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Regulating energy in South Africa: enabling sustainable energy by integrating energy and environmental regulation

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The fragmented development of energy law and regulation on the one hand and environmental law on the other is militating against the adoption of a sustainable energy system in South Africa. This mirrors the absence of a global regime on energy to align with environmental developments at that level, despite the recognition that energy is central to sustainable development. Since 1996, environmental law in South African has been reformed to embed it in sustainable development, yet such reforms have not been in synergy with developments in energy regulation. This paper argues that one of the key strategies required in building a sustainable energy system is to create regulatory synergy between environmental law and energy law. Renewable energy and relevant environmental law should be facilitating the technology transition from unsustainable fossil based energy (that is behind climate change) towards renewable energy.

Keywords: energy and environment; regulatory fragmentation; sustainable energy; renewable energy; climate change; South Africa

'Yet, such specific policy reforms (cleaner fuels and renewable energy), as necessary as they are, do not take into account an overarching problem, a problem that may be their undoing if left unaddressed. Until the disjunction between energy and environmental law is repaired, one of the most fundamental barriers to a new and different energy future remains. Changing our course requires admitting our problem: separating discussions of energy and environment works only to help us live the lie, to enable our addiction.'¹

South Africa is one of the leading countries investing in renewable energy,² despite the general perception that the country is still stuck in the carbon era. Sustainable

1 Lincoln L Davies, 'Alternative Energy and the Energy-environment Disconnect' (2009) 46 *Idaho Law Review* 473, 475.

2 By renewable energy I am referring to the modern renewables, namely 'moving water (hydroelectric power, tidal power, and wave power), thermal gradients in ocean water, biomass, geothermal energy, solar energy and wind energy'. See Chris Park, *A Dictionary of Environment and Conservation* (2007) Oxford Reference Online (1 October 2010), available at www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t244.e6826 accessed 12 August 2015. Not all of these are viable in South Africa and the renewable energy initiatives have largely focused on solar-based and wind sources.

energy³ anchored in sustainable development requires an enabling regulatory framework to spur it forward. Renewable energy sources are regarded as sustainable relative to the heavily relied on fossil sources. The energy industry⁴ of South Africa is big and spans several sectors, ranging from electricity, transportation and industry to domestic and agricultural sectors. It is impossible to look at all the sectors without confounding matters. Thus, this paper is delimited to focus more on the fact that the electricity sector contributes most to the emission of greenhouse gases (GHGs) and is a critical challenge to South Africa. At the outset, this highlights the interlinkages between energy sources, environmental pollution leading to climate change and sustainable energy. The interlinkages, and indeed fragmentation, also occur at the international level, despite the necessity of sustainable energy to achieve several global sustainable development objectives and targets.

Given these interlinkages, it is naturally expected that regulation of energy, the environment and sustainability must be synergised. Quite the contrary, a persistent criticism of South African environmental law⁵ is that it has been, and remains, somewhat fragmented. By definition, this ‘fragmentation’ denotes a lack of coordination and synchronisation of the legislation, institutions and sectors that ideally should be interlinked as regulating an interconnected system such as the environment (ecosystem).⁶ It can be argued, however, that integration (the converse of fragmentation) does not necessarily entail the creation of one piece of legislation or super-regulatory institutions – centralisation of sorts. Rather, a lot depends on the regulatory tools used to promote intersectoral and inter-departmental coordination and the crafting and implementation of environmental laws and policies. In South Africa institutional integration should happen in the context of cooperative governance as provided for in the Constitution⁷ and the National Environmental Management Act 107 of 1998.

Among other structural challenges, fragmentation is one of the causes of poor implementation, enforcement and lack of compliance with environmental laws.⁸ This

³ Defined by David Elliott ‘Introduction: Sustainable Energy: The Options’ in David Elliott (ed), *Sustainable Energy: Opportunities and Limitations* (Palgrave Macmillan, 2010). I use the term ‘sustainable energy’ in a special sense, of energy that is derived from sources that are not only renewable, but also sustainable in the Brundtland sense: World Commission on Environment and Development (WCED), *Our Common Future* (Brundtland Report, OUP 1987) Part 1 Ch 2, 1.

⁴ Broadly referring to the entities and institutions involved in the generation, transmission and distribution of energy, including liquid fuels and gas as well as downstream industries. However, this article focuses on the electricity sector of this broad industry.

⁵ Environmental law is used as defined broadly in s 1 of the National Environmental Management Act 108 of 1998 (NEMA); Mome van der Linde and Ernest Basson, ‘Environment’ in Stuart Woolman and Michael Bishop (eds), *Constitutional Law of South Africa* (2nd edn, Juta 2014) 50.1, 29 listing the Minerals and Petroleum Resources Development Act 28 of 2002 (MPRDA) among 28 statutes passed to implement s 24 of the Constitution.

⁶ Louis Kotzé, ‘Environmental Governance’ in Alexander Paterson and Louis Kotzé (eds), *Environmental Compliance and Enforcement in South Africa: Legal Perspectives* (Juta 2009) 110–12, identifies fragmentation at three levels, namely, institutional, legislative, inter-sectoral and compliance and enforcement regime fragmentation; see also generally Carol Steinberg, ‘Can Reasonableness Protect the Poor? A Review of South Africa’s Socio-Economic Rights Jurisprudence’ (2006) 123(2) *South African Law Journal* 14.

⁷ The principles of cooperative government are set out in s 41 of the Constitution of the Republic of South Africa, and amplified by the Intergovernmental Relations Framework Act 13 of 2005. This framework is analysed fully by Carin Bosman, Louis Kotzé and Willemien Du Plessis, ‘The Failure of the Constitution to Ensure Integrated Environmental Management from a Co-Operative Governance Perspective’ (2004) 19 *South African Public Law* 411.

⁸ Bosman and others (n 7 above); see also Romance Sampa and Anna Kordunsky, ‘Technical Report: Role of Regulators in Promoting Clean Energy’ (AECOM International Development for USAID 2011) 10 Kotzé (n 6 above), 110 especially fn 34, aptly collates extensive research that has been done on the issue of fragmented environmental governance in South Africa.

includes non-compliance by the energy industry, for example, failure to comply with air quality standards⁹ and licence limits, or the extraction of energy resources without proper authorisations and licences.¹⁰ An energy industry that heavily relies on fossil fuels, but is poorly regulated environmentally, is socially and environmentally unsustainable. Such a system may indeed be economically sustainable.

The purpose of this paper is to investigate inherent and external fragmentation between energy and environmental law as an impediment to sustainable energy in South Africa and the role regulatory integration can play in addressing this fragmentation. This is critical for prospective international investors and independent power producers (IPPs) interested in the South African electricity sector. This is also significant for South Africa's climate change response strategy, given the contribution of the energy industry to GHG emissions, and the potential of environmental regulation to address these emissions – and thus climate change. The study is informed by the conceptual frame of sustainable development and is executed through a legal analysis of policy and legislative documents, in the backdrop of illustrative examples.

In addition to exposing the current fragmented legal landscape in the next section, the paper proceeds to expose the interface between energy and environmental law, internationally. Thereafter, I provide assumptions underlying the call for integrated regulation alongside a discussion of the current effects of this fragmentation. Having set out the basis of fragmentation and its effects, the paper then provides a framework for promoting integrated regulation of energy and environmental law, and assesses the extent to which policy and legal initiatives in South Africa have promoted such alignment.

The article's thesis is that the weak synergy between South Africa's relevant environmental and energy law is one of the obstacles to a transition to an energy mix that is sustainable. Admittedly, this is only one of the impediments because there are others that are not legal in nature and are beyond the scope of this paper.¹¹ Nevertheless, these other impediments are important and correcting the legal gaps will not necessarily translate into a country powered by wind farms and solar panels only. Once the legal regulatory framework is strengthened, it may enable regulators to address the other institutional, macroeconomic and social challenges in the way of renewable energy.

The precise questions that arise include: the role of environmental law in promoting or hampering the energy processes from generation, transmission to distribution; conversely, the role of energy law in making it easy or harder to regulate matters like air and

⁹ In a 2014 case ultimately settled between some energy corporations and the Department of Environmental Affairs, the companies challenged new air quality standards that they were set to comply with in 2020 arguing that the standards could not be met in the current technological and economic environment even in 2020. See further *Sasol Synfuels (Pty) Ltd & Others v Minister of Water and Environmental Affairs & Others* (High Court, Gauteng Division, Pretoria) Case No 36444/14 (21 June 2014). See also 'Department of Environmental Affairs Receives Eskom Application for Air Quality Standards for Sixteen Power Stations' (Media Release by Department of Environmental Affairs, 11 March 2014); Sue Blaine, 'Firms "Abusing Law" on Air Quality Standards Compliance' *Business Day* (Johannesburg 3 April 2014), available at www.bdlive.co.za/national/science/2014/04/03/firms-abusing-law-on-air-quality-standards-compliance accessed 12 August 2015.

¹⁰ *S v Anker Coal SA (Pty) Ltd* CASE: ESH 8/119 (Mpumalanga); *S v Golfview Mining (Pty) Ltd* CASE: ESH 82/11 (Mpumalanga) (both cases concerned admission by coal mining companies of several violations and non-compliance with environmental legislation).

¹¹ These include political, technical, economic and social barriers to renewable energy.

water pollution, land-use planning and regulation; and environmental decision-making. How does environmental law affect the conception, development and deployment of sustainable renewable energy, if at all? Is there a causal relationship or simply a subject matter connection given the sources of energy noted above? That energy law is linked to environmental law has often been assumed, but there are very few *legal* studies to unravel the nature of the relationship between these two fields of regulation in South Africa.¹² In one foreign study, it is posited that while environmental law does not necessarily impede transition to renewable energy, it equally does nothing explicitly to incentivise that transition.¹³

A fragmented regulatory framework

Fragmentation at home

At a higher regulatory level, the fragmentation of environmental law affects the regulation of the energy sector. With the intricate, but natural, connection between the subject matter of energy and environmental law, it is not surprising that any fragmentation, within and between these two fields of law, can adversely affect regulatory outcomes. Fragmentation within environmental law impedes not only environmental regulation, but also the regulation of primary energy resources that are part of natural resources.¹⁴ The consequences of the internal fragmentation of environmental law are to externally disrupt the development of an ideal renewable energy law in South Africa.

Before 1994, South Africa hardly had any environmental legislation except the ineffective Environment Conservation Act 1989. With the new 1996 constitutional dispensation, extensive reforms began ushering in sustainable development and other modern principles of environmental management to underpin law and policy.¹⁵ However, this reform of environmental law has not been fully harmonised with legal developments in the energy sector, yet the former affects the natural resources available for energy generation. In particular, efforts to anchor the transition to sustainable energy through environmental planning and pollution control have not yet yielded good results.¹⁶

¹² Joseph Tomain, *Ending Dirty Energy Policy: Prelude to Climate Change* (Cambridge University Press 2011) 12–13: ‘When we speak of energy, we are also speaking about the natural resources used in its production – energy and natural resources are inextricably linked throughout the fuel cycle from exploration to extraction to end use and disposal ... Energy laws, policies and regulations, then, should not ignore the environmental effects that occur throughout the fuel cycle.’

¹³ Amy J Wildermuth, ‘Is Environmental Law a Barrier to Emerging Alternative Energy Sources?’ (2010) 46 *Idaho Law Review* 509, 511.

¹⁴ Uma Outka, ‘Environmental Law and Fossil Fuels: Barriers to Renewable Energy’ (2012) 65 *Vanderbilt Law Review* 1680, 1682; see also Kotzé (n 6 above), 117 (summarising the multiple and debilitating effects of fragmentation leading to bad environmental governance. These include ‘ineffective and insufficient governance efforts, improper use of governance mechanisms, bureaucracy, turf protection, lack of human and financial resources, lack of co-ordination and co-operation, insufficient expertise, high turnover rate of officials and a loss of institutional memory, duplication and overlap of governance efforts, and a lack of accountability and responsibility’).

¹⁵ *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* 2004 (5) SA 124 (W) 144A–B; *Director: Mineral Development, Gauteng Region and another v Save the Vaal Environment and Others* 1999 (2) SA 709 (SCA) 719C–D.

