does not create legally binding obligations as the Paris Agreement operates on the basis of voluntary commitments. South Africa is therefore not legally bound to meet its emissions reduction commitments.

⁴³ No. 39 of 2004

⁴⁴ National Environmental Management Air Quality Act

⁴⁵ V Munnik 'The Social and Environmental Consequences of Coal Mining in South Africa' A Case Study, (2010) 11.

⁴⁶ H Winkler 'Long-Term Mitigation Scenarios: Strategic Options for South Africa' University of Cape Town (2007)

⁴⁷ The Paris Agreement On Climate Change, Issue Brief. Natural Resources Defense Council. December (2015).

⁴⁸ Paris Agreement Ratification Tracker, as of 21 January 2018.

The non-binding nature of the voluntary commitments made by South Africa is a huge limitation in the fight against pollution as it is reported that as recently as the year 2014, '[a]ir pollution from Eskom's coal-fired plants are currently causing an estimated 2, 200 premature deaths per year, due to exposure to fine particulate matter.'⁴⁹

It is clear from the foregoing paragraph how detrimental the negative impacts of carbon emissions from the process of generating electricity from coal are. It is lamentable that despite such statistics, there is still no strictly binding regulatory intervention in place to counter the detrimental impact of carbon emissions as discussed above.

e. Conclusion

The mining of resources in South Arica is amply regulated. Coal mining is no exception to this general fact. There is an extensive and comprehensive regulatory framework for coal mining made up of various statutes which I have discussed in this part of the Paper. Apart from licensing of electricity generation and defining the actual role of NERSA as a regulator, there actually isn't a comprehensive regulatory framework when it comes to the actual electricity generation process from coal. Significant matters such as coal supply are generally left to contracting parties. Coal's impact on the environment in terms of emissions is also not governed in a strict nor binding manner as South Africa only has non-binding international obligations and no formal emissions management regulatory framework domestically.

III. REGULATION OF RENEWABLE ENERGY

a. Introduction

⁴⁹ L. Myllyvirta "Health impacts and social costs of Eskom's proposed non-compliance with South Africa's air emission standards", Greenpeace International, Exeter, United Kingdom, February 2014.

Whilst the Energy Act⁵⁰ does make provision for energy planning as well as increased generation and consumption of renewable energies, no express mention of renewable energy sources is made in the objectives of the Energy Act in terms of section 2 thereof.⁵¹ Mention of renewable energy is only made in section 19 of the Energy Act, in reference to general regulations which may be made by the Minister, which include regulations regarding the minimum contributions required from renewable energy sources towards overall national energy supply, as well as regulations dealing with measures aimed at promoting the production, investment in and development of renewable energy.⁵²

b. The Regulation of Technologies and Equipment for Renewable Energy

The first Ministerial Determination for the generation of renewable energy was promulgated by the Minister in May 2011, under section 34(1) of the ERA and the Renewable Energy Independent Power Producer Procurement Program (REIPPP) was launched in August 2011.⁵³ Therefore the sector is still relatively young, with a developing regulatory framework, more so in the regulation of the technologies and equipment used in the generation of energy from renewable sources such as hydro, solar and wind, to name a few.

The regulatory framework for equipment and technologies can be broadly divided into four categories:

1. National standards and guidelines;
2. International standards and guidelines;
3. Directives of grid operators; and
4. Regional codes and standards.⁵⁴

c. The Regulation of Renewable Energy as an Energy Source

In 2009 NERSA published two documents relating to Renewable Energy Feed-In Tariffs (“REFIT”), which were namely, the Regulatory Guidelines for the South Africa REFIT dated 26 March 2009⁵⁵ being the first one and the Decision and Reasons for the Decision on REFIT dated 29 October 2009. The government subsequently rejected REFIT in preference of competitive tenders, a move which resulted in the adoption of the REIPPPP, which ‘has successfully

⁵⁰ Act 34 of 2008

⁵¹ Section 2(b) National Energy Act, 34 of 2008.

⁵² Section 19 (d), (f) of the National Energy Act 34 of 2008.

⁵³ A Klees ‘Electricity Law in South Africa’ (2014) 273.

⁵⁴ Standards and guidelines for PV GreenCard in South Africa, International Solar Energy Society, German Section. BSW Solar.

