

Renewable energy trading between Lesotho and South Africa - A Legal Analysis

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ABSTRACT

The *SADC Treaty* (1992) mandates Renewable Energy Trading within Southern African Countries. Since the SADC Treaty provides only for the broad mandate for cooperation between SADC Member States, the *Regional Indicative Strategic Development Plan* (2015) was created as a blueprint for regional integration, showing only the stages and the necessary conditions for achieving regional integration. The SADC Treaty provides for the establishment of Protocols in order to facilitate regional cooperation in the SADC region. The *SADC Protocol on Energy* (1996) portrays regional cooperation through the development of renewable energy trading and energy pooling in the SADC region. The Energy Protocol is operationalised by various SADC secondary instruments. The SADC energy sector achieves regional economic integration through energy trading, which takes place through the Southern Africa Power Pool (SAPP). Central to the SAPP is the formation of a regional electricity market in order to facilitate the regional energy trade.

This study discusses the potential of renewable energy trading between South Africa and Lesotho. Energy trading and energy pooling are express mandates in the SADC legal framework. These mandates also feature prominently in the Lesotho and South African legal instruments, but what is lacking is the legal instrument instructing how the actual energy trading should be regulated.

In this study the Lesotho Highlands Water Project is used as an exemplar on which to base recommendations as to what should be included in the instructions.

Key words:

Renewable Energy Trading, Regional Economic Integration, SADC Energy Protocol, SADC Treaty, Southern Africa Power Pool, South Africa, Lesotho

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LIST OF ABBREVIATIONS

AEC	African Economic Community
AJPSIR	African Journal of Political Science and International Relations
AP	Aquatic Propedia
AU	African Union
CBI	Capacity Building International
CEPII	<i>Centre d'Etudes Prospectives et d'Informations Internationales</i>
CER	Centre for Environmental Rights
DIS	Directorate of Infrastructure and Services
DoE	Department of Energy
DOUNIA	<i>revue d'intelligence stratégique et des relations internationales</i>
DRC	Democratic Republic of Congo
EP	Energy Policy
ERC	Energy Research Centre
ESKOM	Electricity Supply Commission
IAEA	International Atomic Energy Agency
IEEE	Institute of Electrical and Electronics Engineers
IEP	Integrated Energy Plan
IMESA	Institute of Municipal Engineering of Southern Africa
IMF	International Monetary Fund
IMOU	Memorandum of Understanding
IO	International Organisation
IRP	Integrated Resource Plan

LDD	Law Democracy and Development
LEC	Lesotho Electricity Cooperation
LEP	Lesotho Energy Policy
LHDA	Lesotho Highlands Development Authority
LHWP	Lesotho Highlands Water Project
NGO	Non-Governmental Organisation
NPE	New Political Economy
NSDP	National Strategic Development Plan
OAU	Organisation of African Unity
OECD	Organisation for Economic Co-operation and Development
PER	Potchefstroom Electronic Law Journal
RE	Renewable Energy
REASAP	Regional Energy Strategy and Action Plan
RECs	Regional Economic Communities
RIDMP	Regional Infrastructure Development Master Plan - Energy Sector Plan
RISDP	Regional Infrastructure Strategic Development Plan
SADC	Southern Africa Development Community
SADCC	Southern Africa Development Coordination Centre
SAEO	South African Energy Outlook
SAICE	South African Institution of Civil Engineering
SAIIA	South African Institute for International Affairs
SAPP	Southern African Power Pool
STEM	Short-term Electricity Market

TCTA	Trans-Caledon Tunnel Authority
TIPS	Trade and Industrial Policy Strategies
TRALAC	Trade Law Centre for Southern Africa
WRCR	Water Resource Commission Report
WRD	Water Resource Development
WSA	Water and Sanitation Africa

1 Introduction

1.1 Background

The *Treaty of the Southern African Development Community* (1992) (SADC Treaty) mandates cooperation among SADC Member States¹ in all areas necessary to foster regional economic development and integration.² This cooperation should happen on the basis of a balance of equity and mutual benefit in the areas of industry, trade, investment and finance, as well as natural resources and the environment.³ In order to implement the SADC treaty mandate mentioned above, the *SADC Protocol on Energy* (1996) intends the "harmonious development of national energy policies and matters of common interest for the balanced and equitable development of energy throughout the SADC Region."⁴ Consequently, the *SADC Protocol on Energy* 1996 aims at attaining cooperation in the SADC Region through the development of renewable energy trading and energy pooling.⁵

The idea of renewable energy trading⁶ within Southern Africa was successfully proposed and adopted in the SADC Treaty enabling Member States to conclude protocols necessary for cooperation and integration.⁷ As a result, the *SADC Protocol on Energy*, 1996⁸ paves

¹ The SADC comprises 15 Member States; Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe; SADC 2012 <http://www.sadc.int/about-sadc>.

² A 21(3) of the *SADC Treaty Amendment* (2006).

³ A 21(3) of the *SADC Treaty Amendment* (2006).

⁴ A 3(1) of the *SADC Protocol on Energy* of 1996; *SADC Protocol on Energy* http://www.sadc.int/documents-publications/show/Protocol_on_Energy1996.

⁵ A 3(2) of the *SADC Protocol on Energy* 1996; Chanakira 2011 *DOUNIA, revue d'intelligence stratégique et des relations internationales* 69; Schreiner and Baletab 2015 *AP* 95; Simelane and Mutanga "Electricity Generation" 33.

⁶ "Renewable energy" is defined in s 1 of the *National Energy Act* 34 of 2008 as "energy generated from natural non-depleting resources including solar energy, wind energy, biomass energy, biological waste energy, hydro energy, geothermal energy and ocean and tidal energy." Thus, renewable energy trading relates to the exporting of renewable energy by Lesotho and the importation of renewable energy by South Africa in exchange for revenue.

⁷ A 22 of the *SADC Treaty Amendment* (2006).

⁸ A 3 of the *SADC Protocol on Energy* (1996).

the way for energy trading by enrooting the system of "energy pooling".⁹ Energy trading emanates from the participating actors realising that the region has good potential for renewable energy, and the implementation of renewable energy trading among other economic activities should occur in order to reverse (by way of economic integration) Southern Africa's economic retrogression.¹⁰

The SADC Member States express regional cooperation and renewable energy trading through the Southern African Power Pool (SAPP).¹¹ The establishment of the SAPP took place in August 1995, when representatives of electric power utilities from twelve SADC Member States signed an Inter-Governmental Memorandum of Understanding to form an electricity power pool in the region.¹² The SAPP coordinates the plans and operates the electric power system among member utilities.¹³ The SAPP also provides a forum for regional solutions to electric energy problems.¹⁴ Furthermore, the SAPP is an entity that purposefully seeks the broader trading of the power grid of Southern African States and thereby the distribution of renewable energy to all members of the regional society.¹⁵ Such a distribution of renewable energy must be "consistent with the reasonable utilisation of natural resources".¹⁶ The establishment of the Muela Hydro-Power Station is an example of how the SAPP facilitates and improves cooperative energy development and the interconnection of power between South Africa and Lesotho enables this cooperation.¹⁷

⁹ A 3(2) of the *SADC Protocol on Energy* (1996).

¹⁰ Chanakira 2011 *DOUNIA, revue d'intelligence stratégique et des relations internationales* 69; Schreiner and Baletab 2015 *AP* 95; Simelane and Mutanga "Electricity Generation" 33.

¹¹ Andreolli and Abdychew Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho 5.

¹² SAPP 2018 <http://www.sapp.co.zw/about-sapp>.

¹³ SAPP 2018 <http://www.sapp.co.zw/about-sapp>.

¹⁴ SAPP 2018 <http://www.sapp.co.zw/about-sapp>.

¹⁵ Conchiglia "South Africa and its lusophone neighbours: Angola and Mozambique" 149.

¹⁶ SAPP 1996 <http://www.sapp.co.za>.

¹⁷ Andreolli and Abdychew Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho 5.

Lesotho law and policies mandate regional economic integration and renewable energy trading through the *Lesotho Energy Policy, 2015-2025* (LEP) and the *National Strategic Development Plan, 2012/13 – 2016/17* (NSDP). The LEP aims to aid "the socio- economic development of Lesotho by ensuring that energy is accessible for all" and to contribute towards the economic growth of Lesotho by creating initiatives that position Lesotho as a competitive player in the SADC region through exporting renewable energy.¹⁸ Policy Statement 9 of the LEP states that Lesotho shall promote non-discriminative access to the electricity market and trading.¹⁹ The Policy Statement also aims to "ensure transparent and competitive electricity market operations where participating players have equal opportunities."²⁰ Similarly, the *National Strategic Development Plan, 2012/13 – 2016/17* (NSDP) highlights the mandate for the energy sector in Lesotho to promote regional economic integration and renewable energy trading. According to the NSDP, there is the potential to produce about 6 000 MW from wind, 4 000 MW from pump storage, and 400 MW from conventional hydropower in Lesotho.²¹ To produce that amount of power, the NSDP aims to export renewable energy and negotiate favourable regional energy trade.²²

Similarly, South African law and policies mandate regional economic integration and renewable energy trading through the *National Development Plan 2030* (NDP) and the *Integrated Resource Plan, 2010-2030* (IRP). The NDP offers a long-term plan for the energy sector in South Africa, which is to be achieved by the year 2030, and it identifies the role that the energy sector and the society need to play in achieving the aim of the long-term plan,²³ which is to have adequate supplies of electricity realised through policies, institutions and where appropriate, competitive markets.²⁴ The procurement of

¹⁸ LEP 2015 6-7.

¹⁹ Policy Statement 9 in LEP 2015 13.

²⁰ Policy Statement 9 in LEP 2015 13.

²¹ Strategic Objective 5.2.3 in NSDP 2012 101.

²² Strategic Objective 5.2.3 in NSDP 2012 102.

²³ Cooperative Governance Traditional Affairs 2018 <http://www.cogta.gov.za/?p=2744>.

²⁴ NDP 2030 140.

at least 20 000MW of renewable energy by 2030 and increasing hydro imports from the SADC region are essential to the NDP.²⁵ Furthermore, the NDP highlights the need to increase the diversity of South Africa's production mix in order to enhance supply security.²⁶ The NDP states that the potential for accelerated economic development lies in exploring the existing abundant power resources coupled with enhanced inter-regional trade.²⁷ Therefore the NDP prioritises the development of the SADC region's hydroelectric resources as a means to attaining regional economic integration and facilitating renewable energy trade.²⁸

The *Integrated Resource Plan 2010-2030* (IRP) determines the long-term renewable energy demand and details how this demand should be met in terms of generating capacity, type, timing and cost.²⁹ The IRP supports the development of regional economic integration by encouraging the development of hydropower projects in the region and provides a catalyst for further economic development caused by increasing energy security.³⁰ The IRP envisages a total capacity of renewable energy of 26%, with 10% from contracts, 1% from solar power, 10% from wind, and 5% from hydro power imports.³¹ The mandate contained in this legal instrument is also an indication for regional economic integration and renewable energy trading.

The leading question in this research is: "to what extent does South African and Lesotho law and policy promote renewable energy trading?" This study discusses in detail the potential of renewable energy trading between South Africa and Lesotho. The study examines the energy-trading mandate given under the LEP and the NDP. The discussion uses the SADC Treaty and the SADC Energy Protocol as guidelines on how regional

²⁵ NDP 2030 153.

²⁶ NDP 2030 153.

²⁷ NDP 2030 153.

²⁸ NDP 2030 144.

²⁹ IRP 2010-2030 1.

³⁰ IRP 2010-2030 1.

³¹ IRP 2010-2030 1.

energy trading should take place in order to implement the mandate. Moreover, the study analyses the progress made by the SAPP by referring to the LHWP case study of potential renewable energy trading between SADC Member States. In pursuing this, the study will begin with a critical discussion of energy trading in its general sense and more specifically the concept of energy trading in terms of the mandate of the SADC. Thereafter it examines the specific area of energy as one of the key sectors through which greater renewable energy trading occurs in the SADC. In this regard, it focuses on the legal and policy framework of South Africa and Lesotho particularly the LEP, the NDP and the DIEP.

1.2 Methodology

The research is an analytical review of the existing legal literature. The literature review is based on the study of relevant books, law journals, regional laws and policies, and internet sources that relate to renewable energy trading within the SAPP. Secondary information will be obtained from institutional research and reports, policy documents, articles, books and other relevant sources, including media reports.

2 Regional Economic Integration and Energy Trading in the SADC Regulatory Framework

2.1 Introduction

The SADC Treaty mandates SADC Member States to promote cooperation in order to foster regional economic development and integration, which is an objective common to all SADC Member States. To express regional cooperation and renewable energy trading, SADC Member States established the SAPP. Therefore, this chapter focuses on the mandate that the SADC Treaty gives relating to regional economic integration, and explores the mandate given by the SAPP to drive regional economic integration and energy trading within the SADC Region. In order to achieve the stated aim, this chapter will define regional economic integration as an objective of the SADC and analyse the

SADC treaty with regard to regional economic integration. Furthermore, this chapter uses SADC legal instruments to illustrate how the energy sector promotes regional economic integration in the SADC region. The instruments include the *SADC Energy Protocol* (1996), the *Regional Indicative Strategic Development Plan* (2015) (RISDP), the *SADC Industrialisation Strategy and Roadmap* (2015) and the *Regional Energy Access Strategy and Action Plan* (2010) (REASAP). Lastly, this chapter defines energy pooling and highlights how the SAPP conducts energy trading in order to drive regional economic integration. The definition of energy pooling is crucial in order to understand the methodology that the SAPP uses as a catalyst for regional integration and energy trading within the SADC region. Therefore, this chapter will conclude with an examination of the different electricity markets that the SAPP uses to drive regional economic integration and facilitate energy trading between SADC Member States.

2.2 Regional economic integration as a SADC objective

Regional economic integration takes place when countries come together to form an agreement by way of treaties pertaining to how they will trade with one another.³² According to Haas: ³³

The process (of regional integration) exists whereby political actors in several distinct national settings are persuaded to shift their loyalties, expectations and political activities toward a new centre, whose institutions possess or demand jurisdiction over pre-existing national states. The end result of a process of political integration is a new political community, superimposed over the pre-existing ones.

In other words, Haas shows that individual governments have to put aside their individual expectations and political will and come together with other governments within the SADC region so as to form a regional, integrated economic system, since individually Southern African States lack the necessary infrastructure to deal with their economic challenges.³⁴

³² Mapuva and Muyengwa-Mapuva 2014 *LDD* 22.

³³ Haas 1961 *IO* 366.

³⁴ Peters-Berries 2010 *CBI* 17; Mapuva and Muyengwa-Mapuva 2014 *LDD* 22.