¹⁶ Renewable energy sources, while widely regarded as environmentally sustainable, are viewed with circumspection in countries that have abundant coal, the burning of which makes better economic sense (economically sustainable). Abruptly adopting renewables is seen as unsustainable as they are perceived to be still more expensive. This distorted view is fast changing with the realisation of the level of subsidies that go into fossil fuels and the externalisation of social and environmental costs.

Reform of the energy sector legal framework has focused mainly on supply-side issues – electrification, access and affordability, energy security and reliability of supply – while ignoring demand-side and environmental sustainability aspects.¹⁷ In the South African context, these are real priorities, yet they should not overshadow the long-term effects of relying on coal.

Admittedly, South Africa has made huge strides in promoting regulatory synergy within environmental law, especially through framework legislation and aligned sectoral legislation. However, energy development and planning should take place with the modern environmental standards, norms and procedures in this modern environmental legislation in mind. Any incoherence between energy and environmental law can disrupt policy implementation leading to a lack of inter-ministerial and inter-departmental cooperation. Mining, especially coal mining, had been an exemplar of this fragmentation until 2014 when the Department of Environmental Affairs and that of Mineral Resources concluded a prolonged process to come up with the One Environmental System – albeit narrowly concerned with environmental management of mining activities.¹⁸ The One Environmental System does not pretend to address fragmentation between energy and environmental law as such, which must be addressed to promote sustainable energy as contended in this paper.

Substantive energy and environmental legislation has developed separately, while the institutions have also been set up in silos that have nurtured a lack of sectoral integration in terms of implementation and planning. Until recently, the Department of Environmental Affairs and the Department of Energy did not see each other as having a common objective or mandate, namely to promote the sustainable use of natural resources.¹⁹ The conjoining of the Department of Energy and Mineral Resources until 2009 made the sectoral fragmentation worse as mining is regarded as one of the most potent threats to environmental sustainability. The reorganisation of the departments in 2009 improved the situation in that the Department of Mineral Resources is now a standalone department and has since finalised a unified authorisation system with the Department of Environmental Affairs.²⁰ The regulation of water resources and issuing of water use licences remain firmly grounded in the Department of Water and Sanitation with a requirement to synchronise timeframes.²¹

The remaining fragmentation between environmental and energy law is unsurprising given the historically tangential objectives of the two fields of law. Whereas environmental law aims to promote environmental protection and conservation and to prevent pollution, energy law is aimed at facilitating growth of the country's

17 Greg Ruiters, 'Free Basic Electricity in South Africa: A Strategy for Helping or Containing the Poor' in David McDonald (ed), *Electric Capitalism: Recolonising Africa on the Power Grid* (Routledge 2009) 248, 249.

18 For a detailed analysis of this system, which was finalised in 2014, see Tracy-Lynn Humby, 'One Environmental System: Aligning the Laws on the Environmental Management of Mining in South Africa' (2015) 33(2) *Journal of Energy & Natural Resources Law* 110, especially at 123 (explaining the process leading to the 2014 final legal amendments). While an encouraging achievement, in practice, this system is still new and has not had any observable impact.

19 The Department of Energy is too focused on promoting access to affordable energy (from cheap fossil sources), while Environmental Affairs worry much about pollution prevention, from fossil fuel burning, climate change mitigation, sustainable development and greening the South African economy.

20 The reform process that started in 2008 has now been concluded with the enactment of the National Environmental Management Laws Amendment Act 25 of 2014 GN 448 in *Government Gazette* 37713 of 2 June 2014 (in effect 3 September 2014) read with the National Water Amendment Act 27 of 2014.

21 National Water Act, s 41 (5) (added by s 3(b) of Act 27 of 2014).

economy by converting more primary energy natural resources to electricity, liquid fuels and gas. Internationally and in South Africa, energy law is economic in nature and focus, thus naturally bringing it into conflict with environmental law, which tends towards constraining economic activities.²² Most of the recent laws in both fields are embedded in the concept of sustainable development, as enshrined in section 24(b) of the Constitution. However, environmental law has done more to implement sustainable development than energy law. Hence the procurement of renewable energy in South Africa is happening alongside unhindered procurement of more fossil-based and nuclear energy.²³ In the long term, this is locking-in energy technologies that environmental and climate change regulation are aiming to dislodge.

The National Environmental Management Act 108 of 1998 (NEMA) is the primary environmental statute enacted with the express objective of removing the regulatory and institutional fragmentation noted above. As overarching framework legislation, the NEMA sets out the fundamental structures and principles for regulating natural resources and the effects of development activities on the environment.²⁴ In the context of this paper, the NEMA contains provisions that are key to sustainable development and thus renewable energy. For instance, the environmental authorisation process has the potential to promote sustainable energy sources, while gradually discouraging GHG-emitting fossil sources. The procedure requires an application of the precautionary principle, the principle of prevention, and sustainable use of non-renewable resources²⁵ that can incrementally make it unattractive to deploy fossil-based power plants.

Despite its potential usefulness, the environmental authorisation process (otherwise popularly called the Environmental Impact Assessment (EIA)) has often been criticised as an obstructive process for urgent and time-bound energy development projects.²⁶ In this respect, environmental law affects not only renewable energy particularly, but all forms of energy. This is only one of the many ways in which environmental regulation affects energy development. Additionally, several permits and authorisation are required for a sustainable renewable energy project under several environmental and planning statutes, and securing these remains a fragmented and fraught ordeal.²⁷ The entrenched fossil fuel industry has established channels to secure such authorisation without the same level of bureaucracy. The regulators are accustomed to handling such processes. These fragmented regimes of authorisation disable environmental law from promoting sustainable energy.

Existing environmental and energy laws indirectly influence the transition to sustainable renewable energy by procedurally entrenching and advantaging fossil-based electricity sources.²⁸ Among other things, this is achieved through indirect

22 Davies (n 1 above), 480.

23 In 2012, the Minister issued an RFI for 60GW Coal Baseload from IPPs. The government has also recently confirmed its determination to procure more electricity from nuclear.

24 Despite these noble aims, an assessment ten years into its implementation revealed that gaps still remain in making the NEMA principles and strategy effective; however, by 2014 jurisprudence and further legal reforms had ensured the NEMA is largely effective; see Nigel Rossouw and Keith Wiseman, 'Learning from the Implementation of Environmental Public Policy Instruments after the First Ten Years of Democracy in South Africa' (2004) 22 *Impact Assessment and Project Appraisal* 131.

25 All these are among the principles of environmental management in the NEMA, s 4.

26 Francois Retief and Bennett Chabalala, 'The Cost of Environmental Impact Assessment (EIA) in South Africa' (2009) 11(1) *Journal of Environmental Assessment Policy and Management* 51.

27 Depending on type of energy source, location and assessed environmental impacts, an energy generation project could require seven to ten authorisations from various authorities.

28 Wildermuth (n 13 above), 531.

subsidisation of fossil fuels,²⁹ for instance by allowing externalisation of environmental costs as reported by the International Monetary Fund (IMF).³⁰ The IMF Working Paper clearly demonstrates the linkages between energy subsidies (mainly going towards fossil fuels) and persistent atmospheric pollution leading to climate change and harm to human health – by definition an unsustainable situation. Environmental law aids this process through inadequate regulation of the energy value chain, focusing on end-of-pipe pollution control without attempting to regulate inputs into the electricity production process seriously. This domestic disconnection between energy and environmental law reflects the global status of energy law and its relationship to international environmental law.

Fragmentation at the international level

Energy law has developed outside environmental regulation with serious consequences³¹ to the potential of pollution control legislation to promote sustainable energy sources that concomitantly address GHG emission from the industry. This applies with full force to the South African regulatory architecture as demonstrated above. The domestic regulatory fragmentation between energy law and environmental law, while reflecting the international governance situation,³² flies past recent attempts internationally to link, substantively, sustainable development to the availability of sustainable, reliable and secure energy sources.³³ There is no single international treaty on energy law or a treaty linking energy and environmental issues, but at a normative level many international initiatives, especially ‘soft law’ instruments, recognise the interdependence between energy and sustainable development,³⁴ the latter being a norm of international environmental law. United Nations agencies whose activities implicate energy resources agree that sustainable energy is a *sine qua non* for poverty alleviation, sustainable development and economic growth.³⁵

²⁹ A recent IMF Working Paper found that: ‘Post-tax energy subsidies are dramatically higher than previously estimated – \$4.9 trillion (6.5 percent of global GDP) in 2013, and projected to reach \$5.3 trillion (6.5 percent of global GDP) in 2015 ... Eliminating post-tax subsidies in 2015 could raise government revenue by \$2.9 trillion (3.6 percent of global GDP), cut global CO₂ emissions by more than 20 percent, and cut pre-mature air pollution deaths by more than half’. See David Coody and others, ‘How Large Are Global Energy Subsidies?’ (2015) IMF Working Paper WP/15/105, 6–7.

³⁰ Ibid, see also Richard L Ottinger and others, *Environmental Costs of Electricity* (Oceana Publications 1990); Eric Martinot and others, ‘Renewable Energy Futures: Targets, Scenarios, and Pathways’ (2007) 32 *Annual Review Environmental Resource* 205; James Blignaut and others, ‘The External Cost of Coal-fired Power Generation: The Case of Kusile’ (29 September 2011) 5–6. Available at www.greenpeace.org/africa/Global/africa/publications/coal/FULL%20SCIENTIFIC%20PAPER%20139%20pages.pdf, last accessed 7 April 2015.

³¹ Amy J Wildermuth, ‘The Next Step: The Integration of Energy Law and Environmental Law’ (2011) 31 *Utah Environmental Law Review* 369, 380; Tomain (n 12 above), 12. The proposed use of economic incentives usually managed by treasury departments adds to the institutional fragmentation: see Sampa and Kordunsky (n 8 above), 10.

³² Rafael Leal-Arcas, Andrew Filis and Ehab S Abu Gosh, *International Energy Governance: Selected Legal Issues* (Edward Elgar 2014) 19, noting that global energy governance is currently ‘fragmented and multi-layered’.

³³ UNGA 6th Session Resolution on ‘Promotion of New and Renewable Sources of Energy, Including the Implementation of the World Solar Programme’ Resolution A/RES/60/199 (13 March 2006).

³⁴ See Art II of the A/RES/36/193 of 17 December 1981 and A/RES/37/250 of 21 December 1982 on the Immediate Implementation of the Nairobi Programme of Action for the Development and Utilization of New and Renewable Sources of Energy.

³⁵ Christopher Flavin and Molly Hull Aeck, ‘The Potential Role of Renewable Energy in Meeting the Millennium Development Goals’ (2005) REN21 Network, Worldwatch Institute, 9 and 12.

Invariably, international policy documents link sustainability and access to reliable, affordable energy.³⁶ A key running theme of the UN Commission on Sustainable Development (UNCSD) is to understand the role of energy in promoting sustainability and Agenda 21 goals, especially in developing countries. This theme was recently expanded to include the new strategy of ‘green economy’ or ‘green growth’.³⁷ A green economy was one of the two themes of the Rio+20 Conference in 2012. A green economy is an alternative pathway to sustainable development that sees economic growth as essential to such development.³⁸ The green economy presupposes greening the energy sector by shifting to low-carbon energy sources, which requires a holistic approach to energy and environmental regulation.

The international recognition of the connection between energy and sustainable development shows that fossil sources of energy are part of the problem of unsustainable patterns of development.³⁹ Similarly, this trend with global institutions links energy to the achievement of the Millennium Development Goals (MDGs)⁴⁰ through a low-carbon economy. It is acknowledged that although access to energy is not one of the goals, availability of energy is essential for the achievement of many of the MDGs and sustainable development.⁴¹ The MDGs on poverty alleviation, education, health and HIV, and global environmental and sustainable development objectives all require access to energy to be realised fully.⁴² This recognition is an imperative for integrating energy and environmental regulation for sustainability at both national and international levels. The global perspectives on sustainable energy and unsustainable fossil subsidies linked to climate change (atmospheric pollution) issues all underscore that the fragmentation or disconnection between energy and environmental (read sustainable development) law could be alleviated by regulatory interventions, hence the focus of this paper.⁴³

³⁶ United Nations Conference on New and Renewable Sources of Energy in Nairobi A/RES/36/193 (17 December 1981).