⁵⁵ Published under General Notice No. 382 in Government Gazette 32122 of 17 April 2009.

channelled substantial private sector expertise and investment into grid-connected renewable energy in South Africa at competitive prices.’⁵⁶

Below is a brief discussion of the legal framework regulating the renewable energy space in South Africa:

1. The Constitution of South Africa⁵⁷

The Constitution which is the supreme law of South Africa, not only affords every person the right to an environment which is not harmful to their health and well-being through section 24, it goes beyond that by mandating the government to actively protect the environment through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation, and secure ecologically sustainable development and the use of natural resources while promoting economic and social development. Renewable energy as a clean and environmentally friendly source of energy, is very consistent with section 24 of the Constitution.

2. The National Environmental Management Act (No 107 of 1998 as amended) (NEMA)

The NEMA gives expression to the Constitution by providing a framework for ‘co-operative environmental governance and environmental management.’⁵⁸ This statute sets out all the environmental principles that must be incorporated into all decisions relating to the environment in the licensing as well as operation of renewable energy projects.

3. National Environmental Management: Biodiversity Act (Act 10 of 2004 as amended) (NEMBA)

The NEMBA provides for the management and conservation of South Africa’s biodiversity within the NEMA framework, to this end, the NEMBA places severe restrictions on activities that could have adverse effects on threatened or protected species.⁵⁹ The NEMBA identifies and lists threatened and protected species as well as restricted activities. These lists and restricted activities need to be taken into account in the implementation of any renewable energy activities, as well as in assessments for any authorisations associated with these activities in terms of any other legislation.⁶⁰

⁵⁶ A Eberhard, J Kolker & J Leigland ‘South Africa’s Renewable Energy IPP Procurement Program: Success Factors and Lessons’ May 2014, 1.

⁵⁷ Act No. 108 of 1996.

⁵⁸ Mulcahy Mike, Market Intelligence Report: Renewable Energy, Greencape, 29.

⁵⁹ Ibid 56.

⁶⁰ Ibid 56.

4. National Environmental Management: Air Quality Act (Act 39 of 2004 as amended) (NEMAQA)

The NEMAQA which repealed the Atmospheric Pollution Prevention Act 45 of 1965, empowers local and provincial environmental departments to be responsible for implementing and enforcing various aspects of the NEMAQA. Section 15 of the NEMAQA requires that air quality planning is integrated with existing activities in terms of Chapter 3 of the NEMAQA. Part 3 of GNR 893 sets out minimum emissions standards which are relevant for renewable energy projects.

5. National Environmental Management: Waste Act (Act 59 of 2008 as amended) (NEMWA)

Section 19(1) of the NEMWA empowers the minister to publish a list of waste management activities 'that have, or are likely to have, a detrimental effect on the environment. Such a list was consequently published in terms of section 19(1) by the minister in GN 921 of 29 November 2013 identifying several waste management activities requiring a waste management license in terms of the NEMWA. Aspects of renewable energy projects which require such a license must therefore comply with the provisions of the NEMWA as specified.

6. National Water Act (Act 36 of 1998 as amended) (NWA)

The NWA's primary purpose is to provide the legal framework for the management of South Africa's water resources in an effective and sustainable manner.⁶¹ The NWA was aimed at the reform of past discriminatory water laws, based on the central recognition that 'water is a scarce resource that belongs to all the people of South Africa.'⁶²

Other pieces of legislation which are important in the regulation of renewable energy projects are listed below. I shall not be discussing each and every one of these:

7. National Environmental Management: Integrated Coastal Management Act (No. 24 of 2008 as amended)
8. National Environmental Management: Protected Areas (Act 31 of 2004, as amended)
9. The Hazardous Substances Act (No. 15 of 1973)
10. The Water Services Act (No. 108 of 1998)
11. National Heritage Resources Act (No. 25 of 1999)

⁶¹ Guide to the National Water Act, (1998) Department of Water and Forestry, Republic of South Africa.

⁶² Ibid.