Regional economic integration is thus a platform for Southern African States to have an enhanced body for enforcing social, environmental, economic and legal standards, as against dealing with such issues single-handedly.³⁵ Mikamunana and Moeti define regional integration as:³⁶

the process through which the members of a group of nation states voluntarily, to various degrees, share one another's markets and establish mechanisms and techniques that minimise conflicts and maximise the internal and external economic, political, social and cultural benefits of their interaction.

Similarly, Asante defines regional integration as:³⁷

a process whereby two or more countries in a particular area join together to pursue common policies and objectives in matters of the general economic development of all the participating states.

The two definitions mean that regional integration entails SADC member states voluntarily coming together to share economic markets and to establish measures that that will reduce conflict and increase both internal and external economic, social and cultural

³⁵ Peters-Berries 2010 *CBI* 17; Mapuva and Muyengwa-Mapuva 2014 *LDD* 22.

³⁶ Mikamunana and Moeti "Challenges of Regional Integration in Africa: Policy and Administrative Implications" 2005 *Journal of Public Administration* 95.

³⁷ Asante *Regionalism* 20.

benefits of interacting. The three main approaches to regional integration are market integration,³⁸ development integration,³⁹ and regional cooperation.⁴⁰

The establishment of Regional Economic Communities (RECs) such as the SADC would seem to be the most efficient way to achieve regional economic integration, because for the most part Southern African states individually lack the necessary infrastructure to deal with the economic challenges raised in multinational and international negotiations.⁴¹ RECs comprise the African union (AU) and the *Protocol on Relations between the AU and the Regional Economic Communities* (RECs Protocol), which entered into force in 2007 and states that:⁴²

Cooperation among RECs on formulating coordinated regional law and policy is indispensable to achieving the African Economic Community's (AEC's) objective of promoting sustainable development.

The Organisation of African Unity (OAU) was established on the 25th May 1963 in Addis Ababa.⁴³ Upon signature of the OAU Charter by the representatives of 32 governments

³⁸ Market integration includes steps intended to eliminate discrimination between economic units owned by different national states and comprises a linear progression of states of integration, which include free trade areas, customs unions, common markets economic unions and total economic integration; Mikamunana and Moeti "Challenges of Regional Integration in Africa: Policy and Administrative Implications" 2005 *Journal of Public Administration* 95. Balassa *The Theory of Economic Integration* 1; Mikamunana and Moeti "Challenges of Regional Integration in Africa: Policy and Administrative Implications" 2005 *Journal of Public Administration* 95.

³⁹ The development integration theory emerged in response to the experience of problems in implementing market integration in developing countries. Development integration aims to address issues in three areas; namely the objective of integration, the timing and level of interstate binding commitments; and the distribution of the costs and benefits of cooperation. Development integration seeks to accelerate the social and economic development of member states; Mikamunana and Moeti "Challenges of Regional Integration in Africa: Policy and Administrative Implications" 2005 *Journal of Public Administration* 95.

⁴⁰ Regional cooperation is an arrangement between neighboring countries which have similar concerns, to collaborate in order to unravel and come up with solutions that enhance economic, political, social and cultural interests for every participating country; Lee "The Political Economy of Regionalism" 22; Mukamunana and Morti 2005 *Journal of Public Administration* 94.

⁴¹ Peters-Berries 2010 *CBI* 11; Mapuva and Muyengwa-Mapuva 2014 *LDD* 22.

⁴² A 4 of the RECs Protocol.

⁴³ African Union 2018 <https://au.int/en/au-nutshell>.

and a further 21 states which have since joined over the years, the Abuja Treaty entered into force and established the AEC in 1991.⁴⁴ When the Abuja Treaty entered into force and established the AEC in 1991, it realised that the OAU functions because of these two legal instruments, therefore an extraordinary Summit of the OAU called for the establishment of the AU in accordance with fundamental goals of the OAU Charter and the provisions of the Abuja Treaty.⁴⁵ Thereafter, the Constitutive Act was adopted.⁴⁶

The provisions of the Constitutive Act, along with as the provisions of the Abuja Treaty, state the objective of regional integration by intense regional cooperation.⁴⁷ The two instruments affirm that cooperation must happen between member states as well as RECs. The Abuja Treaty envisions the creation of the AEC through a thirty-four year time frame using six defined stages of evolution, and the AEC uses the current RECs as components of the AEC.⁴⁸ In this regard, the provisions of the RECs Protocol are relevant. The RECs Protocol:

recognises the need to establish an institutional framework that will govern the relations between the AEC and the RECs, the harmonisation and coordination of policies, measures, programmes and activities of the latter; the implementation of the provisions of paragraph 2(a) through (d) of the Abuja Treaty, and cooperation among the regional economic communities.⁴⁹

⁴⁴ African Union 2018 <https://au.int/en/au-nutshell>.

⁴⁵ African Union 2018 <https://au.int/en/au-nutshell>. The extraordinary summit was held in Sirte Libya on 9 September 1999.

⁴⁶ African Union 2018 <https://au.int/en/au-nutshell>, the Constitutive Act was adopted during the Lomé Summit of the OAU on 11 July 2000.

⁴⁷ A 88(1) of the Abuja Treaty; A 3 of the Constitutive Act.

⁴⁸ A 88(1) of the Abuja Treaty states that the AEC "shall be established mainly through the co-ordination, harmonisation and progressive integration of the activities of RECs." A 3 of the Constitutive Act as well, highlights the need to "coordinate and harmonise the policies between existing and future Regional Economic Communities for the gradual attainment of the objectives of the African Union." It is worth mentioning that in terms of A 88 of the Abuja Treaty, it was the AEC and not the OAU (now the AU) that was assigned with the "co-ordination, harmonisation and evaluation of the activities of existing and future Regional Economic Communities"; Oppong *African Journal of International and Comparative Law* 2; Olowu 2003 *Iowa Journal of Transboundary and contemporary problems* 16; Scholtz and Ferreira 2011 *Zeitschrift fur ausländisches öffentliches Recht und Völkerrecht/Heidelberg International Law Journal* 331; Ajomo 1976 *International and Comparative Law Quarterly* 336; Allot 1968 *American Journal of Comparative Law* 53.

⁴⁹ Preamble of the REC Protocol.

The duty of the RECs in achieving the said objectives is clear:⁵⁰

they must harmonise and coordinate their policies, measures, programmes and activities and in so doing avoid the duplication of effort, which would hamper the achievement of the objectives of the AEC, one of which is the development of economic integration.

This means, the RECs Protocol positions cooperation among RECs with regard to harmonising their policies, measures, programmes and activities central to the achievement of the development of economic integration.

2.2.1 SADC Treaty (1992)

The SADC Treaty is the main framework for regional economic integration in Southern Africa.⁵¹ The SADC had its origins in the Southern Africa Development Coordination Conference (SADCC), which was established in 1980.⁵² The SADCC was a formal structure aimed at promoting regional co-operation and integration, and was an initiative of the frontline states, which were Angola, Botswana, Mozambique, Tanzania and Zambia.⁵³ This initiative was directed initially towards the political liberation of the region.⁵⁴ Since 1975 the frontline states have convened on a regular basis to co-ordinate efforts, resources and strategies with regard to the national liberation movements of Southern Africa that fought against colonialism, racism and white minority rule.⁵⁵ Thereafter, this initiative further included addressing military attacks against and the destabilisation of the

⁵⁰ A 4(a) of the RECs Protocol and A 4(1) (c) of the Abuja Treaty.

⁵¹ Peters-Berries 2010 *CBIR* 80; Saurombe *Regionalisation through Economic Integration in SADC* 22; Schreiner and Baletab 2015 *AP* 95.

⁵² SADC 2012 <http://www.sadc.int/about-sadc/overview/history-and-treaty/#SADCC>; Qobo 2007 *SAIIA* 12; Hartzenberg 2011 *TRALAC* 5; Saurombe 2013 *LDD* 462; Chingono and Nakana 2009 *AJPSIR* 398; Mapuva and Muyengwa-Mapuva 2014 *LDD* 24.

⁵³ SADC 2012 <http://www.sadc.int/about-sadc/overview/history-and-treaty/>; Qobo 2007 *SAIIA* 12; Hartzenberg 2011 *TRALAC* 5; RISDP 3; Saurombe 2013 *LDD* 462; Chingono and Nakana 2009 *AJPSIR* 398; Mapuva and Muyengwa-Mapuva 2014 *LDD* 24.

⁵⁴ SADC 2012 <http://www.sadc.int/about-sadc/overview/history-and-treaty/>; Qobo 2007 *SAIIA* 12; RISDP 3; Hartzenberg 2011 *TRALAC* 5; Mapuva and Muyengwa-Mapuva 2014 *LDD* 24.

⁵⁵ Qobo 2007 *SAIIA* 12; Saurombe 2013 *LDD* 462; Chingono and Nakana 2009 *AJPSIR* 398; Mapuva and Muyengwa-Mapuva 2014 *LDD* 24.

majority-ruled states by apartheid South Africa.⁵⁶ The intensity of the struggle on both fronts strengthened their bonds of solidarity and the need for collective action.⁵⁷ Their political leaders saw the promotion of regional economic development through co-operation and integration as the next logical step after political independence had been achieved.⁵⁸ Therefore, the aim of establishing the SADCC was to break the economic power that South Africa held over many of its neighbours in Southern Africa.⁵⁹ In order to break this economic power, in 1992 the SADC Member States signed the Declaration and Treaty establishing the SADC as a replacement of the SADCC.⁶⁰ The reason for transforming the SADCC into SADC was to promote deeper economic cooperation and integration and to help address many of the problems that make it difficult to sustain economic growth and socio-economic development, such as continued dependence on the exports of a few primary commodities.⁶¹

The SADC aims to achieve development and economic growth, alleviate poverty, enhance the standard and quality of life of the peoples of Southern Africa, and support the socially disadvantaged through regional economic integration.⁶² In this context the Treaty envisages the promotion of sustainable and equitable economic growth and socio-economic development; deeper co-operation and integration; as well as good governance and durable peace.⁶³ These commonalities inform the region's quest for collective stability

⁵⁶ SADC 2012 <http://www.sadc.int/about-sadc/overview/history-and-treaty/>; Qobo 2007 *SAIIA* 12; SADC RISDP 3; Saurombe 2013 *LDD* 462.

⁵⁷ SADC 2012 <http://www.sadc.int/about-sadc/overview/history-and-treaty/>; RISDP 3; Saurombe 2013 *LDD* 462; Chingono and Nakana 2009 *AJPSIR* 402; Mapuva and Muyengwa-Mapuva 2014 *LDD* 24.

⁵⁸ SADC 2012 <http://www.sadc.int/about-sadc/overview/history-and-treaty/>; SADC RISDP 3; Saurombe 2013 *LDD* 462; Chingono and Nakana 2009 *AJPSIR* 402; Mapuva and Muyengwa-Mapuva 2014 *LDD* 24.

⁵⁹ SADC 2012 <http://www.sadc.int/about-sadc/overview/history-and-treaty/#SADCC>; Qobo M 2007 *SAIIA* 12; Chingono and Nakana 2009 *AJPSIR* 402.

⁶⁰ SADC 2012 <http://www.sadc.int/about-sadc/overview/history-and-treaty/#SADCC>.

⁶¹ RISDP 3.

⁶² A 5(1)(a) and (b) of the *SADC Treaty* (1992); Mapuva and Muyengwa-Mapuva 2014 *LDD* 24; Schreiner and Baletab 2015 *AP* 95.

⁶³ A 5(1)(a) and (b) of the *SADC Treaty* (1992); Mapuva and Muyengwa-Mapuva 2014 *LDD* 5; Peters-Berries 2010 *CBI* 81

and sustainable development realisable through economic regional integration.⁶⁴ To achieve development and economic growth in the region, the SADC Treaty thus states;

SADC shall harmonise the political and socio-economic policies and plans of Member States; encourage the peoples of the region and their institutions to take initiatives to develop economic, social and cultural ties across the region, and to participate fully in the implementation of the programmes and projects of SADC; create appropriate institutions and mechanisms for the mobilisation of requisite resources for the implementation of programmes and operations of SADC and its institutions.⁶⁵

This means that the SADC takes it upon itself to bring together the socio-economic policies of individual SADC Member States in order to encourage economic integration. In order to do so the SADC has established institutions to spearhead the sub-regional regulation of SADC member states' natural resources. Furthermore, the SADC Treaty provides for the formulation of subsidiary legal instruments such as protocols. These institutions and protocols have specific mandate designed to facilitate regional economic integration.⁶⁶ The protocols and institutions aim to induce cooperation in the areas of industry, trade, investment and finance; natural resources and the environment.⁶⁷

2.2.2 Regional Indicative Strategic Development Plan (2015)

The revised *Regional Indicative Strategic Development Plan* (RISDP) constitutes a consistent and comprehensive long-term framework for SADC Member States.⁶⁸ The RISDP is a blueprint for regional integration. It includes not only a statement of the stages

⁶⁴ Mapuva and Muyengwa-Mapuva 2014 *LDD* 25; Chauvin and Gaulier 2002 *CEPII* 23; Peters-Berries 2010 *CBI* 81.

⁶⁵ A 5(2) of the *SADC Treaty* (1992).

⁶⁶ A 22 (1) of the *SADC Treaty* (1992); Saurombe 2012 *PER* 457; Schreiner and Baletab 2015 *AP* 95.

⁶⁷ A 21(3)(c) and (e) of the *SADC Treaty* (1992); Saurombe 2012 *PER* 457.

⁶⁸ Hartzenberg 2011 *TRALAC* 5; Ngwawi J 2014 *SADC Today* 2; SADC Energy Monitor 2016 17; Guilherme *Research Gate* 8; Kalaba *et al* 2006 *TRALAC* 4; The RISDP was developed and approved by the Summit in 2003 for a 15-year period, but was effectively implemented from 2005, thus giving an implementation time frame of 2005-2020. It was revised on April 2015 in Harare, Zimbabwe at the SADC Extraordinary Summit of Heads of State and Government, which endorsed the 2015-2020 RISDP as the new blueprint that would guide the implementation of SADC programmes until the year 2020. It should also be noted that the RISDP is the first effort by the SADC to set specific quantitative targets for infrastructure development (including energy) for a 15-year period, 2004-2018.

and the necessary conditions for achieving regional integration, but it also sets the standards conducive to attaining the desired goals.⁶⁹ The RISDP is not a legally binding document, in essence it elicits political commitment from states but does not impose legal obligations.⁷⁰ The RISDP contains the common SADC position on the strategic steps necessary to promote economic integration regionally.