³⁷ UNCSD Outcome Document, ‘The Future We Want’ A/RES/66/288.

³⁸ Eckard Rehbinder, ‘Contribution to the Development of Environmental Law’ (2012) 42 *Environmental Policy and Law* 210, 211; for fuller discussion see Tumai Murombo, ‘Green Economy, Sustainable Development and the Constitution’ in H Corder, V Federico and R Orru (eds), *The Quest for Constitutionalism: South Africa since 1994* (Ashgate 2014) 227–40.

³⁹ Renate Schubert, Julia Blasch and Kristin Hoffmann, ‘Environmental Protection, Energy Policy and Poverty Reduction – Synergies of an Integrated Approach’ (2007) IED Working Paper 1, 4–5.

⁴⁰ Flavin and Aeck (n 35 above), 9 and 12; The MDG goals are: (1) eradicate extreme poverty and hunger; (2) achieve universal primary education; (3) promote gender equality and empower women; (4) reduce child mortality; (5) improve maternal health; (6) combat HIV/AIDS, malaria and other diseases; (7) ensure environmental sustainability; and (8) develop global partnerships.

⁴¹ Report on ‘Energy for Sustainable Development’, African Regional Implementation Review for the 14th Session of the Commission on Sustainable Development (CSD-14), Economic Commission for Africa (UNECA) on behalf of the Joint Secretariat UNECA, UNEP, UNIDO, UNDP, ADB and NEPAD Secretariat, 6. UN Energy, ‘The Energy Challenge for Achieving the Millennium Development Goals’ (2005) 6–7. ‘Energy for a Sustainable Future’ Report by the Secretary-General’s Advisory Group on Energy and Climate Change (AGECC) (New York 2010); the High Level Forum that replaced the UNCSD is currently working on principles that will shape the sustainable development agenda beyond 2015, see UNGA background document, ‘Transforming Our World: The 2030 Agenda for Sustainable Development’, available at <https://sustainabledevelopment.un.org/content/documents/7891Transforming%20Our%20World.pdf>, last accessed 12 August 2015, prepared in preparation for the September 2015 summit at which the post-2015 sustainable development goals will be discussed.

⁴² UN Energy, ‘The Energy Challenge for Achieving the Millennium Development Goals’ (2005) 18.

⁴³ *Ibid.*, 9; Report on ‘Energy for Sustainable Development’ (n 41 above), 18.

Summing up on the disconnection between energy and environmental law Davies submits that:

such specific policy reforms (cleaner fuels and renewable energy), as necessary as they are, do not take into account an overarching problem, a problem that may be their undoing if left unaddressed. *Until the disjunction between energy and environmental law is repaired, one of the most fundamental barriers to a new and different energy future remains.* Changing our course requires admitting our problem: Separating discussions of energy and environment works only to help us live the lie, to enable our addiction [to fossil fuels].⁴⁴ [emphasis added]

Keeping energy and environmental law disjointed entrenches the established energy industry that heavily relies on fossil fuels.⁴⁵ Despite the existence of some enabling provisions in energy law, the relevant government departments have not earnestly harnessed those powers. Existing energy laws institutionally and structurally bolster the conventional sources, while making it nearly impossible for sustainable sources to enter the market. The Renewable Energy Independent Power Producer Procurement Programme (REI4P)⁴⁶ is driven more by the insecurity situation than the express desire to mainstream renewables, hence the focus on more additional coal procurement. The entrenchment happens through various strategies, such as regulatory exemptions and exceptions, economic reification and propagation of a sense of indispensability for fossil fuels.⁴⁷

Assumptions underpinning the call to integration

The assertion that energy and environmental regulation must be integrated is underpinned by certain legal assumptions. First, this assumes that the integration or alignment of energy and environmental laws is necessary for the transition to sustainable renewable energy. Secondly, that such an alignment is possible and, lastly, that the alignment is in the interests of energy and environmental sustainability. Questions that inform an understanding of these assumptions include whether or not environmental law is a barrier to an effective transition to sustainable renewable energy.⁴⁸ The argument that energy law is at the confluence of environment and development is beyond doubt as demonstrated by the analysis in the preceding section.⁴⁹ In this section I address the questions organically.

Most of our energy sources, primary or secondary, come from the environment, namely fossils – coal, oil, gas – and renewables are all generated through natural processes (the energy cycle and the food web).⁵⁰ It has thus been concluded that:

The connection between energy and the environment has been the subject of many studies and it is sometimes possible to establish a ‘cause and effect’ relationship

⁴⁴ Davies (n 1 above), 473, 475.

⁴⁵ *Ibid.*

⁴⁶ IPP Procurement Programme, 2012 GN 1074 in *Government Gazette* 36005 of 19 December 2012, Renewable Energy Independent Power Producer Procurement Programme www.ipprenewables.co.za accessed 12 August 2015.

⁴⁷ Tomain (n 12 above), 127.

⁴⁸ Wildermuth (n 13 above), 509 (grappling at length with this question in the US context).

⁴⁹ Marla E Mansfield, *Energy Policy: The REEL World: Cases and Materials on Resources, Energy, and Environmental Law* (Carolina Academic Press 2001) 378 (‘energy is central to [the environmental debate]’ – mining of natural resources for energy purposes is the code linking energy and environmental issues as well as waste from energy processes).

⁵⁰ Tomain (n 12 above), 13.

between energy use and environmental damage ... A more recent example is the soil degradation and desertification observed in some areas of Africa, due to the use of fuel wood as a source of energy.⁵¹

This natural intertwinement between energy and natural resources translates into a regulatory complex where laws that govern energy impinge on laws that regulate natural resources. In a regulatory loop, environmental laws also affect energy laws.

Arguably, environmental regulation directly affects the degree to which renewable sources are seen as a viable option relative to fossil sources. Environmental regulation of water and air pollution provides potentially negative incentives to enforce a shift towards renewable energy. Hence, the argument that:

Today, the world's energy supply is largely based on fossil fuels. These sources of energy will not last forever and have proven to be one of the main causes of our environmental problems. Environmental impacts of energy use are not new but they are increasingly well known. *As links between energy use and global environmental problems such as climate change are widely acknowledged, reliance on renewable energy is not only possible, desirable and necessary, it is an imperative.*⁵² [emphasis added]

This directly responds to the second assumption, that it is possible and desirable to shift towards integration of energy and environmental frameworks. Creating coherence through regulatory synergy between these two fields undoubtedly enables traditional energy law to be infused with modern principles of environmental management that promote sustainability.

A good illustration of the entanglement between energy and natural resources issues is the current debate in South Africa relating to coal mining in environmentally sensitive areas. Of course, coal is required not only to produce electricity, but also for other industrial uses; nevertheless 89 per cent of our total energy comes from burning coal⁵³ and any slight disruption of the coal supply chain could result in energy supply and demand mismatch as witnessed in 2008 and recently in 2015. Specifically, of this total energy consumption, 93 per cent of electric energy comes from burning coal.⁵⁴ This certainly puts beyond doubt the proposition that environmental laws should be aligned with energy laws to not only control pollution, but also regulate sources of energy.

A number of environmental laws have been promulgated since 1998 whose purpose is to address these contradictions and conflicts in how we are using our natural resources (both land and the minerals beneath). In the meantime, energy regulation has been focused on energy security⁵⁵ and promoting access to affordable energy in an outdated fossil-entrenching framework. This entanglement of energy, the environment and sustainable development entails the necessity to integrate these at a regulatory level. Sustainable energy can be effectively promoted when energy and environmental laws are not fragmented and environmental standards guide the development of energy policies.

51 José Goldemberg, *Energy, Environment and Development* (Earthscan 1996) 1, 181.

52 European Renewable Energy Council (EREC), *Renewable Energy in Europe: Markets, Trends and Technologies* (2nd edn, Earthscan 2010) 3.

53 Hans Strydom and Nicky King (eds), *Environmental Management in South Africa* (Juta 2009), 766.

54 *Ibid.*, 768–69; this means that the majority of South African coal is produced for the electric energy sector.

55 Barry Barton, 'Energy Security in the Twenty-First Century' in Barry Barton and others (eds), *Energy Security: Managing Risk in a Dynamic Legal and Regulatory Environment* (Oxford University Press 2004) 457, 459 (defining energy security).

Repercussions of regulatory fragmentation for energy sustainability

Laws that regulate both primary and secondary sources of energy are included in the definition of energy law in this study,⁵⁶ although, this study is limited to the electricity sector.⁵⁷ Tomain argues that '[e]nergy laws, policies, and regulations, then, should not ignore the environmental effects that occur throughout the fuel cycle. However, for nearly four decades, energy and environmental laws have been treated as separate disciplines and have been largely uncoordinated.'⁵⁸ Thus, mining legislation is regarded as part of energy law in this study because the stage of primary resource extraction is the level at which sustainability could be mainstreamed into the coal value chain. This paper does not, however, attempt a detailed tangential discussion of how mining makes fossil fuels unsustainable, this being a passing illustration of how environmental law fails to adequately regulate energy choices with adverse results. It is, however, at this primary level that regulators should begin to address the impediments to revolutionising entrenched primary sources of energy.

This approach is ideal as it comports with the argument that environmental regulation enters the energy production chain at the wrong stage, namely only to control emissions.⁵⁹ Environmental law does not adequately regulate the extraction and processing of primary resources for energy, at least as in directly regulating how, and in what quantities, the primary resources are exploited. Wildermuth aptly concludes that such a 'waste-only approach has immense implications for energy use. This means that environmental law is largely unconcerned with the sources used to generate energy. It never requires an examination of the whole process.'⁶⁰ Clearly, therefore, environmental law is oblivious to the regulation of the extraction of coal and gas and uranium, apart from the EIA process. Perhaps the assumption is that mining law must address that phase, while energy law regulates aspects of generation and production stages. This is the quintessence of the detachment of energy law from environmental law. In South Africa, recent efforts to subject primary energy sources extraction activities to environmental regulation are gaining traction, despite the hegemonic intransigence of the extractive industry supported by the Department of Mineral Resources.⁶¹ This has been exacerbated by the apparent narrow focus of energy law on technical regulation, which ignores the complete value chain of energy production from extraction of primary resources to the production of energy.

In South Africa, energy, including renewable energy, is regulated through sector-defined legislation. Various statutes govern South African energy sectors, namely liquid fuels, nuclear energy, electricity and gas reticulation,⁶² while others create the

⁵⁶ While current energy legislation does not incorporate the cradle-to-grave principle, the study argues that any legislation that deals with the extraction, production and processing of primary energy sources is in fact 'energy law' and plays a potential role in the green transition.

⁵⁷ This encompasses generation, transmission and distribution and focuses on aspects of these processes that are relevant to renewable energy only.

⁵⁸ Tomain (n 12 above), 12–13.

⁵⁹ Wildermuth (n 13 above), 528; Adrian J Bradbrook, 'Energy Law: The Neglected Aspect of Environmental Law' (1993) 19 *Melbourne University Law Review* 1, 3 ('Environmental law has traditionally focused on the adverse effects of energy use, but has largely ignored the energy source itself.').

⁶⁰ Wildermuth (n 13 above), 528.

⁶¹ The intransigence is illustrated by the department's position in *Maccsand (Pty) Ltd v City of Cape Town* 2012 (4) SA 181 (CC) and *Le Sueur and others v Ethekwini Municipality* HC Durban 2013; Mapungubwe CoAL Africa, NEMA and MPRD Amendment Acts, CER Mining exemption s 48 MPRDA; Tracy-Lynn Humby, 'The Environmental Management Programme: Legislative Design, Administrative Practice and Environmental Activism' (2013) 130 *South African Law Journal* 60.

⁶² Hence, the ministry used to be called the Ministry of Mines and Energy.

institutional framework for energy governance.⁶³ Energy law and policy in South Africa developed with the onset of sustainable development and the new age environmentalism personified in section 24 of the Constitution and the NEMA.⁶⁴ However, it is still a struggle to disentangle energy law and policy-making from the dominance of fossil sources of energy. Indeed, the National Energy Act 34 of 2008 ('National Energy Act') talks of sustainable development, but energy legislation⁶⁵ remains largely technical and aimed at facilitating resource extraction with little regard to sustainability. None of this legislation regulates the manner in which the primary energy feedstock is mined or extracted from the environment.