12. Electricity Regulation Act (No. 4 of 2006, as amended by the ERAA in 2007)
13. Municipal Systems Act (No. 32 of 2000)
14. Conservation and Agricultural Resources Act (No. 43 of 1983)
15. National Roads Act (No. 93 of 1996)
16. Spatial Planning and Land Use Management Act
17. Astronomy Geographic Advantage Areas Act (No. 21 of 2007)
18. Subdivision of Agricultural Land Act (No. 70 of 1970 as amended)
19. Civil Aviation Act (No. 13 of 2009)
20. National Forests Act (No. 84 of 1998)

It is reported that as of March 2017, the REIPPP had successfully procured 6.4 GW of energy from 112 projects over four bid windows, which in terms of national targets for renewable energy capacity, as set by the IRP and NDP, translates to 17% towards the 2030 target and 44% towards the 2020 target.⁶³

Based on socio-economic objectives set by the Department of Energy, each renewable energy project requires a minimum of 40% participation by a South African entity, a minimum ownership of the entire project by black South Africans of at least 12%, together with a minimum ownership by the local community (which has been defined to mean all persons living within a 50 kilometre radius of the actual project location).⁶⁴ Whilst these targets are clearly articulated which enhances stability and predictability in terms of procurement, there are some serious challenges in determining how much of the procurement for renewable energy projects is actually local, as I will discuss below.

The Engineering, Procurement and Construction (EPC) contract is typically the costliest item in the project budget, usually accounting for 60-75% of the project cost, it is considered a major risk for which South African project lenders have consistently insisted on full guarantees as well as internationally experienced contractors who have carried out analogous projects elsewhere in the world.⁶⁵ This requirement from project lenders forces developers to turn to international EPC contractors who are established and armed with both the technical and financial means to carry out such projects to the satisfaction of the lenders and simultaneous undermining of the local procurement targets set by the Department of Trade and Industry. There is a clear mismatch between project specific interests and broader governmental policy.

With regards to the procurement of the actual equipment for the different energy generation technologies, European companies are dominant in terms of technology and equipment for wind into South Africa, whilst China,

⁶³ Independent Power Producers Procurement Programme Overview, March 2017, 19.

⁶⁴ C. Ettmayr and H Lloyd, 'Local content requirements and the impact on the South African renewable energy sector: A survey-based analysis' South African Journal of Economic and Management Sciences (2017) 2.

⁶⁵ L Baker and H L Wlokas, South Africa's renewable energy procurement: A new frontier? Energy Research Centre, University of Cape Town, Cape Town, South Africa (2015) 9.

as the leading manufacturer of solar PV technology, leads the supply of solar PV components into South Africa.⁶⁶ This reality is completely out of touch with the South African government's procurement localisation objectives

d. Conclusion

The Energy Act, which primarily regulates national energy planning does not provide legal security for renewable energy projects, neither does it make express mention of renewable energy sources in its objectives. Also worth noting, is that the regulation of technologies and equipment for renewable energy is still limited and requires further development. Unlike the generation of electricity from coal, renewable energy generation does not have an actual raw material that requires separate regulation. The equipment and technologies used in renewable energy projects are mostly imported and their specifications are regulated by international bodies, with the South African Bureau of Standards merely playing a general equipment standards and specifications regulations roles. Renewable energy projects must comply with a robust and extensive regulatory framework, which is made up numerous statutes and regulations which have been discussed herein.

IV. ENERGY PROCUREMENT

⁶⁶ L Baker and H L Wlokas, South Africa's renewable energy procurement: A new frontier? Energy Research Centre, University of Cape Town, Cape Town, South Africa (2015) 11.

a. Introduction

The National Development Plan emphasizes the need for South Africa to prioritize investment in a strong network of economic infrastructure, to this end, energy infrastructure is a critical component underpinning economic growth across the country, it therefore needs to be robust and extensive enough to meet 'industrial, commercial and household needs.'⁶⁷ Further, access to 'affordable and reliable energy services is fundamental to reducing poverty and improving health, increasing productivity, enhancing competitiveness, and promoting economic growth.'⁶⁸

The process of procuring energy in South Africa can be divided into two parts, the private procurement by Eskom as the national utility and the procurement by the IPPPP Office, whose primary mandate is to secure electricity from renewable as well as non-renewable energy sources from the private sector, as a means to complement Eskom's generation capacity.⁶⁹

For both renewable and non-renewable energy, the procurement process is founded on section 34(1) of the ERA read with the Electricity Regulations on New Generation Capacity ("Regulations") which empower the Minister in consultation with NERSA to make determinations on energy procurement. Section 34(1) of the ERA allows the Minister to:

'(a) determine that new generation capacity is needed to ensure the continued uninterrupted supply of electricity;

(b) determine the types of energy sources from which electricity must be generated, and the percentages of electricity that must be generated from such sources;

(c) determine that electricity thus produced may only be sold to the persons or in the manner set out in such notice;

(d) determine that electricity thus produced must be purchased by the persons set out in such notice;

(e) require that new generation capacity must –

(i) be established through a tendering procedure which is fair, equitable, transparent, competitive and cost effective;

⁶⁷ Independent Power Producers Procurement Programme Overview, March (2017) 5.