The major intervention for energy in the RISDP is "Energy to support regional economic development, trade and investment".⁷¹ This intervention guides the selection of the intervention components to be evaluated or regional integration.⁷² For example, the target for energy is that at least 70 per cent of rural communities within Southern Africa should have access to "modern forms of energy". The RISDP specifically advocates improving access to affordable energy services to rural communities through rural electrification and the development of new and renewable energy sources, and proposes doing so through the development of renewable and low-cost energy sources such as hydroelectricity.⁷³ Furthermore, one of the objectives of the RISDP is to enhance exports through the promotion of intra-regional trade.⁷⁴ The RISDP also highlights that trade is a key catalytic intervention area for the achievement of deeper economic integration in the SADC.⁷⁵ The RISDP acknowledges the role that regional cooperation in establishing coherent policies pertaining to various areas of cooperation - of which energy is one - will play in facilitating the achievement of the overall objective of promoting regional economic integration in the SADC.⁷⁶

⁶⁹ Hartzenberg 2011 *TRALAC* 13; Guilherme 2015 *Junior Comparison* 8; Kalaba *et al* 2006 *TRALAC* 4.

⁷⁰ Hartzenberg 2011 *TRALAC* 5.

⁷¹ SADC Energy Monitor 2016 30; TRALAC 2018 <https://www.TRALAC.org/publications/article/9173-revised-risdp-a-new-growth-path-for-sadc-s-industrial-development.html>.

⁷² SADC Energy Monitor 2016 30; TRALAC 2018 <https://www.TRALAC.org/publications/article/9173-revised-risdp-a-new-growth-path-for-sadc-s-industrial-development.html>.

⁷³ SADC Energy Monitor 2016 31.

⁷⁴ Guilherme 2015 *Junior Comparison* 8.

⁷⁵ Hartzenberg 2011 *TRALAC* 13; Ngwawi 2014 *SADC Today* 3; SADC Energy Monitor 2016 17; Hartzenberg "Economic integration matters for the SADC" 3-4; Kalaba *et al* 2006 *TRALAC* 4.

⁷⁶ SADC Energy Monitor 2016 28; TRALAC 2018 <https://www.TRALAC.org/publications/article/9173-revised-risdp-a-new-growth-path-for-sadc-s-industrial-development.html>.

2.3 The role of the energy sector in promoting regional economic integration in the SADC

The energy sector in the SADC has initiated several strategies to use sustainable energy and achieve regional economic integration.⁷⁷ The SADC achieves this by acting in line with the United Nations Sustainable Development Goal 7 initiative that ensures "access to affordable, reliable, sustainable and modern energy for all."⁷⁸ The SADC is also acting in line with the African Union's *Agenda 2063*, which identifies energy as one of the key infrastructural pillars for binding the continent.⁷⁹ In terms of the provisions contained in the SADC Treaty, the objective common to all SADC Member States is "to promote sustainable and equitable economic growth and socio-economic development."⁸⁰ This objective will be achieved:

through establishing efficient systems of production, and achieving deeper cooperation, good governance and durable peace and security, so that the region emerges as a competitive and effective player in international relations and the world economy.⁸¹

After establishing Regional economic integration as a goal for the SADC, the way in which this goal will be accomplished is addressed next. The SADC Treaty provides that regional integration will be indispensable in ensuring the promotion of the sustainable development of the region, and goes on to list the ways in which regional integration should be brought about.⁸² The mechanisms listed relate primarily to cooperation among member states on harmonising policies aimed at regulating projects and programmes pertaining to a variety of areas of cooperation listed in the Treaty.⁸³ The cooperation envisaged by the Treaty is defined as the "coordination, rationalisation and harmonisation

⁷⁷ Montmasson-Clair and Deonarain 2017 *TIPS* 6.

⁷⁸ United Nations 2018 <http://www.un.org/sustainabledevelopment/energy/>; Montmasson-Clair and Deonarain 2017 *TIPS* 6.

⁷⁹ African Union 2018 <http://www.un.org/en/africa/osaa/pdf/au/agenda2063-aspirations.pdf>; Montmasson-Clair and Deonarain 2017 *TIPS* 6.

⁸⁰ SADC 2012 <http://www.sadc.int/about-sadc/overview/sadc-mission/>.

⁸¹ SADC 2012 <http://www.sadc.int/about-sadc/overview/sadc-mission/>.

⁸² A 5 of the *SADC Treaty*.

⁸³ A 5(2)(a) of the *SADC Treaty*.

of member states' overall macro-economic and sectoral policies and strategies, and programmes and projects by appropriate SADC institutions in the areas of cooperation listed."⁸⁴ Among the areas of cooperation listed in the SADC Treaty is the area of infrastructure and services, which falls under the Directorate of Infrastructure and Services (DIS).⁸⁵ The DIS is mandated by the SADC Treaty to "conclude necessary protocols in the area of infrastructure and services, which includes energy, which protocols are to spell out the objectives and scope of the institutional mechanisms for cooperation and integration in the field covered by the protocol."⁸⁶ With reference to the field of energy, the *SADC Protocol on Energy* (1996) fulfils this role.

2.3.1 SADC Energy Protocol (1996)

The *SADC Protocol on Energy* (1996)⁸⁷ (SADC Energy Protocol) is the main legal document on energy development in the SADC region that provides the broad legal and policy framework for cooperation in the energy sector. Its main objective is:⁸⁸

to ensure the availability of sufficient, least-cost energy services that will assist in the attainment of economic efficiency and the eradication of poverty, whilst ensuring the environmentally sustainable use of energy resources.⁸⁹

The objective of the SADC Energy Protocol can be summarised as "the harmonisation of national and regional energy policies on matters of common interest in order to provide

⁸⁴ A 21(2) of the *SADC Treaty*.

⁸⁵ A 21(3) of the *SADC Treaty*.

⁸⁶ For an overview of the general provisions relating to the protocols to be concluded, see a 22(1) -(11) of the SADC Treaty.

⁸⁷ *SADC Protocol on Energy* (1996) hereafter the Protocol. The Protocol was signed on the 24 Aug 1996 and ratified on the 17 April 1998 by two-thirds of the SADC Member States.

⁸⁸ Montmasson-Clair and Deonarain 2017 *TIPS* 7; Simelane and Mutanga "Electricity Generation" 33.

⁸⁹ A 3 of the *SADC Protocol on Energy* (1996); Chanakira 2011 *DOUNIA, revue d'intelligence stratégique et des relations internationales* 69; Schreiner and Baletab 2015 *AP* 95; Simelane and Mutanga "Electricity Generation" 33.

sustainable energy services".⁹⁰ Furthermore, the Protocol aims at attaining cooperation in the SADC region through the development of energy and energy pooling.⁹¹ "Energy pooling" is defined in the protocol to be:

the cooperation among parties or entities in development, transmission and conveyance and storage of energy in order to obtain optimum reliability of service, economy of operation, and equitable sharing of costs and benefits.⁹²

Through the system of "energy pooling" the SADC region is able to come together and be able to meet the electricity demands of the SADC region.

The Protocol therefore contains guidelines for energy co-operation in the region, including the development and updating of a regional electricity master plan, the development and utilisation of electricity in an environmentally sound manner, and emphasises the need for universal access to affordable and quality services.⁹³ As already said, the Energy Protocol provides the broad mandate for cooperation in the energy sector. Concerning the role of coordinated SADC energy policy in facilitating regional economic integration, the wording of the SADC Energy Protocol on a similar note as the SADC Treaty does not refer specifically to the concept of regional economic integration. In the opinion of the researcher, it is however possible to deduce by interpreting certain provisions that the promotion of regional economic integration is an objective of the SADC Energy Protocol.

⁹⁰ A 3(4) of the *SADC Protocol on Energy* 1996; Chanakira 2011 *DOUNIA, revue d'intelligence stratégique et des relations internationales* 69; Schreiner and Baletab 2015 *AP* 95; Simelane and Mutanga "Electricity Generation" 33.

⁹¹ A 3(2) of the *SADC Protocol on Energy* 1996; Chanakira 2011 *DOUNIA, revue d'intelligence stratégique et des relations internationales* 69; Schreiner and Baletab 2015 *AP* 95; Simelane and Mutanga "Electricity Generation" 33.

⁹² A 3(2) of the *SADC Protocol on Energy* 1996; Chanakira 2011 *DOUNIA, revue d'intelligence stratégique et des relations internationales* 69; Schreiner and Baletab 2015 *AP* 95; Simelane and Mutanga "Electricity Generation" 33.

⁹³ Schreiner and Baletab 2015 *AP* 95.

The Protocol aims at attaining cooperation in the region through the development of energy and energy pooling;⁹⁴ through ensuring the provision of reliable, continued and sustainable energy services in the most efficient and cost-effective manner;⁹⁵ and through promoting joint cooperation in the transfer of low-cost energy technologies.⁹⁶ The Protocol therefore gives guidelines for energy co-operation in the region, including the development and updating of a regional electricity master plan, and the development and utilisation of electricity in an environmentally sound manner, and by expressing the need for universal access to affordable and quality services.⁹⁷ In short, the SADC Energy Protocol reiterates the nexus between the objectives of the SADC energy sector and the promotion of regional economic integration, and places this relationship in the context of energy cooperation in the SADC.

So as to achieve the promotion of regional economic integration through coordinated regional energy policies, strategies and programmes, the Energy Protocol functions through the *SADC Energy Cooperation Policy and Strategy*, (1996) and the *Energy Sector Activity Plan* (1999), both of which set out the activities and time-frame related to proposed regional activities.⁹⁸ Activities managed by the Activity Plan are classified under four focus areas, namely energy trading, investment and finance, training and organisational capacity building, and the exchange of information and experience.⁹⁹ The Activity Plan and essential objective of its related activities include increasing levels of access to modern energy sources in the region.¹⁰⁰ This objective proved to be the drive

⁹⁴ A 3(2) of the *SADC Protocol on Energy* 1996; Chanakira 2011 *DOUNIA, revue d'intelligence stratégique et des relations internationales* 69; Schreiner and Baletab 2015 *AP* 95; Simelane and Mutanga "Electricity Generation" 33.

⁹⁵ A 3(4) of the *SADC Protocol on Energy* 1996; Chanakira 2011 Research Gate 69; Schreiner and Baletab 2015 *AP* 95; Simelane and Mutanga "Electricity Generation" 33.

⁹⁶ A 3(6) of the *SADC Protocol on Energy* 1996; Chanakira 2011 *DOUNIA, revue d'intelligence stratégique et des relations internationales* 69; Schreiner and Baletab 2015 *AP* 95; Simelane and Mutanga "Electricity Generation" 33.

⁹⁷ Schreiner and Baletab 2015 *AP* 95.

⁹⁸ SADC Energy Monitor 2016 27.

⁹⁹ Review of the *SADC Energy Sector Activity Plan Technical Report* submitted by AECOM International Development Gaborone, Botswana December 2009 1.

¹⁰⁰ SADC Energy Monitor 2016 27.

for drafting the *SADC Regional Energy Access Strategy and Action Plan* (2010) (REASAP), an initiative geared towards increased regional access to modern energy.¹⁰¹

2.3.2 Regional Energy Access Strategy and Action Plan (2010)

The REASAP aims to improve energy access regionally. The SADC Member States created it in order to support and complement access to energy endeavours made at national level by SADC Member States.¹⁰²

Member States have as a strategic goal the harnessing of regional energy resources to ensure, through national and regional action, that all the people of the SADC Region have access to adequate, reliable, least cost, environmentally sustainable energy services.

In essence, the purpose of the plan is to merge regional energy resources in order to ensure that the entire SADC region has access to affordable, sustainable electricity. The plan's goal is "within 10 years (i.e. by 2020) to reduce by half the number of people in the region without access to energy, and then halve it again every five years thereafter until the region has universal access."¹⁰³ This step is another mechanism used by the energy sector to deepen regional integration within the SADC region.

2.3.3 SADC Industrialisation Strategy and Roadmap (2015)

The SADC Member States endorsed a proposal calling for the urgent need leveraging of the region's abundant and diverse resources through beneficiation and value addition.¹⁰⁴ To operationalise the stated proposal, the Summit resolved to develop a *SADC Industrialization Strategy and Roadmap* (2015) which aims to achieve self-sustaining

¹⁰¹ SADC Energy Monitor 2016 27.

¹⁰² *REASAP 2010* 1. At the SADC Regional Energy Access workshop held in Maseru on November 4, 2009.

¹⁰³ *REASAP 2010* 3.

¹⁰⁴ *SADC Industrialisation Strategy and Roadmap* (2015) 5.

development for SADC Member States through the addition of value to SADC products, thus increasing the returns from the export of natural resources.¹⁰⁵

One of the pillars of the *SADC Industrialisation Strategy and Roadmap* (2015)¹⁰⁶ is regional integration. The strategy recognises that in order to attain regional integration SADC Member States in their policy formulation should take into account the impact of their policies on other SADC members, the critical necessity for a strengthened constituency, and that SADC Member States should enhance the distribution of information on the implementation of programmes, protocols and projects.¹⁰⁷

Furthermore, the strategy acknowledges that there is a serious energy deficit within the SADC, which will widen unless the supply of electricity is substantially increased, drawing on the ample hydro-power potential of the region.¹⁰⁸ To address the crippling energy deficit being faced by the region, the strategy advocates a variety of measures which are relevant to regional economic integration in the SADC.¹⁰⁹ Firstly, SADC Member States should increase their public investment in energy provision both for domestic use and for export to regional partners through the SAPP.¹¹⁰ It is pertinent to note that the Strategy advocates energy pooling through the SAPP, which would aid in promoting regional economic integration. Secondly, attention should be paid to greater energy pricing efficiency within the context of deeper regional co-operation, as the availability of affordable energy would enable Member States to draw on lower cost regional supplies where practicable, rather than to focus on national self-sufficiency.¹¹¹ Thirdly, the SADC Member States should accelerate the current plans for hydro-power network

¹⁰⁵ SADC Industrialisation Strategy and Roadmap (2015) 5.

¹⁰⁶ The *SADC Industrialisation Strategy and Roadmap* (2015) was approved by the SADC Extraordinary Summit of Heads of State and Government held in April 2015 in Harare, Zimbabwe and covers the period 2015-2063; Hartzenberg 2011 *TRALAC* 5.

¹⁰⁷ SADC Industrialisation Strategy and Roadmap (2015) 21; SADC Energy Monitor (2016) 31.

¹⁰⁸ SADC Industrialisation Strategy and Roadmap (2015) 22; SADC Energy Monitor (2016) 31.

¹⁰⁹ SADC Industrialisation Strategy and Roadmap (2015) 23; SADC Energy Monitor (2016) 31.

¹¹⁰ SADC Industrialisation Strategy and Roadmap (2015) 23; SADC Energy Monitor (2016) 31.

¹¹¹ SADC Industrialisation Strategy and Roadmap (2015) 23; SADC Energy Monitor (2016) 31.

connectivity.¹¹² It is thus the author's opinion that the SADC industrialisation roadmap plays a major role in promoting regional economic integration through beneficiation and value addition.