A number of energy policy documents shaped the current legal framework for energy.⁶⁶ Equally, the government has designed myriad environmental laws, policies and guidelines. Throughout, the government struggled to articulate any effective law on renewable energy, apart from the outdated White Papers, more than a decade old now without any dedicated legislation in sight. These existing energy laws cannot effectively promote renewable technologies. If anything, they are the bedrock on which conventional sources of energy and the established fossil-based energy sector has thrived over the past centuries.⁶⁷ The preceding section of this study demonstrated this. Energy regulators need to review the energy policy environment from the perspective of promoting sustainable energy, in substance not in form and lofty statute preambles. In the next section I explore integrative spaces that provide the opportunity to address the problem of fragmentation, especially opportunities for integration in emerging and existing energy and environmental law and policies.

Regulatory spaces to integrate energy and environmental law in South Africa

Energy policy development as vehicle to mainstream environmental norms and standards

The White Paper on Energy Policy for South Africa of 1998 sets the future vision for South Africa's energy needs, in a very challenging context. This context included the

63 National Energy Regulator Act 40 of 2004 (NERSA); Central Energy Fund Act 38 of 1997 as amended, National Nuclear Regulator Act 47 of 1999 (NNR), National Energy Act 34 of 2008 (SANEDI).

64 Before 1994 there were several pieces of sector and issue specific mining and natural resources legislation that were technical and most aimed at enabling resource exploitation in line with colonial ideology. These include the Environment Conservation Act 73 of 1989, Water Act 54 of 1956, Forests Act 122 of 1984, Minerals Act 50 of 1991, Conservation of Agricultural Resources Act, Hazardous Substances Act 15 of 1973, Atmospheric Pollution Prevention Act 45 of 1965 and the National Parks Act 57 of 1976.

65 This includes chiefly the Electricity Regulation Act 4 of 2006; the National Energy Act 34 of 2008; the National Energy Regulator Act (NERSA) 40 of 2004; Eskom Conversion Act 13 of 2001; and policy papers like the White Paper on the Renewable Energy Policy of the Republic of South Africa GN 513 in *Government Gazette* 26169 of 14 May 2004, 43 (Renewables White Paper); the White Paper on the Energy Policy of the Republic of South Africa (1998) (Energy White Paper) GN 3007 in *Government Gazette* 19606 of 17 December 1998; and the Electricity Regulations on the Integrated Resources Plans 2010–2030 GN R400 in *Government Gazette* 34263 of 6 May 2011 (Integrated Resource Plan 2) and the National Climate Change Response White Paper (Climate Change White Paper) GN 757 in *Government Gazette* 34695 of 19 October 2011. This also includes relevant regulations made under the identified legislation.

66 The Energy White Paper and the development plans.

67 Tomain (n 12 above), 127 ('Fossil fuels have established a supporting regulatory structure and bureaucracy: and, as public choice theory tells us, interest group politics make it difficult to change policy direction as incumbents enjoy the competitive advantages that access yields. In short, fossil fuel favouritism is firmly entrenched in our political and regulatory cultures').

'economic, social and environmental policies and forces; the nature of the South African energy sector and its interlinkages with broader forces; and what the sector needs to achieve overall policy goals'.⁶⁸ The Energy White Paper highlighted some of the persistent challenges confronting energy regulation in South Africa. In particular, the first aspect continues to be a contentious issue, namely to what extent can South Africa delay its constitutional socio-economic promises and global commitments to reduce climate change and promote sustainability.⁶⁹ Should South Africa be exploiting abundant coal to drive economic development, deliver on social goals, and then later on join the international community in the fight against climate change? Views on these issues are divided, with a growing chorus of researchers and activists who argue that the country can afford to downscale on coal and immediately upscale on renewable energy.⁷⁰

The uncertainty regarding which objectives to prioritise has undoubtedly shaped the approach of the government to renewable energy. At the policy level, there is a deep-seated disjuncture between energy and environmental law, as demonstrated in the preceding sections of this paper. The result is the slow pace towards developing a certain and clear-cut law on renewable and sustainable energy. While environmental laws can bolster arguments for renewable energy, existing environmental laws say little directly about sustainable energy, focusing mainly on promoting ecological sustainability broadly. By focusing heavily on access to affordable energy and energy security, in a way, the 1998 Energy White Paper was a missed opportunity to integrate energy and environmental law.

The five key objectives of the Energy White Paper are to: increase access to affordable energy; improve energy governance; stimulate economic development; manage energy-related environmental and health effects; and secure supply through diversity.⁷¹ While these objectives have implications for traditional environmental health concerns, the Energy White Paper and the strategies adopted are not informed by a sustainable development paradigm. Development policies of the government of the day took priority.⁷² It was only in 2004 that the Energy White Paper was augmented by the White Paper on Renewable Energy to focus specifically on developing a policy on renewable energy in South Africa. While the Energy White Paper spawned subsequent legislation, nothing concrete has yet come out of the Renewables White Paper.⁷³ The Energy White Paper did not only deal with conventional energy carriers, but also contained negligible policy objectives provisions on renewable energy. The Energy White

⁶⁸ Energy White Paper (n 65 above), 6–7.

⁶⁹ These global commitments are seen from the suite of environmental legislation enacted since 1998 in pursuit of sustainable development.

⁷⁰ 'Natural Gas as a Viable Solution for South Africa's Energy Woes' *Mail and Guardian* (Johannesburg 12 November 2010); <http://mg.co.za/article/2010-11-12-natural-gas-as-a-viable-solution-for-south-africas-energy-woes> accessed 29 September 2015.; Davies (n 1 above); World Wide Fund for Nature (WWF), '50% by 2030: Renewable Energy in a Just Transition to Sustainable Electricity Supply' (*Energy Review*, WWF 2010).

⁷¹ Renewables White Paper (n 65 above), 8–9.

⁷² For how these development policies affected the electricity sector see Stephen Greenberg, 'Market Liberalisation and Continental Expansion: The Repositioning of Eskom in Post-apartheid South Africa' in McDonald (n 17 above), 73; Leonard Gentle, 'Eskom to Eskom: From Racial Keynesian Capitalism to Neo-liberalism (1910–1994)' in McDonald (n 17 above), 50, 67–68. It is not expected the Renewables White Paper can support the agenda underlying the National Development Plan (NDP) or the New Growth Path policies.

⁷³ Except perhaps the National Energy Act, which provides for sustainable development, but, beyond a mere statement of object, does not articulate strategies to ensure sustainable energy, apart from integrated energy planning.

Paper therefore carries little value in the formulation of legal policy to facilitate integration of the fractures between energy and environmental law. If the Energy White Paper of 1998 left this policy gap, the question then is whether the Renewables White Paper of 2004 cured this policy gap by providing such an integrating regulatory space.

From the White Paper on Renewable Energy to the National Development Plan

It is important to understand the context of the Renewables White Paper, especially the global environmental developments to show the policy shifts from 1998 to 2003.⁷⁴ An interesting contrast is the treatment of climate change and the international imperatives for sustainable renewable energy in both White Papers. Whereas the Energy White Paper made a cursory mention of global GHG emissions and made no specific mention of the need for South Africa to work in the context of the UN Framework Convention on Climate Change (UNFCCC),⁷⁵ the Renewables White Paper extensively discusses the urgency of the transition to sustainable development through renewable energy as a mitigation measure.⁷⁶ It is in this respect that the Renewables White Paper represented a turning point in the fragmented approach to energy and environmental issues in South Africa. Taking a cue from developments in environmental law, a conscious effort was made to ground the need to promote renewable energy sources in the concept of sustainable development as enshrined in section 24 of the Constitution.⁷⁷ The paper clearly emphasises that:

[r]enewable energy that is produced from sustainable natural sources will contribute to sustainable development. As most of the sources are indigenous and naturally available, security of energy supply is improved and not disrupted by short-term international crises.⁷⁸

This is the most significant element of the Renewables White Paper for this study; it directly confirms the complementarity between sustainable development, renewable energy and the international context. Unfortunately, the ‘hard’ energy laws do not carry forward this explicit grounding of energy regulation in environmental sustainability.

The main objective of the Renewables White Paper is ‘to create the conditions for the development and commercial implementation of renewable technologies’ in South Africa’s energy mix with specific targets aimed at energy sustainability.⁷⁹ This objective is articulated in the context of the global movement towards sustainability in the energy sector.⁸⁰ This was inevitable, as by 2004 South Africa had vastly revised its environmental laws with sustainable development becoming foundational to legislation

⁷⁴ The environmental and energy landscapes have changed since 2003, both locally and internationally. The electricity profile of South Africa has changed beyond what was contemplated in the Renewables White Paper. The year 2000 saw agreement on the MDGs while South Africa hosted the World Summit on Sustainable Development (WSSD) in 2002 at which energy became more central to sustainable development goals.

⁷⁵ (1992) 31 ILM 849.

⁷⁶ Renewables White Paper (n 65 above), 43.

⁷⁷ Renewables White Paper (n 65 above), 26 (the paper expressly incorporates the conception of sustainable development as defined in the National Environmental Management Act – thus creating direct synergies with environmental law).

⁷⁸ *Ibid.*

⁷⁹ *Ibid.*, the 10,000 GWh of renewables by 2013 was never met; see Anton Eberhard, Joel Kolker and James Leigland, *South Africa’s Renewable Energy IPP Procurement Program: Success Factors and Lessons* (World Bank 2014) 6.

⁸⁰ World Energy Council, *World Energy Trilemma: Time to Get Real – the Case for Sustainable Energy Investment* (World Energy Council 2013); *World Energy Outlook 2014* (IEA 2014).

and regulatory policy.⁸¹ Taking stock of its energy industry policies and the future direction of energy development, South Africa realised that section 24 of the Constitution could not be fulfilled without making earnest efforts to develop ecologically sustainable energy sources as part of the greater energy development strategy.⁸²

Internationally, South Africa saw that her global commitments under international climate change treaties, while not requiring her to reduce GHG emissions, had potential to place her at a competitive disadvantage if she did nothing about the energy industry and its contribution to global GHG emissions.⁸³ Indeed, the environmental rights in the Constitution grounded in sustainable development simply meant that the energy sector could not be ignored as a cause of environmental pollution and the emission of GHGs. However, that the reality of widespread poverty and lack of access to energy on the ground demanded cheap and affordable energy, created a policy dilemma for the country.⁸⁴ This dilemma to this day defines the tendency to prioritise energy security ahead of energy sustainability, thereby depriving the Renewables White Paper of any opportunity to translate its theoretical integrative thrust into regulatory practice.

A more fundamental underlying theme of the Renewables White Paper relevant to this paper is the need to develop an enabling legal environment to promote renewable energy. The legal framework is expected to create a regulatory environment that can promote sustainable energy sources. This objective is provided in Strategic Objective No 2 whose goal is '[t]o develop, implement, maintain and continuously improve an effective legislative system to promote the implementation of renewable energy'.⁸⁵ This objective of the Renewables White Paper is at the convergence of energy and environmental regulation and could be useful in removing regulatory uncertainties.⁸⁶

The absence of specific clear laws in relation to the barriers to sustainable energy is the main obstacle to renewable energy in South Africa.⁸⁷ The World Energy Council in its 2013 World Energy Trilemma report confirms this decisive role of regulatory frameworks by concluding that:

[t]he 'right' risk allocation starts with a coherent energy policy and well-implemented energy regulatory framework to minimise political and regulatory risk. This point was stressed by industry in the 2012 World Energy Trilemma report where it was noted that the best mechanism to drive investment is a stable, predictable policy framework.⁸⁸

Unfortunately, up until 2012 there has been negligible practical progress towards the above strategic goals. A tardy pace towards a low-carbon economy supported by sustainable renewable energy punctuated the development of an enabling renewable energy legal framework. The recent 2012–14 achievements under the REI4P occurred

⁸¹ *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* 2004 (5) SA 124 (W) 144A–B; *Director: Mineral Development, Gauteng Region and another v Save the Vaal Environment and Others* 1999 (2) SA 709 (SCA) 719C–D; Strydom and King (n 53 above).