⁶⁸ 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) 9.

⁶⁹ Independent Power Producers Procurement Programme Overview, March 2017.

*(ii) provide for private sector participation.*⁷⁰

This provision in the ERA empowers the Minister to authorise through making a determination (Ministerial Determination), the energy capacity required and to be produced in a particular period. Before the advent of section 34 of the ERA, which affords the Minister specific powers as set out in section 34(1), Eskom was entitled to procure energy in line with its business strategy and as guided and permitted by its memorandum of incorporation. Post section 34 of the ERA, Eskom must procure energy as a 'buyer' defined in terms of section 34(1) (c) and (d) of the ERA. Nothing in the ERA limits Eskom from continuing to operate all the power stations it operated before section 34 came into operation. Eskom currently operates 13 coal fired power stations.

In terms of the IPPPP Office's mandate and energy procurement processes, there is minimal distinction between the procurement of electricity from coal (non-renewable energy) and the procurement of energy from renewable sources such as solar. For the most part, the process is identical, with minor nuances which will be discussed under the 'Comparative Analysis' section.

b. Procurement by the IPPPP Office

Key Role Players in the IPPPP Office Energy Procurement Process:

1. The Minister

The Minister of Energy is responsible for issuing Ministerial Determinations in accordance with section 34(1) of the ERA, and the REIPPP was implemented based on the Ministerial Determinations.

2. National Treasury

The National Treasury is entrusted with the responsibility of overseeing the REIPPP as the Government department responsible for finances, and is therefore responsible for ensuring that REIPPP projects are fully compliant with the provisions of the Public Finance Management Act⁷¹(PFMA).

3. The Department of Energy

The Department of Energy (DoE) as the custodian department for energy resources in South Africa, holds ultimate responsibility for the REIPPP, which is founded on a series of Ministerial Determinations. The DoE is therefore responsible for the evaluation of bid responses as well as the selection of preferred bidders. Further, the DoE plays an on-going role over REIPPP projects all the way up to a project's financial close, through facilitating the conclusion

⁷⁰ Section 34 (1) of the Electricity Regulation Act, No. 4 of 2006.

⁷¹ No. 1 of 1999.

of the Implementation Agreement, the Power Purchase Agreement and the Direct Agreement by the relevant contracting parties. Further to this the DoE is also responsible for monitoring compliance with these agreements.⁷²

4. The Procurer

The procurer is the IPPPP Office as the juristic person designated by the Minister in terms of section 34 as being responsible for facilitating the activities related to procurement of new generation capacity under IPPPP, which person may or may not be the Buyer.⁷³

5. The Buyer

One of the Ministerial Determinations issued by the Minister in terms of the ERA, is to instruct as to which legal entity is the designated buyer with the right to purchase the energy output from the REIPPP project company in terms of a Power Purchase Agreement entered into pursuant to the REIPPP.⁷⁴ 'Buyer' means, in the context of a new generation capacity project, any state organ designated as such by the Minister in section 34 (1) (c) and (d) of the ERA. As a monopoly national energy utility, Eskom is normally the designated buyer of energy produced from REIPPP projects.

6. NERSA

NERSA is a statutory organ, which was established in terms of section 3 of the National Energy Regulator Act.⁷⁵ NERSA is entrusted with the custodianship and enforcement of the regulatory framework contemplated in the ERA. To enable NERSA to execute these functions, the ERA gives NERSA various powers, which include the responsibility to establish a national regulatory framework for the electricity supply industry as well as the power to consider applications for licences as required and issued under the ERA.⁷⁶

Once the Minister has made a Ministerial Determination in accordance with section 34(1) of the ERA as outlined above, the IPPPP Office then issues a Request for Proposals for New Generation Capacity under the relevant Ministerial Determination. One such Ministerial Determination was made by the Minister in December 2012⁷⁷ to the effect that the country needed new base load energy generation capacity of 2500MW to be generated from coal, in accordance with the capacity allocated to coal under the heading "New Build", for the period 2014 to 2024, under Table 3 of the IRP, to enhance energy security. Whilst there is an expectation that coal's contribution to the IRP

⁷² Request for Qualification and Proposals for New Generation Capacity under the IPP Procurement Programme, Part A: General Requirements, Rules and Provisions, Tender No: DOE/003/13/14, Reissued for Third Bid Submission Date: May 2013, 35.