2.3.4 SADC Regional Infrastructure Development Master Plan - Energy Sector Plan (2012)

Infrastructure is the bedrock of our economic development and the deepening of our regional integration.¹¹³

Regional economic integration within the SADC region has also been incorporated into the *Energy Sector Plan*, which is part of the *SADC Regional Infrastructure Development Master Plan 2012-2027 (RIDMP - ESP)*.¹¹⁴ Since the establishment of appropriate infrastructure would enable the SADC region to attain regional economic integration, the aim of the RIDMP - ESP is to define regional infrastructure requirements and conditions to facilitate infrastructure development in the energy sector for 15 years from 2012 to 2027.¹¹⁵ Furthermore, the SADC region has large potential for hydropower, which is currently being exploited on a commercial scale.¹¹⁶ However, the necessary infrastructure for grid connection, manufacturing and quality testing is lacking.¹¹⁷ The Energy Sector Plan has thus been designed to meet the SADC's objectives of regional integration through boosting economic development by ensuring energy security, improving access

¹¹² SADC Industrialisation Strategy and Roadmap (2015) 23; SADC Energy Monitor (2016) 31.

¹¹³ RIDMP-ESP 2; HE José Eduardo Dos Santos, President, Republic of Angola and former SADC Chairperson.

¹¹⁴ The SADC Infrastructure Vision 2027 was conceived at the 2007 Lusaka Summit in Lusaka, Zambia, with the objective of establishing a strategic framework to guide the development of a seamless, cost-effective trans-boundary infrastructure. The SADC Infrastructure Vision 2027 is anchored on six pillars consisting of energy, transport, information and communication technologies, meteorology, trans-boundary water resources and tourism (trans-frontier conservation areas), which constitute the SADC Regional Infrastructure Development Programme.

¹¹⁵ RIDMP-Energy Sector Plan 14.

¹¹⁶ RIDMP-Energy Sector Plan 8, 15.

¹¹⁷ RIDMP-Energy Sector Plan 15.

to modern energy services, tapping the abundant energy resources and achieving financial investment and environmental sustainability.¹¹⁸

The main areas of consideration for the RIDMP-ESP are related to the implementation of infrastructure projects such as electricity generation plants and transmission lines, and interventions, which entail that the required policies or strategies and regulatory frameworks, institutional frameworks that enable the projects be realised.¹¹⁹ Lastly, the energy infrastructure development in the SADC region has been guided by the SADC instruments that were discussed above and together all of them play a role in promoting regional economic integration in the SADC.¹²⁰

2.4 Energy trading as the driver of regional economic integration in the SADC

Energy trading is listed as a fundamental component or activity of the SADC energy sector. The SADC energy sector is to achieve regional economic integration through energy trading.¹²¹ In the past, several countries in Southern Africa were dependant on long-term bi-lateral contracts for electricity trading.¹²² However, energy trading in the SADC now takes place through the SAPP, which paves the way for a more comprehensive approach to regional energy shortages on the one hand and excess supply on the other

¹¹⁸ RIDMP-Energy Sector Plan 14.

¹¹⁹ RIDMP-Energy Sector Plan 14.

¹²⁰ They include the RISDP, the *SADC Energy Protocol (1996)*, the Energy Cooperation Policy and Strategy, and the Activity Plan. The emphasis in these instruments is largely on harmonising national and regional policies and regulatory frameworks, cooperating in energy development and trading through the development of the necessary infrastructure, exploiting the abundant energy resources in the region, particularly hydropower, and establishing co-ordinated planning and institutions; RIDMP-ESP 7.

¹²¹ Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?" 113.

¹²² Back in 1958 the colonial administrations of the Democratic Republic of Congo (formerly Belgian Congo) and Zambia (formerly part of the Federation of Rhodesia and Nyasaland) initiated the first bilateral project, which led to the construction of the transnational power line between the cities of Nseke and Kitwe. Then, during the apartheid era, early regional electricity cooperation in Southern Africa included the development and strengthening of the transmission lines among SADCC Members in order to reduce their dependency on South Africa; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"113.

hand.¹²³ This led to the formation of the SAPP as a SADC body.¹²⁴ The SAPP was formed in terms of the SADC Treaty and the SADC Energy Protocol in order to meet regional electricity demand and facilitate electric power trading within the SADC region.¹²⁵ The establishment of the SAPP occurred in August 1995. 12 SADC countries of Southern Africa represented by their respective electric power utilities joined forces to form a competitive power pool and signed an IGMOU that led to the development of the SAPP.¹²⁶ The Aim of the SAPP is to optimise the use of available energy resources in the region, for the power utilities to support one another during emergencies, and for them to be consistent in the reasonable utilisation of natural resources and their effect on the environment.¹²⁷ The energy produced within the SAPP is linked together so that it forms one system that benefits the whole SADC Region.¹²⁸ Central to the SAPP is the formation of a regional electricity market with the aim of facilitating the regional energy trade.¹²⁹

2.4.1 Short-term Electricity Market - STEM

The evolution of the competitive market began with the STEM, in order to provide a regional market for trading surplus electricity.¹³⁰ Prior to the SAPP, SADC Member States with excess energy supply facilitated SADC Member States which had a deficit by means

¹²³ Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"113

¹²⁴ Simelane and Mutanga "Electricity Generation" 33; Peters-Berries 2010 *CBI* 94; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"113.

¹²⁵ Mlundi and Davidson *Dynamic Analysis of Southern Africa Power Pool (SAPP) Network* 109.

¹²⁶ SADC Energy Monitor 2016 21; SAPP 2018 www.sapp.co.zw/about-sapp; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?" 113; Mlundi and Davidson *Dynamic Analysis of the Southern Africa Power Pool (SAPP) Network* 109; Musaba "The Development of the SAPP Competitive Electricity Market" 188.

¹²⁷ SAPP 2018 www.sapp.co.zw/about-sapp; SAPP 2018 www.sapp.co.zw/about-sapp; 22 of the SADC Energy Monitor 2016; Musaba "The Development of the SAPP Competitive Electricity Market" 189.

¹²⁸ SAPP 2018 www.sapp.co.zw/about-sapp; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"133.

¹²⁹ SAPP 2018 www.sapp.co.zw/about-sapp; Musaba "The Development of the SAPP Competitive Electricity Market" 189.

¹³⁰ SAPP 2018 www.sapp.co.zw/about-sapp; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?" 129; Musaba "The Development of the SAPP Competitive Electricity Market" 189.

of long-term bilateral contracts.¹³¹ As an antecedent to a fully integrated and competitive market, only the Member States' national power utilities were allowed to participate in STEM.¹³² For STEM to operate, SAPP Member States that wish to sell electricity submit their bids and offers each day before 9:00 to the power pool's coordination centre.¹³³ After the markets are closed, on the same day, the matched bids and offers are published to all participants, who would then eventually enter into a contract.¹³⁴ However, market prices are only matched at the seller's offer,¹³⁵ a practice which later turned out to constrain trade.¹³⁶ One major problem is that the market is neither fully liberated nor competitive yet.¹³⁷ While demand almost always exceeds the available supply offers in STEM, the sellers do not benefit from the higher prices offered by buyers because trade is concluded at the seller's price offers.¹³⁸ Pricing mechanisms thus constrain trade and the STEM mechanisms are inflexible. During the early months of operation up to 120 GWh were traded through STEM, with monthly volumes oscillating between 20 and 60 GWh until mid-2005.¹³⁹ However, regional electricity trading through STEM then diminished to an average of less than 20GWh per month, until shortly after the end of

¹³¹ Naidoo, Musaba, Balet and Chikova "Developing a Competitive Market for Regional Electricity Cross Border Trading: The Case for the Southern African Power Pool" 5; Mlundi and Davidson *IEEE* 109; Musaba "The Development of the SAPP Competitive Electricity Market" 189.

¹³² SAPP 2018 www.sapp.co.zw/about-sapp; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"129.

¹³³ Musaba "The Development of the SAPP Competitive Electricity Market" 189; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"129.

¹³⁴ Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?" 129; Musaba "The Development of the SAPP Competitive Electricity Market" 189.

¹³⁵ Musaba "The Development of the SAPP Competitive Electricity Market" 191; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"129.

¹³⁶ Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"129; Musaba "The Development of the SAPP Competitive Electricity Market" 191.

¹³⁷ SADC Energy Monitor 2016 21; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"129.

¹³⁸ Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"129; SADC Energy Monitor 2016 21.

¹³⁹ Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"129; SADC Energy Monitor 2016 21.

2006 STEM became dormant and finally closed down due to power shortages and the lack of tradable surplus generation of electricity in the region.

2.4.2 Day Ahead Market - DAM

Power shortages that prevail in the SADC region and the deterioration of STEM caused the SAPP Members to form a more efficient competitive regional market called the Day Ahead Market (DAM).¹⁴⁰ The primary purpose of the DAM is to efficiently drive regional economic integration through renewable energy trading.¹⁴¹ The DAM facilitates more direct trade between interacting partners comparable to an auction market with the SAPP coordination centre acting as the operator of the market.¹⁴² Unlike the STEM, which was open to national utilities only, the revised IMOU opens the DAM to independent power producers and distributors, thereby increasing competition. Thus, by implication the DAM forms a competitive market.¹⁴³ Lastly, the DAM is a platform that ensures that the marketplace is secure and effective, and conducts the non-discriminatory trade of electricity.¹⁴⁴

¹⁴⁰ SADC Energy Monitor 2016 22; Chikova "Energy Trading in the SAPP" 20; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"131.

¹⁴¹ SADC Energy Monitor 2016 21; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"131; Implementation of the plan to develop the competitive electricity market commenced in January 2004. In 2009 the Dam became functional as a new trading platform.

¹⁴² SADC Energy Monitor 2016 21; Beta M SAPP Promoting a Regional Electricity Market 22; Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"131.

¹⁴³ Muntschick "Regional Energy Cooperation in SADC: Is the Southern African Power Pool Currently Powered by External Funding?"131; In March 2011 eight SAPP members signed the governing documents of DAM and they can now trade on its platform.

¹⁴⁴ Chikova "Energy Trading in the SAPP" 20; Naidoo, Musaba, Balet and Chikova "Developing a Competitive Market for Regional Electricity Cross Border Trading: The case for the Southern African Power Pool" 6.

2.5 Conclusion

The energy sector plays a vital role in promoting regional economic integration within the SADC Region.¹⁴⁵ This chapter has demonstrated that in order to understand how the energy sector promotes regional economic integration within the SADC region, it is critical to define regional economic integration in terms of the SADC Treaty, which is the main framework for regional economic integration in Southern Africa.¹⁴⁶ The aim of the SADC Treaty is to achieve development and economic growth, alleviate poverty, enhance the standard and quality of life of the peoples of Southern Africa, and support the socially disadvantaged through regional integration. Being the main legal framework, the SADC Treaty gives its members a broad mandate for regional economic integration.

The SADC Treaty provides for the formulation of subsidiary legal instruments such as protocols that provide specific mandates so as to facilitate regional economic integration.¹⁴⁷ These protocols and institutions induce cooperation in the areas of industry, trade, investment and finance; natural resources and the environment. The RISDP constitutes a consistent and comprehensive long-term framework for SADC Member States and develops a blueprint for regional integration in terms of the stages and the necessary conditions for achieving regional integration and setting the standards conducive to attaining the designed goals. The *SADC Protocol on Energy 1996*¹⁴⁸ is the main legal document on energy development in the SADC region that provides the broad legal and policy framework for cooperation in the energy sector and supplies the guidelines for energy co-operation in the region. The Energy Protocol operates by the SADC Energy Cooperation Policy and Strategy, 1996 and the Energy Sector Activity Plan, 1999 (Activity Plan), which put out the activities and period related to proposed regional

¹⁴⁵ Peters-Berries 2010 *CBI* 20.

¹⁴⁶ See Para 2.2 above.

¹⁴⁷ A 22(1) of the *SADC Treaty* (1992); Saurombe 2012 *PER* 457; Schreiner and Baletab 2015 *AP* 95.

¹⁴⁸ SADC Protocol on Energy (1996) hereafter the Protocol. The Protocol was signed on the 24 Aug 1996 and ratified on the 17 April 1998 by two-thirds of SADC Member States.

activities. The *Regional Energy Strategy and Action Plan 2010* aims to improve energy access regionally. Since the development of infrastructure would enable the SADC region to attain regional economic integration, the aim of the *RIDMP - ESP* is to define the regional infrastructure requirements and conditions to facilitate infrastructure development in the energy sector.

In addition, this chapter has elaborated on energy trading within the SAPP. The SAPP was formed in terms of the SADC treaty and the SADC Energy Protocol in order to meet regional electricity demand and facilitate electric power trading within the SADC region. Therefore, to facilitate regional economic integration the SAPP has put in place electricity markets that exist to facilitate energy trading.

3 Renewable energy trading as regulated by the South African and Lesotho regulatory frameworks

3.1 Introduction

This chapter aims to identify specific legislation and policy that refer to energy trading in Lesotho and South Africa. The further purpose of this chapter is to deduce from the identified legislation and policies the extent to which law and policy in Lesotho and South Africa regulate renewable energy trading. In relation to the stated aim, the methodology used comprises an analysis of the legislation and policies underpinning renewable energy trading in South Africa and Lesotho. The methodology is an analysis of the South African legislation namely *Constitution of the Republic of South Africa* 1996, the *National Development Plan 2011-2030 (NDP)*, *National Energy Act*, the *Executive Summary of the Draft Integrated Resource Plan 2010-2030*, and the *White Paper on Energy Policy, 1998*. The methodology also analyses the Lesotho legislation namely the *Lesotho Vision 2020*, the *National Strategic Development Plan 2012/2013-2016/2017 (NSDP)*, and the *Lesotho Energy Policy 2015-2025 (LEP)*. Therefore, this chapter is a discussion of what is prescribed about regional economic integration or energy trading in the stated legislation.

3.2 The regulatory legal framework of South Africa

South Africa has assumed the role of addressing economic integration in the SADC region, and uses the SADC as a vehicle to drive this agenda for the region.¹⁴⁹ Since becoming a democratic state, South Africa has regarded regional economic integration as one of its most important economic priorities which is evident from its commitment to all spheres of the SADC agenda, especially the political, social and economic well-being of the region.¹⁵⁰ To some extent, this has benefitted the region, since South Africa's prominence on the global front helps magnify the region's potential in many respects.¹⁵¹ South Africa acceded to the *SADC Treaty* on 29 August 1994 at the Heads of State Summit in Gaborone, Botswana.¹⁵² This accession was approved by the Senate and National Assembly on the 14 September 1994.¹⁵³ South Africa has significant interests in the region and in regional integration. To illustrate the importance attached to this region, the first foreign policy document adopted by its democratic government was in fact a "Framework for Co-operation in Southern Africa", which was approved by Cabinet in August 1996. In terms of this "Framework", the vision for the Southern African region is the greatest possible economic cooperation, the provision of mutual assistance where necessary, and the joint planning of regional development initiatives, leading to integration consistent with socio-economic, environmental and political realities.¹⁵⁴ Since joining the SADC South

¹⁴⁹ Saurombe 2010 *Journal of International Law and Technology* 124.