⁸² Mark Borchers, Megan Euston-Brown and Leila Mahomed, 'Energy Planning in South African Cities' in Peter Droegge (ed), *Urban Energy Transition: From Fossil Fuels to Renewable Power* (Elsevier 2011) 564.

⁸³ South Africa made voluntary commitments at the Copenhagen COP of the UNFCCC and in Durban in 2011.

⁸⁴ Borchers, Euston-Brown and Mahomed (n 82 above), 564.

⁸⁵ Renewables White Paper (n 65 above), 33–34.

⁸⁶ *Ibid.* See also World Energy Council (n 80 above), 12.

⁸⁷ Stephen Karekezi and others, *Renewable Energy Technologies in Africa* (African Energy Policy Research Series, Zed Books 1997) 136–37.

⁸⁸ World Energy Council (n 80 above), 61.

under the Electricity Regulation Act and not as a direct implementation of the Renewables White Paper whose targets had since been missed in 2010.

To achieve its strategic objectives, the Renewables White Paper identifies five guiding principles.⁸⁹ These guiding principles shaped the objectives, strategies and implementation strategies provided for in the Renewables White Paper. The principles are: full cost accounting; equity; global and international cooperation and responsibilities; allocation of functions; and participation.⁹⁰ These key principles echo the principles of environmental management in section 2 of the NEMA. Is this an indication of the desire to synchronise the principles driving environmental sustainability with renewable energy policy? The principles also show how the Renewables White Paper was framed with a view to aligning energy and environmental law and the constitutional exhortation to promote ecologically sustainable socio-economic development in section 24 of the Constitution.

The most relevant of these principles is the *full cost accounting principle*,⁹¹ which is central to a discussion of the fragmentation of energy and environmental law, as it seeks to internalise environmental costs into energy planning and costing. Regulators can only make effective policy choices among different energy carriers or sources when there is full cost accounting of the total costs of each source of energy.⁹² These include indirect social, environmental or ecological costs that are often ignored or discounted as remote and therefore irrelevant costs borne by society.⁹³ Extensive policy studies indicate that the pricing determination for electricity in South Africa has hugely discounted the environmental cost of producing power from fossil fuels.⁹⁴ Current pricing of electricity is therefore clearly based on a subsidised accounting model, which involves externalising (discounting) many of the social and environmental costs of producing energy from fossil fuels.⁹⁵ On the contrary, EIAs and the pricing of renewables show that, as nearly as possible, they take into account the full

⁸⁹ The five guiding principles are called the Essential Elements for Renewable Energy Implementation in the Renewables White Paper (n 65 above), 26.

⁹⁰ *Ibid.*

⁹¹ Defined by Jan Bebbington and others, *Full Cost Accounting: An Agenda for Action* (Certified Accountants Educational Trust 2001) 7–8 as ‘a system which allows current accounting and economic numbers to incorporate all potential/actual costs and benefits into the equation including environmental (and perhaps) social externalities to get the prices right’; see also Paul R Epstein and others, ‘Full Cost Accounting for the Life Cycle of Coal’ (2011) 1219 *Annals of the New York Academy of Sciences* 73, 78–79.

⁹² Epstein (n 91 above); see also Nicolas Antheaume, ‘Valuing External Costs – From Theory to Practice: Implications for Full Cost Environmental Accounting’ (2004) 13 *European Accounting Review* 443, 444; generally, Jan Bebbington and Rob Gray, ‘An Account of Sustainability: Failure, Success and a Reconceptualization’ (2001) *Critical Perspectives on Accounting* 557.

⁹³ Renewables White Paper (n 65 above), 27.

⁹⁴ International Energy Agency (IEA), *The Impact of Global Coal Supply on Worldwide Electricity Prices: Overview and Comparison between Europe, the United States, Australia, Japan, China and South Africa*, Report by the IEA Coal Industry Advisory Board (IEA 2014) 52 (South African electricity prices do not reflect the full economic cost of supplying power); Randall Spalding-Fecher and David Khorommbi Matibe, ‘Electricity and Externalities in South Africa’ (2013) 31(8) *Energy Policy* 724; Business Enterprises, University of Pretoria, ‘The External Cost of Coal-Fired Power Generation: The Case of Kusile’ (2011), available at www.greenpeace.org/africa/Global/africa/publications/coal/FULL%20SCIENTIFIC%20PAPER%20139%20pages.pdf, last accessed 12 August 2015; Yolandi Groenewald, ‘Coal’s Hidden Water Cost to South Africa’ (Commissioned by Greenpeace Africa, 2012), 3.

⁹⁵ Stephan Klasen, ‘Social, Economic, and Environmental Limits for the Newly Enfranchised in South Africa?’ (2002) 50(3) *Economic Development and Cultural Change* 607, 626; Patrik Söderholm and Thomas Sundqvist, ‘Pricing Environmental Externalities in the Power Sector: Ethical Limits and Implications for Social Choice’ (2003) 46 *Ecological Economics* 333, 335 (discussing economic valuation of power generation externalities).

cost of producing energy from the respective sources. This contrasts sharply with electricity pricing under the Multi-Year Price Determination (MYPD)⁹⁶ by the National Energy Regulator of South Africa (NERSA), that focuses more on economic sustainability, protection of the poor and ignores the ecological footprint of the electricity.

The principle of *equity* reiterates a core component of sustainable development,⁹⁷ namely intra- and inter-generational equity. Applying this to the electricity sector, current generations must not exhaust non-renewable primary energy sources⁹⁸ by using alternative sources to enable future generations to access the non-renewable sources.

The principle of *participation* that encourages stakeholder involvement to achieve equitable and effective participation in energy decision-making processes connects to equity and the principle underlying sustainable development. The other principles are *global and international cooperation and responsibilities* and *allocation of functions*. Global and international imperatives, while relevant, have done little to cajole South Africa towards a sustainable renewable energy regime.⁹⁹

Apart from the key principles discussed above, the Renewables White Paper also identifies essential elements for renewable energy. A particularly relevant element is *sustainable development*.¹⁰⁰ This element provides scope for a policy and regulatory approach that addresses the problem of fragmentation. The question remains whether this strategy has worked in practice to promote sustainable energy through the Renewables White Paper. The Renewables White Paper states that, not only is renewable energy green, but it can also eventually contribute to sustainable development.¹⁰¹ While literature indicates a causal connection between energy and economic growth,¹⁰² little by way of empirical evidence exists to show the same nexus between energy and sustainable development – which is not synonymous with economic growth.¹⁰³

A cross-cutting argument of this paper is that sustainable development, when properly implemented, can lead to the development of sustainable energy systems¹⁰⁴ that supports sustainable development rather than unsustainable economic

⁹⁶ NERSA, 'Multi-Year Price Determination (MYPD) Methodology' (2012) read with Eskom, 'Multi Year Price Determination 3 (MYPD3) 2013/2014–2017/2018'.

⁹⁷ Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (3rd edn, Cambridge University Press 2012) 2; Edith Brown Weiss, 'In Fairness to Future Generations' (1989) Resources 83; see also s 2(4)(d) of the NEMA.

⁹⁸ Also included in s 2(4)(v) of the NEMA.

⁹⁹ Kojo Menyah and Yemane Wolde-Rufael, 'Energy Consumption, Pollutant Emissions and Economic Growth in South Africa' (2010) 32(6) *Energy Economics* 1380.

¹⁰⁰ These elements are discussed in detail in the Renewables White Paper (n 65 above), 26.

¹⁰¹ Renewables White Paper (n 65 above), 26.

¹⁰² Nicholas M Odhiambo, 'Electricity Consumption and Economic Growth in South Africa: A Trivariate Causality Test' (2009) 31(5) *Energy Economics* 635, 636–37; generally, Peter Bartelms, *Environment, Growth and Development: The Concepts and Strategies of Sustainability* (Routledge 2002); Nicholas M Odhiambo, 'Energy Consumption, Prices and Economic Growth in Three SSA Countries: A Comparative Study' (2010) 38(5) *Energy Policy* 2463, 2465; Randal Spalding-Fecher, 'Energy and Sustainable Development in South Africa' (2002) *Sustainable Energy Watch* 10/42.

¹⁰³ Kamil Kaygusuz, 'Energy for Sustainable Development: A Case of Developing Countries' (2012) 16(2) *Renewable and Sustainable Energy Reviews* 18; Rashad Cassim and Wendy Jackson, 'Sustainable Development: The Case of Energy in South Africa' Trade and Industrial Policy Strategies (TIPS) (2004).

¹⁰⁴ Catherine Mitchell and Bridget Woodman, 'Regulation and Sustainable Energy Systems' in Robert Baldwin, Martin Cave and Martin Lodge (eds), *The Oxford Handbook of Regulation* (Oxford University Press 2010) 572, 578, define 'sustainable energy systems' as 'one where environmental impacts were minimised in both the short and the long term, and where there is the potential for secure and acceptably priced energy (if not now, then in the future)'.

growth.¹⁰⁵ Framing renewable energy policy in sustainable development assists in promoting other components for the successful implementation of the renewable energy policy. For instance, sustainable development is critical for integrated energy resources planning, integrated decision-making, institutional integration and reducing global pollution.¹⁰⁶

The Renewables White Paper identifies as other essential elements, an *enabling environment*¹⁰⁷ and the development of effective institutional arrangements. A breakthrough on this would be if Eskom, the South African state-owned power utility, was unbundled and its monopoly dispensed with through a restructuring of the electricity supply industry.¹⁰⁸ In terms of generators, the Renewables White Paper states that IPPs could play a significant role, but the necessary legal and regulatory framework must be in place to support their entry into a market where Eskom does not dominate.¹⁰⁹

A glaring omission by the Renewables White Paper in relation to the third essential element is the failure to address the issue of regulatory fragmentation in terms of the ministerial functional fragmentation that is proving to be a barrier to renewable energy. In particular, the Renewables White Paper had to deal with the tension between energy-related ministries and environment-related ministries in terms of policy implementation and the balancing of the country's social, economic and environmental interests.¹¹⁰ This institutional misalignment remains one of the obstacles to renewable energy, and this obstacle, while largely political, can be dealt with through a legal framework that clearly delimits the mandates of government departments whose activities either promote or stymie progress towards sustainable renewable energy.¹¹¹ To prevent conflicts and promote regulatory integration, the constitutional distribution of legislative competences across the three spheres of government on energy issues should be reviewed and refined.¹¹²

If the White Papers represent missed opportunities to integrate energy and environmental laws to promote sustainable energy, the latest development blueprint for South Africa was clearly articulated with this in mind.

¹⁰⁵ UN Environment Programme and UN Economic Commission for Africa, *Making Africa's Power Sector Sustainable: An Analysis of Power Sector Reforms in Africa* (2007); UN ENERGY/Africa publication to CSD15, *Energy for Sustainable Development: Policy Options for Africa*, 32.

¹⁰⁶ Renewables White Paper (n 65 above), 26–27.

¹⁰⁷ An 'enabling environment' is a term used to refer not only to the legal environment, but also to the financial cost or economic, investment and regulatory environments. However, this paper focuses on the legal environment as being the most critical from a regulatory perspective.

¹⁰⁸ Samuel Mungadze, 'Motlanthe Backs Nuclear Power Plants as Expert Wavers' *Business Day* (Johannesburg 19 March 2013); Ivan Christiaan Grobbelaar, 'The Privatisation of the Electricity Industry in South Africa' (BSc (Hons) thesis Faculty of Engineering, Built Environment and Information Technology, University of Pretoria, 2011) 62 and 65.

¹⁰⁹ Renewables White Paper (n 65 above), 30. Steps already taken have seen IPPs successfully break into the sector but IPPs still express some frustration with the inflexibility and centralised nature of the policy framework; see L McDaid, 'Renewable Energy Independent Power Producer Procurement Programme Review 2014' (World Resources Institute 2014) 14; Lucy Baker and Holle Linnea Wlokas, 'South Africa's Renewable Energy Procurement: A New Frontier' (Tyndall Centre for Climate Change Research 2014) 25 and 29.

¹¹⁰ Willemien du Plessis, 'Energy Law and Environmental Protection in South Africa' in Carlos A Brebbia and I Sakellaris (eds), *Energy and the Environment: The Sustainable World* (Wit Pr/Computational Mechanics 2003) 111.