⁷³ DN Unterhalter, L Sisilana, Power Purchase Agreements Opinion, dated 24 November 2016.

⁷⁴ Section 34(1) of the Electricity Regulation Act, 4 of 2006.

⁷⁵ 40 of 2004.

⁷⁶ N Simelane, Overview of NERSA, Presentation to Business Opportunities in the Energy Sector Workshop, May (2014) 20.

⁷⁷ Government Gazette No. 36005, of 19 December 2012.

target will eventually fall, there are no expectations of a significant reduction in nominal coal fired generation capacity before 2030⁷⁸, in other words not during the term of the IRP.

Two separate licenses have to be obtained in the coal to electricity generation process, the first one being a mining license, and the second one being a generation licence. This is not the case with renewable energy generation, an energy producer is only required to apply for and obtain only one license and that is the generation license.

Apart from the slight nuance in licensing procurement for the two energies is essentially uniform as I have already stated, from application for a generation license, all the way through to the signature of a Power Purchase Agreement with Eskom as the ultimate buyer.

c. Procurement by Eskom

Whilst Eskom plays the role of the monopolistic Buyer in the IPPPP Office procurement process, the Minister is fully entitled to designate Eskom as the Producer of energy in terms of section 34 of the ERA. In such instances Eskom will operate and manage its own power generation plants instead of buying power through a Power Purchase Agreement from a power supplier.

In operating its own energy generation activities, Eskom historically used low-grade coal and constructed plants very close to tied mines, thereby incurring very low transport costs,⁷⁹ Thereby reducing overall production costs.

Regardless of whether energy is procured through the IPPPP Office or by Eskom privately and directly from energy suppliers without any facilitation by the IPPPP Office, the following pieces of legislation, which make up the regulatory framework for the procurement of energy in South Africa, are worth consideration:

i. Electricity Regulation Act, 2006

The ERA provides that before any person operates any generation, transmission or distribution facility, or gets involved in the trading of electricity, they must first obtain a licence from NERSA in accordance with the ERA. Therefore any successful bidder must apply for and obtain such an electricity generation license before commencing with any generation activities to be compliant with the ERA. It is my opinion that ensuring that activities falling within a specified industry or sector are correctly licensed is the foundation of any functional regulatory framework.

Whilst section 34(1) of the ERA empowers the Minister to make Ministerial Determinations in relation to the procurement of energy, section 34(2), specifically subsection (e) thereof, empowers the Minister, subject to provisions of the PFMA (which I discuss elsewhere in this study) to issue guarantees, indemnities or other types of

⁷⁸ South African Thermal Coal, IRP 2010, Macquarie Research, January (2014) 14.

⁷⁹ Steyn Grover, Burton Jesse and Steenkamp Marco 'Eskom's Financial Crisis And The Viability of Coal-Fired Power in South Africa – Implications for Kusile and the older Coal-Fired Power Stations' November (2017) 18.

security, or enter into any other type of transaction that binds the state to any future financial commitment that is either necessary or expedient for the development, construction, commissioning or effective operation of a public or privately owned electricity generation business.

ii. Constitution of the Republic of South Africa

Section 217(2) of the Constitution provides that state organs should not be limited by the requirements of an open and competitive tender process from the implementation of specific procurement policy measures aimed at preferring, protecting and or advancing categories of persons previously disadvantaged by unfair discrimination. This constitutional requirement provides an important guide to the DoE and the state in general in terms of the considerations it should make when dealing with energy procurement under the BLIPPP, or energy procurement in general. Through this provision, the Constitution expressly mandates the state to depart from open and competitive tender processes if such a departure is aimed at achieving equity and redress.

The relevance of section 217 does not end there, subsection 217(3) provides for the enablement of subsection 217(2) through the enactment of national legislation to prescribe a framework within which the policies referred to in section 217 (2) can be implemented.