¹⁵⁰ Saurombe 2010 *Journal of International Law and Technology* 124.

¹⁵¹ Saurombe 2010 *Journal of International Law and Technology* 124.

¹⁵² Saurombe 2010 *Journal of International Law and Technology* 124.

¹⁵³ It is undoubted that South Africa is the most developed and advanced economy in the SADC and on the continent of Africa. This position cannot be ignored if the possibility of regional integration is taken seriously on the continent and in the region. For this reason, it is important to point out that owing to its economic strength South Africa has the potential to make or break regional integration in the region. South Africa can be described as the economic hub of the region; Saurombe *Regionalisation through Economic Integration in SADC* 148.

¹⁵⁴ Saurombe *Regionalisation through Economic Integration in SADC* 148.

Africa has become very involved in the activities of the community.¹⁵⁵ These are actively pursued by the relevant South African line function departments.¹⁵⁶

In terms of the energy sector in South Africa, the following instruments from the legal regulatory framework bear reference.

3.2.1 The Constitution of the Republic of the Republic of South Africa, 1996

The *Constitution of the Republic of South Africa, 1996* (Constitution) is relevant from two points of view. Firstly, the environmental right enshrined in chapter 2 of the Constitution places environmental issues firmly on the political and legal agenda.¹⁵⁷ Section 24 of the Constitution:

guarantees everyone the right to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that secure the ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.¹⁵⁸

Section 24 (b) the Constitution provides the impetus for the enactment of a number of environmental statutes and places environmental issues firmly onto the executive and judicial agenda, including the initiation of a number of the energy law-related initiatives outlined below.¹⁵⁹ Secondly the Constitution determines the respective roles of the three spheres of government (national, provincial and local) in South Africa, which enjoys a quasi-federal system of government. Each of these must "exercise their powers and perform their functions in a manner that does not encroach on the geographical, functional or institutional integrity of government in another sphere..."¹⁶⁰ Furthermore,

¹⁵⁵ ; The activities include transportation and Communications, Agriculture, Trade, Energy and Mining; Saurombe 2010 *Journal of International Commercial Law and Technology* 127.

¹⁵⁶ Department of Trade and Industry, Department of Mineral Resources; South African Consulate General 2018 http://www.southafrica-newyork.net/consulate/government_departments.html.

¹⁵⁷ Glazewski The Legal Framework for Renewable Energy in South Africa 3.

¹⁵⁸ S 24 (a) and (b) of the Constitution of the Republic of South Africa.

¹⁵⁹ Glazewski The Legal Framework for Renewable Energy in South Africa 3.

¹⁶⁰ S 41(1)(g) of the Constitution.

chapter 3 of the Constitution, titled Co-operative Government, sets out eight "Principles of co-operative government and intergovernmental relations". In addition, the Constitution sets out the legislative and executive functions of the three spheres of government in general terms.¹⁶¹ Schedule 4 lists "Functional Areas of Concurrent National and Provincial Legislative Competence" while Schedule 5 lists "Functional Areas of Exclusive Provincial Legislative Competence". Both schedules are also divided into Parts A and B to deal with the competencies of local authorities. While each of these schedules includes a number of items relevant to environmental management, the only reference to energy is the item "electricity and gas reticulation" in Part B of Schedule 4. The implication of this is that energy matters generally, and renewable energy in particular, are by default national matters administered by the National Department of Mineral Affairs and Energy.¹⁶²

3.2.2 National Energy Act 34 Of 2008

The aim of the *National Energy Act* is to ensure that diverse energy resources are available, in sustainable quantities and at affordable prices to South Africa and to make provision for regional economic integration and energy trading.¹⁶³ To facilitate regional economic integration and energy trading, the *National Energy Act* provides for the Minister to provide on an annual basis an Integrated Energy Plan.¹⁶⁴ The Integrated Energy Plan must deal with issues relating to the supply, transformation, transport, storage of and demand for energy in a way that accounts for security of supply, contribution of energy supply to socio-economic development.¹⁶⁵ The Integrated Energy Plan must take account of plans relating to renewable energy and trade.¹⁶⁶ The development of the Integrated Energy Plan must also take into account optimal use of

¹⁶¹ Chapters 5 and 6 respectively.

¹⁶² Glazewski The Legal Framework for Renewable Energy in South Africa 3.

¹⁶³ Preamble of the National Energy Act.

¹⁶⁴ S 6(1) of the National Energy Act.

¹⁶⁵ S 6(2) of the National Energy Act.

¹⁶⁶ S 6(3) of the National Energy Act.

indigenous and regional energy resources;¹⁶⁷ balance between supply and demand¹⁶⁸ and developmental requirements of the Southern African region.¹⁶⁹ The Integrated Energy Plan must serve as a guide for energy infrastructure investments and take into account all viable energy supply options.¹⁷⁰

3.2.3 Department of Energy Strategic Plan, 2015-2020

The facilitation of adequate and reliable energy services in a secure and environmentally benevolent manner and in conformity with the needs of social and economic development is a vital element of regional economic integration.¹⁷¹ A vital instrument of poverty eradication, the improvement of human welfare and the raising of living standards is the establishment of renewable energy trade instruments.¹⁷² The *Department of Energy Strategic Plan* (DoE Strategic Plan) aims to fulfil the mandate of ensuring the secure and sustainable provision of energy for socio-economic development as follows.¹⁷³

The *DoE Strategic Plan* takes an approach towards international relations through the creation of bilateral, trilateral and multilateral relations with the Southern African region.¹⁷⁴ In pursuing this end, South Africa is exploring regional projects within the SADC region in countries such as Lesotho.¹⁷⁵ Further, South Africa aims to work with the SADC region on the regional integration of the transmission infrastructure, which will be driven by the SAPP.¹⁷⁶ Furthermore, the strategy acknowledges that through cooperation with the other members of the SADC, South Africa can attain security of the energy supply.¹⁷⁷ To achieve this, the *DoE Strategic Plan* facilitates projects for Southern African

¹⁶⁷ S 6(3)(b) of the *National Energy Act*.

¹⁶⁸ S 6(3)(c) of the *National Energy Act*.

¹⁶⁹ S 6(3)(f) of the *National Energy Act*.

¹⁷⁰ S 6(6)(a) and (b) of the *National Energy Act*.

¹⁷¹ Vera and Langlois *Energy* 875.

¹⁷² Vera and Langlois *Energy* 875.

¹⁷³ DoE Strategic Plan 10, 16.

¹⁷⁴ DoE Strategic Plan 25.

¹⁷⁵ DoE Strategic Plan 25.

¹⁷⁶ DoE Strategic Plan 25.

¹⁷⁷ DoE Strategic Plan 25.

cooperation and development.¹⁷⁸ The Department of Energy contribution entails the development of Southern Africa's hydroelectric resources and the enhancement of inter-regional electricity trade.¹⁷⁹ In order to complement the effort, the strategy aims to ensure that at least one major regional hydro-scheme is approved.¹⁸⁰

Furthermore, as part of the strategy, the infrastructure plan of the *DOE Strategic Plan* aims to transform the economic landscape of South Africa and support the integration of African countries.¹⁸¹ Major drivers are the transmission network links to non-serviced areas to enable security of supply and access to generation capacity outside South Africa.¹⁸² Despite the large number of transmission improvements, more will be required in future to enable large numbers of electricity connections to non-electrified households and to unlock economic growth in undeveloped regions.¹⁸³ Therefore, the strategy aims to promote participation in mutually beneficial infrastructure projects so as to unlock the long-term socio-economic benefits of partnering with fast-growing African economies with projected growth ranging between 3 per cent and 10 per cent.¹⁸⁴

3.2.4 National Development Plan, 2011-2030

The South African *National Development Plan 2030* (NDP) outlines South Africa's Strategic Plans to be achieved by the year 2030.¹⁸⁵ The NDP is observant of the fact that several of South Africa's challenges can be addressed only through regional cooperation.¹⁸⁶ One of the challenges faced in South Africa is the scarcity of water, of which several neighbouring countries have an abundant supply.¹⁸⁷ Due to this scarcity, South Africa

¹⁷⁸ DoE Strategic Plan 29.

¹⁷⁹ DoE Strategic Plan 29.

¹⁸⁰ DoE Strategic Plan 29.

¹⁸¹ DoE Strategic Plan 28.

¹⁸² DoE Strategic Plan 25.

¹⁸³ DoE Strategic Plan 25.

¹⁸⁴ DoE Strategic Plan 28.

¹⁸⁵ NDP 22.

¹⁸⁶ NDP 22.

¹⁸⁷ NDP 22.

lacks the potential to implement hydro-electric power.¹⁸⁸ Instead, there are other areas in which complementary national endowments offer opportunities for mutually beneficial cooperation.¹⁸⁹ For example, South Africa should invest in and help exploit the wide range of opportunities for low-carbon energy from hydroelectric and other clean energy sources in other parts of Southern Africa.¹⁹⁰ Therefore the NDP mandates renewable energy trading in order to curtail the challenges that South Africa faces, particularly the problem of the scarcity of water. Firstly, South Africa aims to procure at least 20 000MW of renewable electricity by 2030, importing electricity from the region.¹⁹¹ Secondly, South Africa aims to move to less carbon-intensive electricity production through procuring at least 20 000MW of renewable energy, increased hydro-imports from the region, and increased demand-side measures, including solar water heating.¹⁹² Thirdly, South Africa aims to move ESKOM's system operator, planning, power procurement, power purchasing and power contracting functions to the independent system and market operator and accelerate procurement from independent power producers.¹⁹³ Furthermore, the NDP gives utmost priority to intra-regional trade in Southern Africa. The objective is to ensure an increase from 7 per cent of trade to 25 per cent of trade by 2030.¹⁹⁴ In addition, South Africa's trade with regional neighbours should increase from 15 per cent to 30 per cent.¹⁹⁵ To achieve these objectives the NDP highlights the need for a focused regional integration strategy with an emphasis on strengthening regional cooperation in energy markets.¹⁹⁶

¹⁸⁸ NDP 22.

¹⁸⁹ NDP 22.

¹⁹⁰ NDP 22.

¹⁹¹ NDP 36, 56.

¹⁹² NDP 56;

¹⁹³ NDP 36.

¹⁹⁴ NDP 58.

¹⁹⁵ NDP 58.

¹⁹⁶ NDP 58.

3.2.5 The White Paper on Energy Policy, 1998

The *White Paper on Energy Policy*, 1998 is an overarching document which sets out the government's official policy on the supply and consumption of energy for the next decade; it is the primary policy document which guides all subsequent policies, strategies and legislation within the energy sector.¹⁹⁷ In a general sense it represents for the first time a comprehensive and holistic perspective of South Africa's official overall energy needs and options.¹⁹⁸ Its position on renewable energy is based on the integrated resource planning principle of "ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options."¹⁹⁹ One of the problems that the South African electricity sector faces is electricity undersupply, which causes a narrow reserve margin and power shortages. There have been projections that the demand for electricity will increase within the next 15 years, and that would place massive pressure on the electricity supply.²⁰⁰ Second, there is an estimated need of ZAR 300 billion over the next decade for the extension of the power infrastructure in South Africa,²⁰¹ yet ESKOM is radically underfunded, making it difficult to manage the situation.²⁰²

The *White Paper on Energy Policy* notes that South Africa can achieve energy security not through aiming at self-sufficiency but through aiming at greater diversification and flexibility of supply, including increased cross-border energy trade.²⁰³ Complementary to energy trading, the *White Paper on Energy Policy* aims to stimulate economic growth by encouraging competition in the energy markets and by working towards creating an

¹⁹⁷ Glazewski *The Legal Framework for Renewable Energy in South Africa 3*; SAEO 2012 http://soer.deat.gov.za/dm_documents/Chapter_8__Energy_JNAMg.pdf Chapter 8: Energy.

¹⁹⁸ Glazewski *The Legal Framework for Renewable Energy in South Africa 3*.

¹⁹⁹ Glazewski *The Legal Framework for Renewable Energy in South Africa 3*.

²⁰⁰ Pegels 2010 *Energy Policy* 4953.

²⁰¹ Pegels 2010 *Energy Policy* 4953.

²⁰² Pegels 2010 *Energy Policy* 4953.

²⁰³ White Paper on Energy Policy 1998 7; Winkler Elsevier 8.

investor-friendly climate.²⁰⁴ At the core of the *White Paper on Energy Policy* lies the eagerness to develop and implement strategies to remove energy trade barriers, improve the availability of information and facilitate investment in the energy sector.²⁰⁵ Juxtaposed against this aim, the *White Paper on Energy Policy* aspires to facilitate regional energy sector co-operation and establish international energy trade and co-operation.²⁰⁶ Furthermore, the *White Paper on Energy Policy* states that given the increased opportunities for energy trade, particularly within the Southern African region, government will pursue energy security by encouraging a diversity both of supply sources and of primary energy carriers.²⁰⁷ This will be done by developing the Southern African Power Pool to the mutual benefit of all of its members.²⁰⁸ Moreover, the *White Paper on Energy Policy* aims to pursue energy sector co-operation with appropriate countries and international bodies and to actively facilitate regional co-operation on energy matters.²⁰⁹ Currently there are minimal levels of regional energy co-operation between Lesotho and South Africa. However, the Policy aspires to facilitate active regional co-operation, including energy trade, information exchange, capacity building and the training of energy specialists.²¹⁰ According to *White Paper on Energy Policy*, South African energy demand will inevitably drive regional energy trade in the coming years.²¹¹ Economic rationality thus points to the inevitability of the development of regional energy markets.²¹²

3.2.6 Integrated Energy Plan, 2016

Integrated energy planning is the systematic analysis of all the factors that influence the evolution of energy systems. It facilitates problem solving and makes it possible to

²⁰⁴ White Paper on Energy Policy 1998 9; 27; Winkler Elsevier 8.

²⁰⁵ White Paper on Energy Policy 1998 9; 27; Winkler Elsevier 8.

²⁰⁶ White Paper on Energy Policy 1998 99.

²⁰⁷ White Paper on Energy Policy 1998 9; 27, 99; Winkler Elsevier 8.

²⁰⁸ White Paper on Energy Policy 1998 28; Winkler Elsevier 8.

²⁰⁹ White Paper on Energy Policy 1998 28; Winkler Elsevier 8.

²¹⁰ White Paper on Energy Policy 1998 100.

²¹¹ White Paper on Energy Policy 1998 100.