¹¹¹ This issue is dealt with in detail below.

¹¹² Attempt at this was made in terms of the Constitutional Amendment No 19, which has never seen the light of day. The Intergovernmental Relations Framework Act 13 of 2005, read with the principles of cooperative government in s 41 of the Constitution, could lessen conflicts.

The National Development Plan (NDP)¹¹³ has a clear strategy to reduce reliance on fossil fuels and promote renewable energy, all aiming towards a low-carbon economy that can assist the country with its climate change objectives. The NDP recognises the centrality of energy to economic development, but in the same breath shows awareness that the energy sources must be sustainable: a direct connection between energy and environmental policy. In this respect, the NDP provides that energy security must be promoted through diligent exploitation of coal and exploration of clean coal technologies, while opening space for IPPs and renewable sustainable sources to reduce GHG emissions.¹¹⁴ Diversity of energy sources and an appropriate energy mix are the hallmarks of an energy system that is embedded in environmental sustainability. If properly implemented, the NDP is currently the better guiding policy document to ensure that environmental law supports sustainable energy sources without unduly constraining security of supply and affordability.

Formidable challenges still stand in the way of the success of these policy instruments as sites for integrating energy and environmental issues. Since 1996, the grid has expanded and access has improved, but the economic sustainability of the strategies remains doubtful as long as the main source of energy is coal. Shifting towards renewable energy can plug the policy gaps, especially as the regions in need of energy are now mainly rural dispersed areas. Global environmental concerns, especially climate change, are introducing further policy challenges for South Africa. Hence, the government has recently made serious efforts to address climate change as a threat to sustainability and energy security (affordability, access and reliability).¹¹⁵ It is expected that climate change policy, informed by the Renewables White Paper and the NDP, can boost the transition to a sustainable energy mix. Effective integrated energy resources planning that balances the country's socio-economic and environmental objectives with the need to keep the lights on can aid this.

Integrated energy planning and regulation

The National Energy Act 34 of 2008 and the Electricity Regulation Act 4 of 2006¹¹⁶ both promote integrated energy resources planning. Integrated energy planning is aimed at removing the fragmented approach to energy regulation that was causing serious challenges to South Africa's energy supply and management.¹¹⁷ The National Energy Regulator Act 40 of 2004 also establishes a single energy regulator for all energy sectors ranging from electricity, petroleum and gas, and excluding only nuclear energy, which is specially regulated given the broader security implications of nuclear energy.¹¹⁸ The integrated energy planning framework can reconcile environmental sustainability to the key energy law priorities.

113 National Planning Commission (NPC), *Our Future – Make It Work: National Development Plan* (2011) 163 (forecasting a decline in the energy intensity of the South African economy), available at www.poa.gov.za/news/Documents/NPC%20National%20Development%20Plan%20Vision%202030%20-lo-res.pdf, last accessed 12 August 2015.

114 *Ibid.*, 167–68.

115 Benjamin K Sovacool and Marilyn A Brown, 'Competing Dimensions of Energy Security: An International Perspective' (2010) 35 *Annual Review of Environment and Resources* 77, 80.

116 An amendment bill proposes to give the minister more powers on tariff and new generation capacity needs determination. The minister will act 'after' and not 'in' consultation with NERSA.

117 National Energy Act, s 6.

118 National Energy Regulator Act, s 4; National Nuclear Regulator Act 47 of 1999, s 5.

Section 5 of the National Energy Act provides for universal access to affordable electricity by households in South Africa, while section 6 integrated energy-planning provisions create room for the introduction of a planning tool that can be used to integrate diverse sources of energy into South Africa's energy mix. The Integrated Resource Plan is produced in terms of the Regulations on New Generation Capacity promulgated¹¹⁹ under the Electricity Regulation Act read with the National Energy Act. The latest Integrated Resource Plan 2 of 2010 shows that integrated energy planning is a positive step towards mainstreaming renewable energy and aligning energy and environmental regulation.¹²⁰ Section 7 establishes the South African Energy Development Institute (SANEDI), a key institution necessary to gather data and information that is indispensable for the successful implementation of integrated energy resource planning and developing a context specific energy policy that takes into account the country's social, economic and environmental needs and challenges.

The Climate Change White Paper states that it foresees the scaling up of the Renewable Energy Flagship Programme as mandated under the Integrated Resource Plan of 2010.¹²¹ The idea is to ratchet up legislative reforms to create an enabling legal environment for private sector IPPs to enter the energy market. However, the strategies in the 20-year plan depart from empirical plans previously developed before, like the Long Term Mitigation Strategy (LTMS)¹²² that had provided for higher targets and a bigger share of renewables in South Africa's energy mix.¹²³ It appears that the politics of energy had much to do with the final policy adjustments made to the Integrated Resource Plan 2. While the climate change response strategy aligns with the need to promote sustainable renewable energy, the Integrated Resource Plan still sees a big role for fossil fuels way into 2030 and beyond given the lifetime of coal power plants.

Current expansion of the Eskom generating capacity under the Coal Build Programme is situated within the Integrated Resource Plan, yet most of Eskom's programmes and government intervention in the electricity sector depart from the strategies and visions set by the Integrated Resource Plan 2 and the Climate Change White Paper.¹²⁴ This creates an environment of regulatory uncertainty, especially for the private sector that hopes to play a role in promoting renewables. Other shortcomings of the Integrated Resource Plan, as a national energy plan, are that it: is based on Eskom's plans and vision, which do not always coincide with the national interests; places little emphasis on key strategies to reduce GHG emissions and thereby promote environmental sustainability (energy efficiency, demand-side management and renewable energy); downplays the importance of renewable energy and entrenches a distorted perception of fossil sources; and it is not properly aligned with the Renewables White Paper objectives and environmental objectives.

The criticisms levelled at Integrated Resource Plan 2 are normal since it is a policy document developed within a framework of energy laws that entrench conventional

¹¹⁹ Electricity Regulations on New Generation Capacity GNR 721, in *Government Gazette* 32378, 5 August 2009.

¹²⁰ True in theory, but in practice misalignment remains between energy and environmental law.

¹²¹ Electricity Regulations on the Integrated Resource Plan 2010–2030 GNR 400, *Government Gazette* 34263, 6 May 2011.

¹²² Scenario Building Team, 'Long Term Mitigation Scenarios' (Scenario Document, Department of Environment Affairs and Tourism, Pretoria, October 2007).

¹²³ Mike Roussos, 'Energy Planning and Sustainability' (2012) 64 *Focus* 69, 72.

¹²⁴ Construction of more coal-fired power plants (Medupi and Kusile); return to service of mothballed plants; reducing investment in renewables; and general policy insinuation that coal is to remain the preferred primary source for the near future.

sources of electricity and led by Eskom.¹²⁵ It was never meant to be the vehicle to promote sustainable energy, rather being firmly focused on energy security. Institutionally, the actors leading integrated energy planning in South Africa have no interest in promoting environmental sustainability through renewable energy. Structurally, these actors take no notice of actors championing environmental sustainability in the country, both in and outside government. The Integrated Resource Plan 2 therefore is arguably just one of Eskom's long-term plans¹²⁶ to ensure that Eskom limps on using conventional sources, while strategically positioning it in the renewables sector once there is sufficient off-take. In this, the Integrated Resource Plan 2 furthers the disconnection between environmental sustainability and energy planning in the country. Perhaps the pressure to provide a framework for climate change response could temper this overemphasis on energy security and access.

Climate change response: convergence of energy and environmental issues

Climate change is probably the biggest global environmental challenge facing humanity, transcending the purely environmental problems.¹²⁷ Hence, South Africa developed the National Climate Change Response White Paper (Climate Change White Paper)¹²⁸ to holistically address this challenge. The cross-cutting nature of climate change makes it a potential thread to tie together energy and environmental regulation towards sustainable development globally and nationally. Fossil fuel burning, essentially air or atmospheric pollution, is the biggest source of GHG.¹²⁹ Dealing with this global problem becomes a common regulatory objective for both energy and environmental law. This causal connection between the energy industry, especially electricity generation, and climate change makes climate change a justification for the transition from convention fossil energy to sustainable and renewable energy. Regardless, South Africa must promote renewable energy for other reasons beyond the scope of this study.¹³⁰ The country must promote cooperative governance and integrate law and policy on energy and environmental law¹³¹ (particularly air pollution control) to address this causal connection. This could maximise progress towards reducing GHG emissions from the energy industry, while promoting ecologically sustainable development.

Despite the urgency of climate change, many countries do not have specific climate change laws; many, however, are fast enacting such laws.¹³² An equally huge number

¹²⁵ The enabling legislation, the Electricity Regulation Act, does not purport to be a law designed to promote renewable energy.

¹²⁶ Essentially extrapolates the Department of Energy's Energy Security Master Plan: Electricity 2007–2025 http://www.gov.za/sites/www.gov.za/files/energy_sec_master_plan_0.pdf accessed 29 September 2015.

¹²⁷ For definitions, conceptual underpinnings of climate change and research on this subject see the work of the Intergovernmental Panel on Climate Change (IPCC), especially the Assessment Reports, available at www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml#2, last accessed 7 April 2015, and Special Reports on Renewable Energy, available at www.ipcc.ch/pdf/special-reports/srren/SRREN_Full_Report.pdf, last accessed 7 April 2015.

¹²⁸ National Climate Change Response White Paper (Climate Change White Paper) GN 757, *Government Gazette* 34695, 19 October 2011.

¹²⁹ Dennis L Hartmann and others, 'Observations: Atmosphere and Surface' in TF Stocker and others (eds), *Climate Change 2013: The Physical Science Basis. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press 2013) 167.

¹³⁰ For these see Strydom and King (n 53 above), 767.

¹³¹ Bosman, Kotzé and Du Plessis, 411, 414–15; Elmen Bray, 'Focus on the National Environmental Management Act: Cooperative Governance in the Context of the National Environmental Management Act 107 of 1998' (1999) 6 *South African Journal on Environmental Law & Policy* 3.

¹³² See Rose Mwebaza and Louis J Kotzé, 'Environmental Governance and Climate Change in Africa: Legal Perspectives' (Institute for Security Studies Monographs 167, 2009) 283; UK Climate Change

of countries are using existing energy, disaster management, conservation and environmental laws to address the climate change challenge.¹³³ A singular regulatory approach cannot address climate change because it is a pervasive complex problem; therefore, there must be cross-sector collaboration and coordination, which can address the fragmented energy and environmental regimes in South Africa.¹³⁴ A number of these sectors – energy, natural resources, environment, forestry, agriculture, disaster management, land-use planning and transportation – are the biggest consumers of energy, while others are major sources of GHG emissions.¹³⁵ Global and national level progress has been slowed down by the complexity and multifaceted interests affected by climate change. In this regard Dugard aptly notes:

Climate change is a difficult problem with complex interdependencies, and radical uncertainty about effects of different measures. The need for long time-horizons and solutions that transcend national boundaries render existing decision-making structures poorly suited to deal with the problems. Their potential for producing sustainable and equitable solutions is further diminished by unequal power relations and divergence of economic and political interests. But the paralysis is also related to how we frame and understand the issues, which narratives and discourses emerge and become dominant, and whose voices are heard and included in decision-making processes.¹³⁶

Despite its complexity and given the importance of climate change as a driver for renewable energy, an analysis of how energy and environmental law proposes to address mitigation and adaptation is necessary. The 2013 World Energy Outlook emphasises that, ‘as the source of two-thirds of global green-house gas emissions, the energy sector will be pivotal in determining whether or not climate change goals are achieved’.¹³⁷ In South Africa, climate change is championed by the Department of Environmental Affairs, implying that it is an environmental issue. It is thus central to this study to assess the extent to which energy and environmental laws incorporate aligned GHG emission reduction strategies and air quality standards.

The international law governing climate change is the UNFCCC of 1992 and the Kyoto Protocol of 1997.¹³⁸ Overwhelming scientific evidence points to human-induced emission of GHGs as the major cause of climate change.¹³⁹ This evidence also points to the energy industry as the biggest single source of GHGs, contributing 60 per cent.¹⁴⁰ In its Fourth Assessment Report: *The Physical Science Basis*, the IPCC noted:

Act 2008; US Climate Change Bill 2010 and various initiatives underway; Germany has various renewable energy-related legislation but nothing specific to climate change; Australian states are coming up with their own climate change Acts, eg, Victoria has a Climate Change Act.