The impact of section 217 of the Constitution in the procurement of energy under the IPPPP Office is quite significant, as the 'actual share of procurement spend by IPPs from BBBEE suppliers for construction and operations combined is currently reported as 88%, which is significantly higher than the target of 60% but also the 73% that had been committed by IPPs.⁸⁰

Section 217 consists of two main elements (1) open and transparent procurement process (217(1) (ii) empowerment of historically disadvantaged arising from the procurement process (217(2) and (3)

iii. Broad Based Black Economic Empowerment Act⁸¹

The BBBEE Act is another piece of legislation with an impact in the procurement of energy in South Africa, be it the procurement of baseload energy or renewable energy. Section 10(1) of the BBBEE Act directs that each state organ must take cognisance, and in as far as reasonably possible, apply any relevant code of good practice issued in terms of the BBBEE Act in developing criteria for forming partnerships with the private sector.

The BBBEE Codes therefore have to be applied in the procurement of energy, taking into account the following elements: ownership, management control, preferential procurement, enterprise development and socio-economic development. It is reported that bid obligations and minimum thresholds for preferential procurement, employment

⁸⁰ Independent Power Producers Procurement Programme Overview, March 2017.

⁸¹ No. 53 of 2003.

equity and socio-economic development contributions are used as mechanisms in capturing a share of the value from the energy procurement sector for South Africans and local communities.⁸²

iv. NERSA Application for an Electricity Generation Licence in terms of the ERA

Before any energy production activities commence, an application for the legal undertaking of such activities must be made with NERSA following a prescribed application process. Section J of the application for an Electricity Generation Licence, requires NERSA to consider the following elements in ensuring that an application complies with broad-based black economic empowerment:

- i. Black ownership;
- ii. Black management, an aspect which also looks at the number of black female management as well as the number of skilled black people;
- iii. Skills development and employment equity;
- iv. Preferential procurement;
- v. Enterprise development; and
- vi. Industry specific initiatives to facilitate the inclusion of black people in the energy sector.

v. PFMA

The PFMA plays an important role in the regulation of state finances in as far as they are used in the procurement of energy, therefore aspects of the PFMA apply to the government's involvement in the BLIPPP. In certain instances, the DoE is required to make payments to the seller of energy of amounts due under a Power Purchase Agreement validly entered into by such a seller and Eskom as the purchaser or off-taker of energy. The DoE utilises funds from the National Treasury when making such payments. This is because only the National Treasury may withdraw money from the National Revenue Fund and only in specific instances where such funds have been specifically authorised by an Act of Parliament.⁸³

⁸² Independent Power Producers Procurement Programme Overview March 2017.

⁸³ Public Finance Management Act, 1 of 1999.

In terms of section 54(2) of the PFMA, prior to concluding certain transactions, a public entity through its accounting authority, must promptly and in writing inform its executive authority about the transaction and provide the relevant particulars of the transaction to its executive authority for approval of the transaction.

Section 66(1) of the PFMA stipulates that any institution to which the PFMA applies, may not borrow money or issue a 'guarantee, indemnity or security' or enter into any transaction that binds or that may bind that institution or the National Revenue Fund to any future financial commitment, except in circumstances where such borrowing, guarantee, indemnity, security or other transaction is authorised by the PFMA. Adherence to section 66(1) of the PFMA becomes even more mandatory when read in conjunction with section 68 of the PFMA which expressly provides that if the correct process is not followed, the relevant transacting institution to which the PFMA applies, shall not be bound by the terms of the transaction on the basis of the failure to follow the correct process when entering into that transaction.

d. Conclusion

Section 34 of the ERA gives the Energy minister extensive powers to determine energy capacity required by the country at any given point, the sources from which that energy will be produced, procurement thereof, the procuring entity or person as well as the buyer thereof. Because Eskom has historically been responsible for procuring its own energy, there are now two procurement paths as a result of the advent of the IPPPP Office which was mandated with the responsibility of procuring energy on behalf of the state, parallel to Eskom. There are several role important role players and legislative instruments which are relevant to the energy procurement sector in South Africa, and I have discussed these in this part of the Paper.