²¹² White Paper on Energy Policy 1998 100.

explore linkages, evaluate trade-offs and compare consequences, thereby helping countries to develop an effective energy strategy that supports national sustainable development goals.²¹³

The *Integrated Energy Plan* (IEP) represents an overarching energy policy and strategy statement that commenced in 2016.²¹⁴ The IEP is envisioned in the *White Paper on the Energy Policy*, 1998 and in the *National Energy Act* 34 of 2008.²¹⁵ The aim of the IEP is to ensure the existence of a sustainable energy system that provides for present energy needs without jeopardising the ability of future generations to satisfy their energy requirements.²¹⁶ The system has to be affordable and contribute to socio-economic development.²¹⁷ The advantage for South Africa in taking the path of sustainable energy is that the real costs of energy are established. When the real cost of energy is low, South Africa becomes competitive in the regional energy markets.²¹⁸ Integrated energy planning also aids in the integration of energy with the national development goals.²¹⁹

Key objectives of the IEP include ensuring the security of supply and diversifying the supply sources and primary sources of energy.²²⁰ The IEP must deal with issues relating to the supply of and demand for energy in a way that accounts *inter alia* for the security of supply, affordability, international commitments, and the contribution of energy supply to socio-economic development.²²¹ Further, the IEP must take account of plans relating to the renewable energy trade and energy infrastructure development within the energy

²¹³ ERC 2018 http://www.erc.uct.ac.za/sites/default/files/image_tool/images/119/Papers-2013/13-ERC-Draft_IEP_comments.pdf.

²¹⁴ IEP 11; CER 2018 <https://cer.org.za/wp-content/uploads/2016/08/DoE-Annual-Performance-Plan-2017-18.pdf>.

²¹⁵ IEP 11; CER 2018 <https://cer.org.za/wp-content/uploads/2016/08/DoE-Annual-Performance-Plan-2017-18.pdf>; S 6 of the National Energy Act mandates the Minister to review and publish an Integrated Energy Plan.

²¹⁶ ERC 2018 http://www.erc.uct.ac.za/sites/default/files/image_tool/images/119/Papers-2013/13-ERC-Draft_IEP_comments.pdf; Winkler *Elsevier* 17.

²¹⁷ Winkler *Energy Elsevier* 17.

²¹⁸ IAEA 2018 <https://www.iaea.org/OurWork/ST/NE/Pess/assets/IEPSD%20Brochure%20WEB.pdf>; Winkler *Elsevier* 17.

²¹⁹ Winkler *Elsevier* 17.

²²⁰ CER 2018 <https://cer.org.za/wp-content/uploads/2016/08/DoE-Annual-Performance-Plan-2017-18.pdf>.

²²¹ S 6(2) of the *National Energy Act* 34 of 2008.

sector.²²² Lastly, the development of the IEP must take into account sustainable development, the optimal use of indigenous and regional energy resources, the balance between supply and demand, and the developmental requirements of the Southern African region.²²³

3.2.7 The Integrated Resource Plan, 2010-2030

The *Integrated Resource Plan* (IRP 2010), which is a 20-year electricity capacity plan that was promulgated in March 2011.²²⁴ The aim of the IRP 2010 is to ensure electricity generation capacity to 2030 while integrating renewable energies into the mainstream energy economy to meet the national emissions targets.²²⁵ It aims to provide an indication of the country's electricity demand, how this demand will be met, and what this will cost.²²⁶ Further, the IRP 2010 aims to achieve a balance between providing affordable electricity in order to support a globally competitive economy and moving to a more sustainable and efficient economy.²²⁷ The IRP 2010 supports the development of the Southern and Central African regions by stimulating the development of hydro-power projects in the region, and it provides a catalyst for further economic development due to increasing energy security.²²⁸ In order to achieve these aims, the plan supports a GDP growth trajectory of on average 4.6 per cent since 2010, which requires 52248 MW of new capacity in order to meet the projected demand and provide adequate reserves.²²⁹ For this trajectory to be met, the IRP 2010 modelling produces a set of scenarios²³⁰ that seek among other things the achievement of sub-regional energy a trade-off between

²²² IEP 27.

²²³ IEP 27.

²²⁴ IRP 2010 4.

²²⁵ IRP 2010 4.

²²⁶ IRP 2010 1.

²²⁷ IRP 2010 1.

²²⁸ IRP 2010 1.

²²⁹ IRP 2010 1.

²³⁰ A scenario is not a plan but rather a glimpse of a future in which a particular outcome or input is amplified in a modelling process to observe the effect this has on the other interdependent variables. Each scenario is a test of input options, in particular policy options, and not a reflection of expected real-world conditions; IRP 2010 8.

SADC member states.²³¹ The balanced scenario represents the best trade-off between the diversity of supply, regional development and localisation,²³² and between regional hydro and coal options. Allowance is also made for some short- to medium-term co-generation and self-build to bolster the security of supply.²³³

The base case scenario provides for imported hydro as the first base-load capacity in 2020, while the regional development 0.0 scenario considers a broader range of regional supply options.²³⁴ Unlike the base case, which includes only some import options, the regional development scenario considers all listed projects from the imports parameter input sheet.²³⁵ These additional options provide good alternatives to local supply options at lower generation costs, but require additional transmission capacity to transport the energy.²³⁶ Therefore, according to the IRP 2010, imported hydro options are preferred to local options. This preference for imported hydro is an example of renewable energy facilitation.²³⁷ When evaluating the regional development scenario, the South African government indicates that this is an important criterion to be taken into consideration, that those portfolios that support increased imports from regional options should be given a higher score, and that a portfolio with a higher percentage of imports (in relation to the total capacity) should score higher on the regional development criterion.²³⁸ Including these options into the regional development scenario brings the total cost to the economy excluding the transmission backbone requirement for these projects to R783bn (which is R6bn cheaper than the base case).²³⁹ Therefore, imported hydro options are preferred to local options.²⁴⁰

²³¹ IRP 2010 6.

²³² IRP 2010 12.

²³³ IRP 2010 12.

²³⁴ IRP 2010 9.

²³⁵ IRP 2010 11.

²³⁶ IRP 2010 11.

²³⁷ IRP 2010 11.

²³⁸ IRP 2010 19.

²³⁹ IRP 2010 11.

²⁴⁰ IRP 2010 11

The IRP further states that regional development poses a minor risk to the security of supply, especially where options are clustered around one source of fuel or power and too concentrated in one neighbouring country.²⁴¹ However, in order to secure an electricity supply for the next 10 years a commitment to regional development by developing imported hydro and being the counter-party to the power purchase agreements is very important.²⁴² This is a way of promoting both regional integration and energy trading in the SADC region. Lastly, the IRP states that the revised balanced scenario provides ample opportunity for regional options,²⁴³ and that the revised balanced scenario represents an appropriate balance between the different stakeholders' expectations regarding integration and the security of supply.²⁴⁴

3.3 The regulatory legal framework of Lesotho

From a global as well as a Southern African regional perspective, the electricity sector in Lesotho appears to have been trapped in a low-growth situation for a long time, mainly due to policy inertia, and the impact of this is reflected in the fact that it has the lowest access to electricity ratio in the SADC member states.²⁴⁵ The promotion of renewable energies in Lesotho is carried out by the Ministry of Energy and NGOs, while the transmission and distribution of electricity in the country are the responsibility of the Lesotho Electricity Corporation.²⁴⁶

The electricity supply in Lesotho is inadequate, and more than 95 per cent of the country's electricity requirements are met by the services of ESKOM.²⁴⁷ The Lesotho Highlands Water Project (LHWP), aims to direct water to South Africa and to provide to develop the

²⁴¹ IRP 2010 29.

²⁴² IRP 2010 29.

²⁴³ IRP 2010 22.

²⁴⁴ IRP 2010 22.

²⁴⁵ Tael, Mokhuts'oane and Hapazari 2012 *RE* 448.

²⁴⁶ Nthunya Local Government 135.

²⁴⁷ Nthunya Local Government 139.

hydropower plant at Muela to meet Lesotho's power needs.²⁴⁸ The energy sector in Lesotho appears to be characterised by inadequate access to electricity and an inadequate demand-supply ratio.²⁴⁹ The government of Lesotho has therefore put in place legislation, a policy and strategy that give a mandate for renewable energy trading in Lesotho in order to increase access to electricity in the country.

3.3.1 Lesotho Vision 2020, 2005

The *Lesotho Vision 2020* provides a long-term context in which short- to medium-term plans may be formulated.²⁵⁰ *Lesotho Vision 2020* states that economic growth and affordable energy supply are key to development²⁵¹ and frames specific objectives pertaining to economic, political and human development to the year 2020.²⁵² According to the *Lesotho Vision 2020* statement, by the year 2020 Lesotho should be a united and prosperous nation at peace with itself and its neighbours.²⁵³ This is an indication that Lesotho aims to establish regional cooperation in the SADC Region. Further, the vision indicates that Lesotho should develop a strong economy by networking and collaborating with other countries in trade, investment and economic advancement in general.²⁵⁴ This vision will be aided by engaging in multilateral and regional agreements like the SADC.²⁵⁵

3.3.2 Lesotho Electricity Authority Act 12 of 2002

The Act provides for the establishment of the Lesotho electricity Authority, to regulate and supervise activities in the electricity sector and to make provision for the development of the electricity sector in Lesotho and for connected matters.²⁵⁶ The Authority is in charge

²⁴⁸ Taele, Mokhuts'oane and Hapazari 2012 *RE* 448.

²⁴⁹ Taele, Mokhuts'oane and Hapazari 2012 *RE* 448.

²⁵⁰ *Lesotho Vision 2020* 1.

²⁵¹ Taele, Mokhuts'oane and Hapazari 2012 *RE* 449.

²⁵² *Lesotho Vision 2020* 1; Taele, Mokhuts'oane and Hapazari 2012 *RE* 449.

²⁵³ *Lesotho Vision 2020* 4.

²⁵⁴ *Lesotho Vision 2020* 6.

²⁵⁵ *Lesotho Vision 2020* 9.

²⁵⁶ Preamble of the Lesotho Electricity Act.

of exercising the duties and powers in the Act.²⁵⁷ The Act provides for regional economic integration and energy trade by stating that the Authority may participate in consultation with the Minister in regional and international matters relating to the regulation of electricity in Lesotho.²⁵⁸ In exercising these duties, the Authority shall have regard to the developments in respect of regional cooperation in electricity regulation in the SADC countries.²⁵⁹ The Lesotho Electricity Corporation is entitled to continue importing electricity from ESKOM pursuant to any agreements between Lesotho and ESKOM.²⁶⁰ Lesotho can also import and export electricity, without a license subject to the conditions laid down by the SAPP.²⁶¹

3.3.3 National Strategic Development Plan, 2012-2017

The *Lesotho Vision 2020* is implemented by the *National Strategic Development Plan* (NSDP), which takes up the statement that:

By the year 2020 Lesotho shall be a stable democracy, a united and prosperous nation at peace with itself and its neighbours. It shall have a healthy and well-developed human resource base. Its economy will be strong, its environment well managed and its technology well established.²⁶²

To accomplish the goals of the national vision the NSDP has developed a number of strategies.²⁶³ Notably, it recognises the need for Lesotho to transform its economy by producing goods and services for the large Southern African markets, the African continent and global markets.²⁶⁴ Since Lesotho has a favourable geographic location, a platform for opportunities is created that enables integration into the main economic centres of the Republic of South Africa and other regional markets.²⁶⁵ Moreover, access

²⁵⁷ S 21(1) of the *Lesotho Electricity Act*.

²⁵⁸ S 21(1) (j) of the *Lesotho Electricity Act*.

²⁵⁹ S 21 (2) (c) of the *Lesotho Electricity Act*.

²⁶⁰ S 106 (a) (b) of the *Lesotho Electricity Act*.

²⁶¹ S 106 (b) of the *Lesotho Electricity Act*.

²⁶² NSDP 2012 2, 4 Lesotho Vision 2020.

²⁶³ NSDP 2012 29.

²⁶⁴ NSDP 2012 29.

²⁶⁵ NSDP 2012 29.

to South Africa's infrastructure means that it is easier for Lesotho than for many other African countries to access world markets.²⁶⁶ To achieve these goals Lesotho could significantly increase the regional export of goods such as hydro power.²⁶⁷ Through being a member of the SADC, Lesotho can best gain access to the most advanced and prosperous markets in Africa, and making use of such access would decrease Lesotho's trade deficit with South Africa.²⁶⁸ The NSDP acknowledges that there is limited effective domestic demand for its products (it has a small population and low levels of per capita income). Therefore, the objective of this growth strategy is to exploit regional and international markets.²⁶⁹ In summary, the growth strategy aims at increasing regional competitiveness and utilizing Lesotho's natural resources efficiently and sustainably.²⁷⁰

In order to pursue the above mentioned strategic goals, there has to be an increase in clean energy production capacity so as to attain self-sufficiency, to export the product, and to have a greener economy.²⁷¹ This can be achieved by evaluating the renewable power generation options and negotiating financing arrangements to expand the national generation capacity.²⁷² The second objective is to explore opportunities and negotiate favourable regional trade in energy.²⁷³ To achieve this, there has to be a review of the energy policy and the preparation of a long-term energy security strategy.²⁷⁴ Lastly, the maintenance of existing power generation infrastructure is essential.²⁷⁵ All of these items are evidence that Lesotho has mandated renewable energy trading and is encouraging regional economic integration.

²⁶⁶ NSDP 2012 29.

²⁶⁷ NSDP 2012 29.

²⁶⁸ NSDP 2012 29.

²⁶⁹ NSDP 2012 37.

²⁷⁰ NSDP 2012 37.

²⁷¹ NSDP 2012 102.

²⁷² NSDP 2012 102.

²⁷³ NSDP 2012 102.

²⁷⁴ NSDP 2012 102.

²⁷⁵ NSDP 2012 102.

3.3.4 Lesotho Energy Policy 2015-2025

The *Lesotho Energy Policy 2015-2025* (LEP) is a framework policy that sets out the strategic direction of the Lesotho energy sector.²⁷⁶ The LEP is aligned to the *Lesotho Vision 2020* and the NSDP.²⁷⁷ The LEP envisions the development of the renewable energy sector, the development of environmentally cleaner renewable energy, and an increase in Lesotho's energy mix share.²⁷⁸ It also aims to increase energy access by increasing reliability and affordability.²⁷⁹ Ultimately this will improve livelihoods, promote economic growth and investment, ensure energy security and contribute to environmental protection, including adaptation to climate change.²⁸⁰ Furthermore, the LEP aims to enable the energy sector in Lesotho to contribute towards economic growth through taking initiatives that position Lesotho as a competitive player in the SADC region.²⁸¹ Renewable energy trading is incorporated in policy statement 9 of the LEP which relates to power supply and trading:

Government will ensure transparent and competitive electricity market operations where participating players have equal opportunities.²⁸²

The objective of this principle is to promote non-discriminative access to the electricity market and trading.²⁸³ The strategies to be implemented to achieve this objective include the following: supply and trading will be the responsibility of the utility and regulator, which is required to support fair participation by other players;²⁸⁴ the utility will secure regional multi- or bilateral Power Purchase Agreements by local IPPs;²⁸⁵ and the utility will develop legal, regulatory and institutional frameworks to ensure the security of the energy

²⁷⁶ LEWA 2018 OECD/IEA <http://www.lewa.org.ls/legislation/Policy/ENERGY%20POLICY%20.pdf>.