¹³³ Mwebaza and Kotzé (n 132 above) 283.

¹³⁴ Climate Change White Paper (n 65 above), 10.

¹³⁵ *Ibid.*, 17.

¹³⁶ Jackie Dugard, Asuncion Lera St Clair and Siri Gloppen, ‘Introduction: Climate Change Justice: Narratives, Rights and the Poor’ (2013) 29 *South African Journal on Human Rights* 6, 7–8.

¹³⁷ World Energy Outlook 2013 ‘Executive Summary’ 1, available at www.iea.org/publications/freepublications/publication/WEO2013_Executive_Summary_English.pdf, last accessed 7 April 2015.

¹³⁸ South Africa ratified the Convention and acceded to the Protocol in 2002.

¹³⁹ A Barrie Pittock, *Climate Change: The Science, Impacts and Solutions* (2nd edn, Earthscan/CSIRO 2009) 7 and 105.

¹⁴⁰ John T Houghton and others, *Climate Change 1995: The Science of Climate Change. Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press 1996) 13. Energy for a Sustainable Future, The UN Secretary-General’s Advisory Group on Energy and Climate Change (AGECC), ‘Summary Report and Recommendations’ (28 April 2010) 7 (‘Reducing the carbon intensity of energy – that is, the amount of carbon emitted per

[e]missions of CO₂ from fossil fuel use and from the effects of land use change on plant and soil carbon are the primary sources of increased atmospheric CO₂. Since 1750, it is estimated that about 2/3rds of anthropogenic CO₂ emissions have come from fossil fuel burning and about 1/3rd from land use change.¹⁴¹

This dominant role of fossil fuels is confirmed in South Africa where the majority of emissions come from the electricity sector – contributing 40 per cent of the 80 per cent of emissions attributable to the energy industry.¹⁴² South Africa is also the biggest emitter of GHGs in Africa and one of the most energy- and emission-intensive countries in the world.¹⁴³ It is the task of environmental pollution control laws to address these emissions, but environmental law can only be effective in this if the fragmented regulatory approach is abandoned in favour of integration using sustainability as an integrating concept.

It is therefore natural for South Africa to focus on the energy industry to reduce GHG emissions.¹⁴⁴ This is why it is significant to focus on the electricity sector within the energy industry. Significant reductions of emissions can come from energy efficiency, reducing energy consumption and shifting from fossil fuels to low-carbon or renewable energy sources.¹⁴⁵ Research indicates that no amount of reducing GHG emissions will stop the climatic changes expected in the near future.¹⁴⁶ However, reducing emissions can ensure that the impacts will be less damaging and that we can adapt to such impacts. While there has been little research on the impacts of climate change on energy in Africa as a whole,¹⁴⁷ there is no dispute that this is the sector to focus on to mitigate climate change impacts. Climate change is the challenge that may inspire integration of energy and environmental law.¹⁴⁸

In 2011, South Africa developed a Climate Change White Paper.¹⁴⁹ The object of the paper is to define South Africa's approach and strategies to mitigate and adapt to climate change. The approach 'balances the country's contribution ... to the international effort to curb global emissions with the economic and social opportunities presented by the transition to a lower-carbon economy ...'.¹⁵⁰ Among other things, the

unit of energy consumed – is a key objective in reaching long term climate goals. As long as the primary energy mix is biased towards fossil fuels, this would be difficult to achieve with currently available fossil fuel-based energy technologies.')

¹⁴¹ Susan Solomon and others (eds), *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press 2007) 25; also confirmed by Hartmann and others (n 129 above), 167.

¹⁴² Climate Change White Paper (n 65 above), 26 (year 2000 statistics).

¹⁴³ Renewables White Paper (n 65 above), 10 and 11.

¹⁴⁴ Climate Change White Paper (n 65 above), 26.

¹⁴⁵ *Ibid.*

¹⁴⁶ International Council for Science (ICSU), 'Discussion Paper by the Scientific and Technological Community' 14th Session of the UN Commission on Sustainable Development (CSD-14), available at www.icsu.org/what-we-do/projects-activities/un-csd/pdf/csd-14-discussion-paper.pdf, last accessed 7 April 2015.

¹⁴⁷ ML Parry and others, *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press 2007) 446.

¹⁴⁸ Tomain (n 12 above), 13.

¹⁴⁹ The White Paper has been met with mixed reactions from analysts and scholars: see generally Kjersti Flottum and Oyvind Gjerstad, 'The Role of Social Justice and Poverty in South Africa's National Climate Change Response White Paper' (2013) 29 *South African Journal on Human Rights* 61; Shelley Smith, 'Climate Change and South Africa: A Critical Analysis of the National Climate Change Response White Paper and the Push for Tangible Practices and Media-driven Initiatives' (2013) 7 *Global Media Journal – African Edition* 47, 64.

¹⁵⁰ Climate Change White Paper (n 65 above), 5.

Climate Change White Paper proposes huge leaps in the energy sector, the biggest contributor to emissions. In this respect, the paper provides among other things, that '[i]n the medium-term, the mitigation options with the biggest mitigation potential are: shifting to *lower-carbon electricity generation* options; ... transitioning the society and economy to *more sustainable consumption and production patterns*'.¹⁵¹ These objects are clear indications of the assumption underlying this paper that the connection between energy, the environment and sustainable renewable energy inevitably requires integrating energy and environmental law.

Indeed, the climate change interventions proposed in the Climate Change White Paper do not necessarily present an obstacle to the economic growth needed in South Africa. The International Energy Agency has noted that energy competitiveness can coexist with economic growth. However, this requires the implementation of certain pragmatic measures, namely, '... improving efficiency, limiting the construction and use of the least-efficient coal-fired power plants, minimising methane emissions in upstream oil and gas, and reforming fossil-fuel subsidies – that could halt the increase in emissions by 2020 without harming economic growth'.¹⁵² These measures implicate the policy and on-the-ground situation in South Africa where the country is largely going in the opposite direction. The strategy to use energy-related programmes builds on the long-term vision in the Integrated Resource Plan 2 developed in terms of the Electricity Regulation Act.¹⁵³ The Integrated Resource Plan 2 is discussed above to assess how it provides space to integrate environmental considerations into energy planning for sustainable energy.

Policies are not laws, and usually a policy is formulated to inform future laws.¹⁵⁴ Although policies can still be used to guide future government strategies and plans, it remains difficult to hold government accountable based on policy pronouncements. The flexibility allowed by policy leaves government too much discretion on implementation, while law can sometimes become too inflexible. The government has taken some visible steps to implement policies promoting renewable energy – for example, the REI4P – yet the absence of legally binding instruments still hampers progress. Indeed, some concrete laws like the National Energy Act have resulted from policy documents. Whether in the form of policy or law, an analysis of South Africa's energy laws shows that they are divorced from environmental and sustainability integration, which has forestalled the shift to a sustainable energy system.

Existing energy laws as pathways to integration

Apart from the energy policy environment discussed above, existing laws relating to electricity could be used to remove the fragmentation between energy and environmental law and promote sustainable energy sources. The energy policies discussed above should inform the subsequent formulation of laws. This is especially necessary given that the majority of existing energy laws¹⁵⁵ in South Africa evolved to regulate

¹⁵¹ *Ibid.*, 26–27 [emphasis added].

¹⁵² World Energy Outlook (n 137 above), 3.

¹⁵³ Electricity Regulations on the Integrated Resource Plan 2010–2030 GNR 400, *Government Gazette* 34263, 6 May 2011.

¹⁵⁴ Community Organisers' Toolbox 'Understanding Government', available at www.etu.org.za/toolbox/docs/govern/policy.html, last accessed 7 April 2015.

¹⁵⁵ The electricity sector statutes are the: National Energy Act 34 of 2008; National Energy Regulator Act 40 of 2004; Electricity Act 41 of 1987; Electricity Regulation Act 4 of 2006; and Nuclear Energy Act 46 of 1999.

conventional unsustainable fossil sources of energy. Various laws govern the energy sector. Among these, the most recent is the National Energy Act. These laws regulate who may generate, transmit and distribute electricity, as well as the determination of the price of electricity at national and municipal levels.¹⁵⁶ The objects of this National Energy Act are to promote integrated energy planning, security of supply, diversity of energy sources, data and information management, transformation, research and commercialisation of energy technologies and health and safety issues in the energy sector, and generally contribute to sustainable development.¹⁵⁷ Apart from the environmental authorisation procedures and pollution control provisions, environmental law has little control over these regulatory processes.

The National Energy Act was intended to implement the Renewables White Paper by cleaning up the policy discordance in the energy sector by bringing structure, focus and clarity to the regulatory framework.¹⁵⁸ The National Energy Act provides for fundamental principles that underpin South Africa's energy policy. In the context of electricity generation, the National Energy Act provides for effective choices to be made on the sources of energy and factors that must guide that decision-making process. By promoting diversity of sources,¹⁵⁹ the National Energy Act recognises the new role that renewable sources can play to promote sustainability in the energy sector generally and in the electricity sector specifically. It is an Act influenced by the increasing pressure to focus on sustainable energy from international and national developments.¹⁶⁰

The National Energy Act can be used to transform the energy industry and to promote low-carbon renewables in the electricity sector. It constitutes a partial implementation of the Renewables White Paper strategies. However, apart from making lofty broad policy statements of intent, the Act falls short of providing a roadmap towards renewable energy in the electricity sector. There are no specific commitments to a transition towards an energy scenario where renewable sources play a bigger role than is currently the case. It is argued that the National Energy Act to an extent perpetuates the prominence of conventional sources.¹⁶¹

The institution responsible for determining if there is a need for new generation capacity is the Minister of Energy in consultation with the National Energy Regulator of South Africa (NERSA) established in terms of the National Energy Regulator Act 40 of 2004. NERSA has economic, technical and access regulatory functions under the Act. A particularly key provision is section 4 of the National Energy Regulator Act, which delimits the scope of the powers of the regulators and their functions in the energy sector. The functions relating to the electricity energy sector are important for the purpose of this paper. These functions are detailed in section 4 of the Electricity Regulation Act 4 of 2006. Clearly, NERSA is the ultimate overall regulator of the

¹⁵⁶ At the municipal level, rates charging is further governed by the Local Government: Municipal Systems Act 32 of 2000 ss 4(1), 74–75A read with s 27 of the Electricity Regulation Act; HA Strydom and AD Surridge, 'Energy' in Strydom and King (eds) (n 53 above), 764, 791–807.

¹⁵⁷ National Energy Act, s 2.

¹⁵⁸ Memorandum on the objects of the National Energy Bill B52–2008, *Government Gazette* 31124 of, 3 June 2008, 20.

¹⁵⁹ The Electricity Regulation Second Amendment Bill 2011 proposes expressly to include 'renewable sources' to the definition of 'diverse sources' of energy in s 2(e) of the ERA, to show that diversification must be focused on renewables.

¹⁶⁰ Renewables White Paper (n 65 above); Climate Change White Paper (n 65 above).

¹⁶¹ The emphasis on affordability, access, cost-effectiveness (s 5(2)) and energy security (s 17) by implication points towards reliance on sources of energy that meet these requirements.

energy sector under the oversight of the Minister of Energy on broad policy matters and directions.¹⁶² In practice, however, NERSA has not always emerged as the overarching regulator on policy matters, being overshadowed by the Department of Energy.¹⁶³

The Minister of Energy has powers under the Electricity Regulation Act to determine whether new generation capacity is required and the sources from which such capacity should be derived. This is in terms of section 34, which provides that the Minister may, in consultation with the regulator,

- (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;* [emphasis added]

In accordance with this provision, the Minister can take the initiative to introduce conditions for renewable energy sources to enter the energy mix. This could be linked to Renewable Energy Portfolio Standards, Feed-in-Tariffs (FITs), open bidding for IPPs, direct or indirect subsidies,¹⁶⁴ Power Purchase Agreements (PPAs) and Procurements Standards for government under this section. Section 34 arguably can kick-start a renewable energy revolution in South Africa. The questions that remain unanswered is why the Minister has not used it effectively and why the private electricity energy industry has not agitated for its use? One of the possible explanations is that IPPs or the private sector only recently developed an interest in the electricity generation industry spurred on by climate change discourse.¹⁶⁵

Furthermore, reading section 4 of both the National Energy Regulator Act and the Electricity Regulation Act, it is arguable that the necessary legal mandate is in place to enable NERSA to take steps to create regulatory space for renewable electricity sources. The regulator has a mandate to use licensing, rate and price determination as powerful tools to steer the electricity sector in a certain direction in terms of the primary sources of energy they use.¹⁶⁶ Indeed, it is the regulator that could help internalise the externalised environmental and health costs of conventional fossil primary sources. Pricing carbon and full cost accounting for energy production can easily make renewable energy sources more economically sustainable than fossil fuels.