V. COMPARATIVE ANALYSIS

The regulatory paths for both coal derived electricity as well as electricity produced from renewable energy begin with a Ministerial Determination in terms of section 34 of the ERA, as already discussed. The nature of coal as a resource however, dictates that the mining process must be first regulated and complied with before electricity generation activities can commence. Once the mining process has been completed, the regulatory path for both coal generated electricity as well as electricity from renewable energy becomes mostly similar as already discussed.

Some of the similarities in the regulation of the two sources of energy are discussed below. Both producers of coal generated electricity as well as producers of electricity derived from renewable energy require environmental authorisations from the Minister of Environmental Affairs before they can commence with energy generation operations. This process entails the provision of an Environmental Impact Assessment report as prescribed for under NEMA. This procedure ensures that environmental consequences of projects are identified and assessed before authorisation for projects is given.⁸⁴ Further, both energy generation processes must comply with the requirement for a waste license application, which application must be made to the Department of Environmental Affairs.

Another similarity is the requirement for a water license which must be obtained from the Department of Water and Sanitation before the commencement of generation activities from either source. Generation of electricity falls to be regulated as an activity requiring water use in terms of the National Water Act. The licensing and authorisation of water use activities in terms of energy generation must be issued in terms of both the National Water Act at national level and the Water Services Act at municipal level, respectively. The water requirement is common to both types of energy generation.

Thirdly, and as already alluded to in the Paper, both types of generation must necessarily be based on obtaining a NERSA license from the regulator in terms of the NERSA Act. There is virtually no distinction on the process through which applications for licenses must be made to NERSA for either type of energy generation.

There are however three regulatory features which are peculiar to coal without being applicable to renewable energy generation. A producer of electricity from coal must obtain an Atmospheric Emissions License (AEL) which must be issued by the AEL authority located at the local municipality or province where the project requiring the AEL will be conducted. This regulatory requirement does not apply to renewable energy generation.

The second regulatory difference that only applies to coal generation projects, is that provision must be made for a decommissioning process at the end of the life-span of the project, which is not a requirement for renewable energy projects. Applicants for coal generation licenses must provide proof that they will have the financial ability to

⁸⁴ M Mulcahy 'Market Intelligence Report' (2014) <<https://greencape.co.za/assets/Uploads/GreenCape-MIR-Renewable-Energy.pdf>>.

decommission the project after its life span before they can obtain a generation license, which is a requirement that does not apply to renewable energy generation.

The last notable difference relates to procurement. In terms of the procurement of energy through power purchase agreements (PPA), Eskom is empowered to enter into 30 year PPA for the supply of energy derived from coal whereas it is empowered to enter into a 20 year PPA for energy derived from renewable sources.

VI. CONCLUSION

In this Paper I have sought to undertake a comparative analysis of the regulatory framework governing the process of generating electricity from coal, with the process of generating electricity from renewable energy. I started by first providing a discussion of the regulatory framework for the two energy sources separately, starting with the framework for the regulation of the coal to electricity generation sector and then following with the regulation of the renewable energy sector. After discussing the regulatory frameworks for the two types of energy generation respectively, I then turned to providing a brief discussion of the procurement process, before ultimately undertaking a comparative analysis of how the two types of energy sources are regulated.

The point of this comparative analysis has been to provide a response to the question on the regulatory improvements South Africa has to make in order to tackle some of the energy challenges currently facing the country.

My findings from the foregoing analysis has been that the two types of energy sources are adequately regulated in broad terms even though there still remains some specific minor limitations on the regulatory framework. I base the conclusion that the regulatory frameworks are adequate on the fact that the generation of both energy types has been hugely successful in South Africa. Coal has a long history in terms of sustaining the South African economy, whilst the South African renewable energy programme has been hailed as one of the most successful in the world.

The success of the two sources in South Africa can be attributed to the robust and comprehensive regulatory system made up laws premised on the principle of legality which flows from the Constitution as the most supreme statute in South Africa. Further, all the statutes and regulations making up the regulatory framework for energy generation in South Africa as discussed are publicly accessible and open to public scrutiny.

Another important conclusion is that there remains a need for a firmer regulatory approach around the issue of carbon emissions which is an issue central to energy generation, especially with regards to baseload energy which is produced from coal. With a mature coal generation industry, South Africa still does not have a formal emissions regulatory instrument. It is my conclusion that this lacuna must be addressed as a matter of urgency, both in terms of domestic regulations as well as assuming commitment to international obligations.

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