²⁷⁷ LEWA 2018 OECD/IEA <http://www.lewa.org.ls/legislation/Policy/ENERGY%20POLICY%20.pdf>.

²⁷⁸ LEP 2015 6.

²⁷⁹ LEP 2015 6.

²⁸⁰ LEP 2015 6.

²⁸¹ LEP 2015 7.

²⁸² LEP 2015 13.

²⁸³ LEP 2015 13.

²⁸⁴ LEP 2015 13.

²⁸⁵ LEP 2015 13.

supply and an increase in the number of players in the electricity supply industry.²⁸⁶ The LEP enables IPPs to export power, but the national electricity utility is given a right of first refusal to purchase power under a long-term PPA.²⁸⁷

3.4 Conclusion

The environmental right contained in chapter 2 of the Constitution situates energy matters generally and renewable energy in particular in the remit of the national Department of Mineral Affairs and Energy. The DoE Strategic Plan aims to approach international relations through the creation of bilateral, trilateral and multilateral relations with the Southern African region and to work with the SADC region on regional integration of the transmission infrastructure through the SAPP. The NDP also highlights that South Africa's challenges can be addressed only through regional cooperation, and that a regional integration strategy with an emphasis on strengthening regional cooperation in energy markets is necessary. Furthermore, the *White Paper on Energy Policy* states that South Africa can achieve energy security through increased cross-border energy trade. Complementary to energy trading, the *White Paper on Energy Policy* aims to encourage competition in the energy sector, to facilitate regional energy sector co-operation, and to establish international energy trade and co-operation particularly within the Southern African region by developing the Southern African Power Pool to the mutual benefit of all SADC members. Integrated energy planning aids the integration of energy with the national development goals. The IEP establishes the real costs of energy. Thus, when the real cost of energy is low, South Africa becomes competitive in the regional energy markets. Complementing the IEP is the IRP 2010, which supports the development of the Southern African region by stimulating the development of hydro power projects in the region and providing a catalyst for further economic development due to increasing energy security.

²⁸⁶ LEP 2015 13.

²⁸⁷ LEP 2015 13.

The *Lesotho Vision 2020* indicates that Lesotho aims to develop have a strong economy by trading with other countries. The membership of multilateral and regional agreements like Southern African Development Community (SADC) is central to this vision. To achieve this Lesotho could significantly increase the export of goods such as hydro power. Furthermore, the LEP aims to enable the energy sector in Lesotho to contribute towards economic growth through initiatives that position Lesotho as a competitive player in the SADC region. Renewable energy trading is incorporated in policy statement 9 of the LEP, which relates to power supply and trading. The objective of this principle is to promote non-discriminative access to the electricity market and trading.

This chapter has considered the relevant legislation, policies, plans and strategies of Lesotho and South Africa and the extent to which it defines energy trading and refers to regional economic integration. The analysis has established that both countries have mandated their officials to engage in renewable energy trading in the context of regional economic integration in order to secure a sufficient energy supply for themselves. However, the legislation, policies, plans and strategies are silent on how this mandate is to be regulated. A case study will now be performed in order to be able to arrive at recommendations on what should be included in sub-regional regulations on energy trading.

4 Case study of intended renewable energy trading between Lesotho and South Africa

4.1 Introduction

The previous chapter gave an overview of the existing legal framework of Lesotho and South Africa regarding regional economic integration and renewable energy trading. In order to be able to base further consideration of these issues on a concrete example of potential renewable energy trading between the two countries, this chapter will engage in a specific case study, namely of the LHWP. The methodology used includes an analysis

of the Project in order to be able to decide if it indeed embodies an effective and sustainable form of renewable energy trading between Lesotho and South Africa. The analysis of the LHWP will take place against the background of the SADC Treaty.

4.2 Lesotho Highlands Water Project

This project sparkles like a jewel in the crown of the Southern African Development Community (SADC) and the African Union (AU) proving that we can, as Africans, accomplish sustainable development to the mutual benefit of neighbouring countries and as an example of projects that are needed all over our continent to achieve our renaissance.²⁸⁸

The LHWP is a bi-national project between the Governments of Lesotho and the Republic of South Africa.²⁸⁹ On 24 October 1986, in Maseru, Lesotho, the government of Lesotho and the government of South Africa²⁹⁰ signed a Treaty pertaining to the design, construction, operation, and maintenance of the LHWP, as well as the export of water to South Africa.²⁹¹ This agreement is an important example of regional cooperation, especially over shared water resources.²⁹² According to Smith,²⁹³ "the LHWP is one of the most comprehensive projects of its kind in the world, and is an example of cross-border regional co-operation between two independent countries for mutual benefits of the inhabitants of both." Not only do the terms of the agreement strengthen bilateral co-operation between the two riparian states, but the agreement also serves as a driver for renewable energy trading between the two countries.²⁹⁴

²⁸⁸ This passage is extracted from the speech of President Thabo Mbeki at the Inauguration of Phase 1 of the LHWP, Mohale Dam, Lesotho, March 16, 2004; Panapress 2018 <http://www.panapress.com/Mbeki,-King-Letsie-iii-launch-water-project-in-Lesotho>.

²⁸⁹ LHDA 2014 <http://www.lhwp.org.ls>; Wentworth 2013 *SAIIA* 3; Haas, Mazzei and O'Leary *Lesotho Highlands Water Project 3*; Mazzei, Haas and O'Leary *Dam Planning and Management* 133; Willemse 2007 WRD 457; Andreolli and Abdychev *Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho* 5; Nthako and Griffiths *SAICE* 3.

²⁹⁰ The Government of Lesotho and the Government of South Africa, hereafter the Parties.

²⁹¹ LHWP 2013 <http://www.lhda.org.ls>; Wentworth 2013 *SAIIA* 3; Haas, Mazzei and O'Leary *Lesotho Highlands Water Project 3*; Mazzei, Haas and O'Leary *Dam Planning and Management* 133; Andreolli and Abdychev *Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho* 5.

²⁹² Ashton *et al* 2005 *WRCR* 8; Panapress 2018 <http://www.panapress.com/Mbeki,-King-Letsie-iii-launch-water-project-in-Lesotho>.

²⁹³ Ramaili and Cloete 2008 *Africa Insight* 117; Smith 1999 *Journal of Public Administration* 137.

²⁹⁴ Ashton *et al* 2005 *WRCR* 8.

The LHWP envisages various primary objectives that stand to benefit both countries.²⁹⁵ On the one hand the aim of the agreement is to transfer water from the highlands of Lesotho particularly from the water-abundant Senqu River in Lesotho to the Gauteng region of South Africa.²⁹⁶ On the other hand, Lesotho stands to gain from the export revenue received from the LHWP, whereby such revenue will assist to generate hydroelectric power to meet the national electricity demand of Lesotho.²⁹⁷ It is interesting to note that the definition of the term "Project" as contained in the text of the Treaty, the LHWP is described as a water transfer project and not a power project.²⁹⁸ Lesotho is, in addition, allowed to use such water transfers to generate power.²⁹⁹

The LHWP was envisioned to include four phases implemented over a period of 30 years.³⁰⁰ The design of the LHWP comprised of an interdependent network of dams and tunnels transferring water through the highlands of Lesotho to South Africa.³⁰¹ However, the Parties only made a commitment to implement Phases I and II, after which future phases would be considered.³⁰²

²⁹⁵ Haas, Mazzei and O'Leary *Lesotho Highlands Water Project 3*; Mazzei, Haas and O'Leary *Dam Planning and Management* 133; Willemse 2007 *WRD* 458.

²⁹⁶ Haas, Mazzei and O'Leary *Lesotho Highlands Water Project 3*; Mazzei, Haas and O'Leary *Dam Planning and Management* 133; Willemse 2007 *WRD* 458; Andreolli and Abdychev *Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho* 5; Ramaili and Cloete 2008 *Africa Insight* 117; Van Nierkerk and Seago 2015 *Civil Engineering* 61; Nthako and Griffiths *SAICE* 3.

²⁹⁷ A 4(2)(i) of the Treaty on the LHWP between Lesotho and South Africa; LHWP 2013 <http://www.lhda.org.ls/Phase1>; Haas, Mazzei and O'Leary *Lesotho Highlands Water Project 3*; Mazzei, Haas and O'Leary *Dam Planning and Management* 133; Willemse 2007 *WRD* 458; Ramaili and Cloete 2008 *Africa Insight* 117; Nthako and Griffiths *SAICE* 3.

²⁹⁸ A 4(2)(i) of the Treaty on the LHWP between Lesotho and South Africa; Van Nierkerk and Seago 2015 *Civil Engineering* 61.

²⁹⁹ A 4(2)(i) of the Treaty on the LHWP between Lesotho and South Africa; Van Nierkerk and Seago 2015 *Civil Engineering* 61.

³⁰⁰ LHWP 2013 <http://www.lhda.org.ls/Phase1>; Wentworth 2013 *SAIIA* 3; Ramaili and Cloete 2008 *Africa Insight* 117.

³⁰¹ Ramaili and Cloete 2008 *Africa Insight* 117.

³⁰² Haas, Mazzei and O'Leary *Lesotho Highlands Water Project 3*.

Phase I of the project was split into Phases 1A and 1B.³⁰³ Phase 1A includes the Katse dam, a 185-metre high concrete arch with a 1950 million cubic metres capacity, and the Muela dam, the Muela hydropower station, a 5-kilometre-long delivery tunnel south that transfers water to the Lesotho/South Africa border, and a 22-kilometre delivery tunnel north that transfers water to the Ash River Outfall in South Africa, from which the water flows through the Liebenbergsvlei and Wilge rivers to the Vaal dam in Gauteng.³⁰⁴

Furthermore, Phase 1B comprises the 145-metres high rock fill with a 950 million cubic metre capacity, Mohale dam, a 31-kilometre Mohale tunnel linking the Mohale dam to the Katse dam, the 20-metre-high Matsoku Weir and the 60-kilometre Matsoku tunnel joining the Matsoku Weir to the Katse dam.³⁰⁵ The first phase of the project, Phase 1A and 1B, has been completed in 2004.³⁰⁶

Prior to the opening of the Muela hydroelectric power station in September 1998, as part of Phase 1A of the LHWP, all power to Lesotho was supplied by ESKOM from South Africa.³⁰⁷ The electricity production at Muela ended Lesotho's previous dependence, and even resulted in Lesotho becoming self-sufficient in electric power for a number of years.³⁰⁸ Later, due to the growth of Lesotho's population and economy, the country again became reliant on ESKOM to meet its peak power requirements, which had shown steady growth and exceeded 110 MW by 2006.³⁰⁹ By 2010 Lesotho regularly exceeded

³⁰³ LHWP 2013 <http://www.lhda.org.ls/Phase1>; Mazzei, Haas and O'Leary *Dam Planning and Management* 134.

³⁰⁴ Haas, Mazzei and O'Leary *Lesotho Highlands Water Project* ix; Mazzei, Haas and O'Leary *Dam Planning and Management* 133; Andreolli and Abdychev Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho 5; Ramaili and Cloete 2008 *Africa Insight* 118; Van Nierkerk and Seago 2015 *Civil Engineering* 60; Nthako and Griffiths *SAICE* 3.

³⁰⁵ Haas, Mazzei and O'Leary *Lesotho Highlands Water Project* ix; Mazzei, Haas and O'Leary *Dam Planning and Management* 134; Willemse 2007 *WRD* 458; Van Nierkerk and Seago 2015 *Civil Engineering* 60.

³⁰⁶ Ramaili and Cloete 2008 *Africa Insight* 118; Mazzei, Haas and O'Leary *Dam Planning and Management* 133; Van Nierkerk and Seago 2015 *Civil Engineering* 60; Nthako and Griffiths *SAICE* 3.

³⁰⁷ Van Nierkerk and Seago 2015 *Civil Engineering* 61.

³⁰⁸ Van Nierkerk and Seago 2015 *Civil Engineering* 61.

³⁰⁹ Van Nierkerk and Seago 2015 *Civil Engineering* 61.

its Notified Maximum Demand from South Africa of 24 MW.³¹⁰ The unplanned additional load resulted in insecure supplies to the country.³¹¹ Thereafter feasibility studies were conducted whereby the configuration of Phase II was agreed upon.³¹²

The LHWP II recommendation culminated in an agreement in August 2011, ratified by South Africa in 2012, while Lesotho finalised its ratification process in 2013.³¹³ Phase II was modified³¹⁴ in terms of the Treaty and it currently consists of the Polihali Dam, which is a concrete-faced rock-fill dam, 163,5 m high, on the Senqu River downstream of Mokhotlong, at a full supply level (FSL) of 2 075 m above sea level (masl), transferring water through a 38 km long gravity tunnel to the Katse Reservoir.³¹⁵ The Phase II feasibility-level study also consisted among other things of the assessment of hydropower-generation potential.³¹⁶ As a result Phase II includes a hydropower generation system that comprises the Kobong pump storage scheme consisting of a hydropower station, the existing Katse Reservoir as the lower reservoir, a new upper reservoir in the Kobong valley, and an interconnecting tunnel as well as transmission lines and apartment works between the scheme and the designated connection point at the border with South Africa.³¹⁷

The development of Phase II will have vast implications for hydropower. Transferring Polihali flows to Katse will reduce the status of the existing Muela hydropower station from being a load-following power station to being a base-load plant generating about

³¹⁰ Van Nierkerk and Seago 2015 *Civil Engineering* 61.

³¹¹ Van Nierkerk and Seago 2015 *Civil Engineering* 61.

³¹² Tanner, Tohlang and Van Nierkerk 2009 *Civil Engineering* 29; Van Nierkerk and Seago 2015 *Civil Engineering* 61.

³¹³ Van Nierkerk and Seago 2015 *Civil Engineering* 61.

³¹⁴ A 5(1) of the Treaty on the LHWP between Lesotho and South Africa.

³¹⁵ A 1 of the Agreement of the LHWP between Lesotho and South Africa; Andreolli and Abdychev *Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho* 5. Tanner, Tohlang and Van Nierkerk 2009 *Civil Engineering* 29; Van Nierkerk and Seago 2015 *Civil Engineering* 61.

³¹⁶ Tanner, Tohlang and Van Nierkerk 2009 *Civil Engineering* 29; Van Nierkerk and Seago 2015 *Civil Engineering* 61.

³¹⁷ A 1 and A 8(1) of the Agreement of Phase II of the LHWP; Andreolli and Abdychev *Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho* 5.