While NERSA has taken its time to use its powers to influence the role of various sources of energy, it is encouraging that some form of regulatory framework is

¹⁶² National Energy Regulator Act, s 4.

¹⁶³ For instance, the about-turn from Feed-in-Tariffs (FITs) to the REI4P strategy for renewable energy; see H Masondo, 'Does the Country Still Need NERSA?' (2011) 11 *Without Prejudice* 55. With municipalities owing Eskom over R4.6bn and NERSA insisting on low tariffs, Eskom cannot be sustainable. See S Moodley, 'Municipalities' R4bn Debt to Eskom Hindering Electricity Supply' *Engineering News* (Johannesburg 22 January 2015).

¹⁶⁴ Tomain (n 12 above), 129 (subsidies must be redirected to renewable energy to correct market distortions caused by fossil fuel subsidies); 'The Energy Challenge for Achieving the Millennium Development Goals' (UN Energy Paper, June 2005) 11 www.un-energy.org/sites/default/files/share/une-un-engr_paper.pdf, last accessed 12 August 2015.

¹⁶⁵ In simple terms, this section gives the minister power to introduce renewable energy.

¹⁶⁶ According to the Electricity Regulation Act, s 14(1) a condition may be imposed on a licence regarding 'the quality of electricity supply and service; ... compliance with health, safety and environmental standards and requirements; ... the types of energy sources from which electricity must or may be generated, bought or sold; ...'.

developing to promote renewable energy.¹⁶⁷ The regulator developed guidelines for a FIT for renewable energy and later, in 2009, set the tariffs to be used by interested renewable energy industry players.¹⁶⁸ To some this represented a timely step forward, while to others it was a late afterthought forced on South Africa by the international pressure regarding climate change and the domestic supply–demand pressures. NERSA moved to action in 2008 due to blackouts and serious threats posed to the South African economy by the prospect of further shortage of electricity due to poor planning, which has seen demand outstripping supply.¹⁶⁹ To the renewable energy enthusiasts this was welcome either way as, once developed, the legal framework for renewable energy could assist in showing that renewable energy can be competitively deployed in South Africa given the necessary regulatory support.

To frame the renewable energy transition discourse solely in terms of the country's duty to reduce GHG emissions is therefore to fail to appreciate the real pressure points driving renewable energy policy, namely the imbalance between supply and demand and the economic repercussions of this challenge. While this is good for moving the country towards renewable energy, South Africa must not only move toward sustainable energy under pain of suppressed supply, but come up with a sustainable energy governance and regulatory framework that recognises the importance of renewable energy in its energy mix.

The Electricity Regulation Act requires any person who wants to generate, transmit, distribute or trade in electricity to obtain a licence from NERSA.¹⁷⁰ Any form of a licence under the Electricity Regulation Act is applied for following the procedure in section 10. Once the regulator receives an application, a decision must be made within 120 days, subject to any objections received.¹⁷¹ In issuing a licence, the regulator may impose conditions on the licensee. The conditions may include source specification, quality and supply of electricity, environmental, health and safety standards, compliance with any energy efficiency standards, control of revenue made by the licensee, persons the licensee may trade with, the relationship between licensee and end-users, and tariffs.¹⁷² The authority to impose these conditions shows that the regulator can use the licensing process to promote renewable sources of electricity. However, any preferential treatment of renewable sources relative to conventional sources must be justified and guided by the principles that underpin the Act.

The fact that section 14 conditions do not refer to environmental sustainability as such confirms the technical orientation of the energy legislation in the country. The

¹⁶⁷ National Energy Regulator of South Africa, Renewable Energy Feed-In Tariff (REFIT) Regulatory Guidelines (March 2009) GN382 in Government Gazette 32122 of 17 April 2009 (NERSA REFIT Guidelines). REI4P (2011) and the Government of the Republic of South Africa, Department of National Treasury 'Reducing Greenhouse Gas Emissions and Facilitating the Transition to a Green Economy: Carbon Tax Policy Paper' (2013).

¹⁶⁸ Regulatory Rules on Selection Criteria for Renewable Energy Projects under the FIT Programme, made in terms of reg 7 of Electricity Regulations on New Generation Capacity GNR 721, *Government Gazette* 32378, 5 August 2009; Regulatory Rules for Power Purchase Cost Recovery, NERSA GNR 119, *Government Gazette* 32964, 24 February 2010.

¹⁶⁹ The persistence of electricity shortages well into 2015 has demonstrated the precarious nature of South Africa's generation capacity.

¹⁷⁰ Electricity Regulation Act, s 7(1) read with s 4; s 8 provides for exemption of certain activities from licensing requirements; however, such activities must still be registered in terms of s 9.

¹⁷¹ *Ibid.*, s 3.

¹⁷² *Ibid.*, s 14; see also NERSA MYPD (n 96 above), setting out the formula applied when considering application for rate increases by generators.

only reference is to environmental safety and health standards,¹⁷³ but the spirit of sustainability is clearly lacking in this formulation.¹⁷⁴ Even reference to conditions regarding the ‘types of energy sources from which electricity must or may be generated, bought or sold’¹⁷⁵ is purely technical and not explicitly meant to promote diversity of sources or renewable sources. Technically, the regulator is *not obliged* to promote renewable sources of electricity in the licensing process mandated by the Electricity Regulation Act, although nothing stops the regulator from being proactive. This explains why the renewable energy FITs Guidelines of 2009¹⁷⁶ were made in terms of the general National Energy Act rather than the more specific Electricity Regulation Act. The two Acts do complement each other, so this is not an issue. However, the imposition of the additional price competitiveness¹⁷⁷ to the criteria developed by NERSA under the FITs Guidelines by the Department of Energy showed who the ultimate de facto authority is in shaping the country’s renewable energy policy. The FITs Guidelines were soon abandoned as the legal mandate of NERSA to go that far was questioned,¹⁷⁸ partly to bolster the control by the Department of Energy.

The tariff principles in section 15 of the Electricity Regulation Act must be guided by the regulator in determining tariffs and revenue levels and possible conditions under section 14. The principles emphasise economic efficiency, profitability, cost-recovery and cross-subsidisation of customers. This is a clear statement that only economic sustainability is an overriding concern to the regulator. There is no positive provision for negative economic incentives to discourage the use of non-renewable sources for generation, only incentives to promote economic and technical efficiency. From a regulatory perspective, this is what entrenches conventional sources of energy and elevates the view that renewables are expensive and costly to deploy. The need to promote equitable treatment of customers may promote social sustainability (equity), but concurrently be a source of unsustainable cross-subsidisation that dissuades innovation.

Recently, the Minister acting in terms of section 35(4) of the Electricity Regulation Act promulgated the New Generation Capacity Regulations.¹⁷⁹ The regulations create a framework for the private sector IPPs to enter the electricity generation sector. Together with the Climate Change White Paper, the regulations provide a framework in which to upscale the share of renewable electricity in South Africa’s energy mix. Despite the success of the REI4P (a detailed analysis of which is beyond the aim of this

¹⁷³ Electricity Regulation Act, s 14(1)(s).

¹⁷⁴ It is argued that most Southern African Development Community (SADC) states do not have regulatory frameworks that promote clean energy (‘The legal and regulatory framework specifically addressing renewable energy in most SADC countries continues to be very limited.’); see Sampa and Kordunsky (n 8 above), 8.

¹⁷⁵ Electricity Regulation Act, s 14(1).

¹⁷⁶ NERSA justified the Feed-in-Tariff Guidelines by saying that it ‘has the mandate to determine the prices at and conditions under which electricity may be supplied by licence’; see NERSA REFIT Guidelines.

¹⁷⁷ Masondo (n 163 above), 55, 56 arguing that the Department of Energy has effectively usurped NERSA’s powers and functions in shaping the renewable policy since the abandonment of the FITs.

¹⁷⁸ Romance Sampa, ‘To REFIT or not to REFIT’ Hub Happenings e-Newsletter USAID (2009) 9, available at www.satradehub.org/images/stories/downloads/pdf/hub_happenings/hub%20happening%20august%202013.pdf, last accessed 12 August 2015 (noting ‘REFIT was abandoned following legal challenges to the lawfulness of the REFIT bidding processes in terms of the provisions of section 217(1) of the Constitution [of South Africa], which requires a public procurement system to be “fair, equitable, transparent, competitive and cost effective”’).

¹⁷⁹ Electricity Regulations on New Generation Capacity, GNR 721, *Government Gazette* 32378, 5 August 2009.

paper),¹⁸⁰ the slow pace at which the regulations are being implemented shows that things could have been worse without regulatory intervention to prune the state monopoly, Eskom, of its grip on the electricity sector,¹⁸¹ while handholding IPPs. Further threats to sustainable energy from the REI4P come from the resurgence of nuclear energy and the unhindered procurement of more coal power, overall effect of which may be to overshadow steps taken toward sustainable energy. This includes the competitive prices obtained for renewables during the four renewable energy procurement windows under the REI4P programme. The social and economic imperatives for continuing to source electricity from seemingly cheap coal are well understood in South Africa.¹⁸² Ultimately, the New Generation Capacity Regulations are the first explicit legal step towards proactive promotion of sustainable renewable electricity by the government, although they do not exclusively focus on new generation from renewables.

Conclusion

Fragmentation, misalignment and tension define energy and environmental regulation in South Africa. South Africa is at a crossroads – on the one hand, trying to prove to the international community that it can abide by the principles of the climate change global regime, while on the other, domestically contending with unrelenting poverty and the need to promote affordable socio-economic growth. The electricity regulatory framework is grounded in sound policy, yet the actual laws are still steeped in a historical era where conventional energy sources dominate and are regarded as irreplaceable. However, recent efforts to reform the legal framework spearheaded by NERSA and the Minister are showing small positive results in terms of access to the electricity sector by the private sector IPPs. Therefore, despite some lingering uncertainty, the direction that the country has taken is determinable. Developing climate change policy is an opportunity to integrate energy and environmental law, yet policy confusion is impeding progress. With one leg in fossil fuels under the Eskom Build Programme and another in the experimental REI4P bidding process, the applauded success of the REI4P may be undone in the long term as fossil and nuclear technologies are locked in.

Promoting integrated energy resources management and planning is just half the step towards implementing an ecologically sustainable energy system that is aligned with the environmental quality objectives underlying South Africa's environmental laws. Relative to the energy laws, South African environmental laws are more advanced in terms of being informed by sustainable development even at implementation level, such as through the environmental authorisation process. This paper has demonstrated that the contestation between energy and environmental law is an obstacle to a sustainable energy regime that gives priority to renewable electricity sources. The policy spaces on climate change response, energy planning and environmental sustainability present opportunities for regulators to promote sustainable energy through environmental regulation.

¹⁸⁰ Both Baker and Wlokas (n 109 above) and Eberhard and others (n 79 above) have ably reviewed the success or otherwise of the REI4P, making any detailed analysis in this paper superfluous.

¹⁸¹ It should be acknowledged that Eskom does claim to be promoting the entrance of IPPs into the electricity sector: see Eskom Holdings SOC Limited, 'Standard Presentation' (December 2013) 40, available at www.eskom.co.za/OurCompany/Investors/Presentations/Documents/EskomStandardPresentationDec2013.pdf, last accessed 12 August 2015.

¹⁸² See generally Schubert, Blasch and Hoffmann (n 39 above).