80 MW for 100 per cent of the time.³¹⁸ Further, the potential exists to expand the hydropower generated over and above the 72 MW currently being generated.³¹⁹

4.3 Treaty on the Lesotho Highlands Water Project between Lesotho and South Africa.

The Treaty on the LHWP legally establishes cooperation and regional development between Lesotho and South Africa.³²⁰ The Parties to the Treaty are the government of Lesotho and the government of South Africa. According to the Preamble of the treaty, "the Parties recognise the advantages of regional development and that co-operation between the Parties with regard to the development of mutual water resources can significantly contribute towards the peace and prosperity of the Southern African region and the welfare of its peoples."³²¹ The treaty has been regarded as an example of successful regional economic integration initiatives pertaining to water.³²²

The treaty includes certain aspects that encourage integration between the two states. For example, the treaty mandates that they work together through a bilateral organisation.³²³ The Joint Permanent Technical Commission was initially set up with an equal number of representatives from both countries to monitor the project, and the activities of the countries' autonomous project bodies, the Lesotho Highlands Development Authority (LHDA) in Lesotho and the Trans-Caledon Tunnel Authority

³¹⁸ Tanner, Tohlang and Van Nierkerk 2009 *Civil Engineering* 32; Van Nierkerk and Seago 2015 *Civil Engineering* 61.

³¹⁹ Tanner, Tohlang and Van Nierkerk 2009 *Civil Engineering* 32.

³²⁰ A 3 of the Treaty on the LHWP between Lesotho and South Africa; Van Wyk and Mirumachi 2010 *The Geographical Journal* 30.

³²¹ Preamble of the Treaty on the LHWP between Lesotho and South Africa.

³²² Van Wyk and Mirumachi 2010 *The Geographical Journal* 30.

³²³ Van Wyk and Mirumachi 2010 *The Geographical Journal* 31.

(TCTA) in South Africa.³²⁴ Now the Lesotho Highlands Water Commission has replaced the original commission, though its mandate still remains to coordinate the project.³²⁵

The treaty on the LHWP encourages participatory cooperation on the administration of the project, which is divided between the two parties. Lesotho is responsible for the part of the Project situated in the Kingdom of Lesotho.³²⁶ On the other hand, South Africa is responsible for the part of the Project situated in the Republic of South Africa.³²⁷ The give-and-take arrangement of water and royalties between South Africa and Lesotho has created their interdependence for regional growth, and is further enhanced by the institutional arrangement of the above-mentioned bilateral governance body.³²⁸

Even so, the treaty allows each Party the opportunity to undertake ancillary developments in its territory, including the development of other projects such those relating to renewable energy trading.³²⁹

4.4 Intended renewable energy trading between Lesotho and South Africa

Over the years South Africa has been highly dependent on the extensive coal reserves that drive the electricity sector in the country.³³⁰ However, ESKOM now faces the challenge that most of its generation capacity is nearing the end of its life.³³¹ Of particular importance to South Africa, and the neighbouring countries, is the need to engage in

³²⁴ A 6(4), 6(5) of the Treaty of the LHWP between Lesotho and South Africa; Van Wyk and Mirumachi 2010 *The Geographical Journal* 31.

³²⁵ Van Wyk and Mirumachi 2010 *The Geographical Journal* 31.

³²⁶ A 6(2) of the Treaty of the LHWP between Lesotho and South Africa.

³²⁷ A 6(3) of the Treaty of the LHWP between Lesotho and South Africa.

³²⁸ Van Wyk and Mirumachi 2010 *The Geographical Journal* 33.

³²⁹ A 4(2)(i) of the Treaty on the LHWP between Lesotho and South Africa.

³³⁰ Report on Electricity Market Reform in Southern Africa March 2016 32; Krupa and Burch 2011 *Energy Policy* 6255.

³³¹ Report on Electricity Market Reform in Southern Africa March 2016 33.

renewable energy generation, which offers the potential to actively combat the emerging threat of climate change.³³²

Pegals³³³ comments that South Africa's renewable energy system faces several challenges. The pressure to increase supply and reduce demand is intense, but the margins are narrow and the incentives are sometimes lacking.³³⁴ Second, vast amounts of money are needed for the extension of the power infrastructure, resulting in a lack of available credit for renewable energy projects.³³⁵ Finally, the high emission intensity of South Africa's abundant fossil fuel sources, combined with funding short- falls for existing environmental mitigation projects, often results in environmental goals being subsumed by other interests.³³⁶ In this context the South African IRP 2010 has mapped out the country's projected energy needs and the sources to be utilised to meet the demand.³³⁷ One of the methods to be employed is the base-case scenario that prioritises importing hydro, which is predicted to provide good alternatives to local supply options at lower generation costs.³³⁸ Although Lesotho is currently very reliant on South Africa for electricity imports, there is significant potential within the country to produce surplus renewable energy, which could in future be exported.³³⁹ The opportunity for Lesotho lies in the hydro-power sector; specifically in the commencement of phase 2 of the LHWP.³⁴⁰

The agreement on Phase II of the LHWP provides that South Africa aims to facilitate the sale of peak electricity from the Kobong Pump Storage Scheme and the purchase of electricity for the pumping requirements of the scheme.³⁴¹ Tente³⁴² states that further

³³² Krupa and Burch 2011 *Energy Policy* 6255.

³³³ Pegals 2010 *Energy Policy* 4947; Krupa and Burch 2011 *Energy Policy* 6255.

³³⁴ Pegals 2010 *Energy Policy* 4947; Krupa and Burch 2011 *Energy Policy* 6255.

³³⁵ Pegals 2010 *Energy Policy* 4947; Krupa and Burch 2011 *Energy Policy* 6255.

³³⁶ Pegals 2010 *Energy Policy* 4947; Krupa and Burch 2011 *Energy Policy* 6255.

³³⁷ Report on Electricity Market Reform in Southern Africa March 2016 33.

³³⁸ IRP 2010 11.

³³⁹ Report on Electricity Market Reform in Southern Africa March 2016 20.

³⁴⁰ Report on Electricity Market Reform in Southern Africa March 2016 20.

³⁴¹ A 8(3) of the Agreement of Phase II of the LHWP; Andreolli and Abdychiev *Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho* 5.

³⁴² Tente 2017 *IMIESA* 12.

hydropower feasibility studies are in progress regarding the LHWP II. The studies include a market study to confirm who the buyer of surplus power would be; an integration or transmission study for the power line that will evacuate and deliver the power to its intended destination; and the conclusion of a power purchase agreement and power sales agreement to ensure that the project is bankable.³⁴³ Given the specificity of a pump-storage facility, the main destination for the supply of the electricity produced will probably be neighbouring South Africa. This would require a long-term power purchasing agreement between the two countries.³⁴⁴ Nyabela and King³⁴⁵ also state that the majority of the power generated at Kobong will be exported to South Africa, while 20 megawatts will be used locally in Lesotho. The TCTA affirms that Lesotho is now seeking a Power Purchase Agreement from ESKOM and other large users in the region for the excess power that could be generated.³⁴⁶ All hydroelectricity from Phase II of the LHWP will be exported to South Africa and the details of a possible agreement are still subject to negotiations.³⁴⁷

4.5 Conclusion

Lesotho has relatively rich hydro resources, which the country is taking advantage of through the joint projects with South Africa that are aimed at increasing the supply of water to the densely populated areas of South Africa.³⁴⁸ The LHWP has proved the case for peaceful bilateral cooperation in Africa and the world.³⁴⁹ It has successfully delivered on all its promises: high-quality water, electricity, revenue, fair compensation, environmental protection, a springboard for ancillary development, and high-quality

³⁴³ Tente 2017 *IMIESA* 12.

³⁴⁴ Andreolli and Abdychev Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho 5.

³⁴⁵ Gill, Nyabela and King Archaeology research in Africa 1.

³⁴⁶ TCTA 2015 <http://www.tcta.co.za/lesotho-highlands>.

³⁴⁷ Andreolli and Abdychev Investing in Electricity, Growth, and Debt Sustainability: The Case of Lesotho 5, 10.

³⁴⁸ Nkhasi and Van der Merwe 2014 *IMIESA* 51.

³⁴⁹ Nkhasi and Van der Merwe 2014 *IMIESA* 51.

infrastructure to benefit the local inhabitants and visitors.³⁵⁰ It incorporates the principles of regional economic integration as stipulated in the Treaty of the LHWP.³⁵¹ The project therefore has the potential to develop into further energy trading between Lesotho and South Africa.

³⁵⁰ Nkhasi and Van der Merwe 2014 *IMIESA* 51.

³⁵¹ Nkhasi and Van der Merwe 2014 *IMIESA* 51.

5 Conclusion

The main aim of this research was to address the following research question: "to what extent does South African and Lesotho law and policy promote renewable energy trading?" Energy trading in Southern Africa is mandated in the SADC Treaty, which allows SADC Member States to conclude protocols necessary for cooperation and integration.³⁵² The SAPP is an entity created by the SADC Energy Protocol to enable SADC Member States to conduct energy pooling and attain regional economic integration through trade in electricity.³⁵³ Therefore this research was aimed at analysing the SAPP and the methods adopted by the SAPP to facilitate energy trading.³⁵⁴

To achieve this aim, this research defined regional economic integration in terms of the SADC Treaty, the main framework for regional economic integration in Southern Africa, and the RISDP, which is a blueprint for regional integration showing the stages necessary for achieving regional integration.³⁵⁵ Furthermore, the research looked at the role of the energy sector in promoting regional economic integration in the SADC.³⁵⁶ The different energy-specific SADC legal instruments were analysed. These instruments include the SADC Energy Protocol, the Regional Energy Access Strategy and Action Plan, the SADC Industrialisation Strategy and Roadmap and the SADC Regional Infrastructure Development Master Plan. This research finds that energy pooling and energy trading are express mandates in the SADC legal framework.³⁵⁷

Furthermore, the SADC Treaty mandate of regional cooperation and renewable energy trading feature prominently in the South African and Lesotho national instruments.³⁵⁸ The *Lesotho Energy Policy 2015-2025* (LEP) and the *National Strategic Development Plan*

³⁵² See para 2.2 above.

³⁵³ See para 2.4 above.

³⁵⁴ See paras 2.4.1 and 2.4.2 above.

³⁵⁵ See paras 2.2.1 and 2.2.2 above.

³⁵⁶ See para 2.3 above.

³⁵⁷ See para 2.5 above.

³⁵⁸ See para 3 above.

2012/13 – 2016/17 (NSDP) were analysed.³⁵⁹ The *National Development Plan 2030* (NDP), and the *Integrated Resource Plan 2010-2030* (IRP) and other aspects of the South African Legal Regulatory Framework were analysed.³⁶⁰ Therefore, this research found that although the South African and Lesotho instruments contain a mandate for renewable energy trading and energy pooling, what is lacking is instruction on how this activity of energy trading should be regulated.³⁶¹ This research used the LHWP as an example of cross-border regional co-operation between two independent countries for the mutual benefit of the inhabitants of both Lesotho and South Africa.³⁶²

In this part, this research makes recommendations of how the energy trading activities should be regulated. According to the mind of the researcher, the lack of a pertinent SADC instrument aimed at regulating energy trading in general and renewable energy trading specifically is a gap that needs to be addressed. The SADC Energy Protocol only gives a mandate that there should be energy trading.³⁶³ However, there is no legal framework to regulate the activity of energy trading. Therefore, to the mind of the researcher a framework policy document should be drafted by SADC policy makers on what should be included in sub-regional regulations on energy trading.

According to the researcher, the content of the South African and Lesotho national laws and policies should be used to inform the content of the provisions of the sub-regional regulations on energy trade. Therefore, the content should include the following provisions: The development of Southern Africa's hydroelectric resources;³⁶⁴ inter-regional electricity trade and cross border trade;³⁶⁵ System operation, planning, power

³⁵⁹ See para 3.3 above.

³⁶⁰ See para 3.2 above.

³⁶¹ See Para 3.4 above.

³⁶² See para 4.1 above.

³⁶³ See Para 2.3.1 above.

³⁶⁴ DoE Strategic Plan 29; IRP 2010 1, 10; See also Para 3.2.2 above.

³⁶⁵ DoE Strategic Plan 29; *White Paper on Energy Policy*, 1998 7; NSDP 2012 29, 37; see also Para 3.2.2, 3.3.4 and 3.3.6 above.

procurement, power purchasing and power contracting.³⁶⁶ Furthermore, provisions on the procurement of independent power producers;³⁶⁷ strengthening regional cooperation in energy markets;³⁶⁸ investment in the energy sector;³⁶⁹ financing provisions;³⁷⁰ removal of trade barriers;³⁷¹ provision for cooperation with international bodies;³⁷² provision for information exchange and training of energy specialists should be included in sub-regional regulations.³⁷³ Provisions on the environment including on clean energy production, environmental protection including climate change.³⁷⁴ Provision on institutional frameworks to ensure energy security;³⁷⁵ provision on maintenance of infrastructure;³⁷⁶ and provisions on pricing should also be included in sub-regional regulations.³⁷⁷

The South African IRP 2010 has mapped out the country's projected energy needs and the sources to be utilised in meeting the demand. One of the methods to be employed is the base-case scenario provided for in the IRP 2010, which prioritises importing hydro, which is predicted to provide good alternatives to local supply options at lower generation costs. Although Lesotho is currently very reliant on South Africa for electricity imports, there is significant potential within the country to produce surplus renewable energy which could in the future be exported. The opportunity for Lesotho lies in the hydro-power sector, specifically the commencement of phase 2 of the LHWP.³⁷⁸ The agreement on Phase II of the LHWP includes that South Africa aims to facilitate the sale of peak electricity from the Kobong Pump Storage Scheme and the purchase of electricity for the pumping requirements of the scheme. However, the agreement on Phase II of the LHWP

³⁶⁶ NDP 36; IRP 2010 29; see also para 3.2.3 and 3.2.6 above.

³⁶⁷ NDP 36; see also para 3.2.3 above.

³⁶⁸ NDP 58; see also para 3.2.3 above.

³⁶⁹ *White Paper on Energy Policy*, 1998 9, 27. see also para 3.2.4 above.

³⁷⁰ NSDP 2012 102; see also para 3.2.3 above.

³⁷¹ *White Paper on Energy Policy*, 1998 9, 27; see also para 3.2.4 above.

³⁷² *White Paper on Energy Policy*, 1998 28; see also para 3.2.4 above.

³⁷³ *White Paper on Energy Policy*, 1998 100; see also para 3.2.4 above.

³⁷⁴ *White Paper on Energy Policy*, 1998 100; see also para 3.2.4 above.

³⁷⁵ NSDP 2012 102; see also para 3.2.2 above.

³⁷⁶ NSDP 2012 102; see also para 3.2.2 above.

³⁷⁷ LEP 2015 6; see also para 3.3.3 above.

³⁷⁸ See para 4.4 above.

lacks clarity as to how this activity of renewable energy trading between the two countries should be regulated. The proposed sub-regional regulations will remedy the situation. Therefore, the researcher suggests that a framework policy document should be drafted by SADC policy makers to facilitate a method for regulating renewable energy trading in SADC.

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