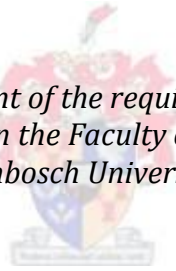


**The Power of Power:
Regime Dynamics and the Southern African Power Pool**

By

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*Thesis presented in partial fulfillment of the requirements for the degree of Master
of Arts (International Studies) in the Faculty of Arts and Social Sciences at
Stellenbosch University*



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March 2013

DECLARATION

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

November 2012

ABSTRACT

Electricity is the key to economic growth and numerous aspects of human development. Africa's installed generation capacity is dire, alongside it being the biggest funding backlog the power sector. There is however hope with the projection that to date, only 7% of this power potential has been harnessed. The increased acknowledgement of the importance of electricity for states to improve along with the knowledge that the capacity is there, has driven states within Southern Africa, to engage in increased and committed cooperation with one another. Within the greater vision of regional integration of the Regional Economic Communities (RECs) in Africa, energy was one of the first formal cooperative arrangements of the Southern African Development Community (SADC), which is the region this study will be focusing on. The form of electricity cooperation adopted was that of the Southern African Power Pool (SAPP), which is geared at increasing cross-border electricity trade and ensuring secure and reliable supply to its members.

The study investigates the formation of an electricity regime within Southern Africa, by using the Southern African Power Pool as a case study. In order to properly assess the development of the SAPP, regime theory will be used. An analytical framework, derived from different studies around regime theory has been constructed. This framework assists in the analysis of the formation and evolution of the SAPP, which facilitates the assessment of the type of regime which has emerged, and guides a sound analysis around the degree of the electricity regimes effectiveness.

Given the process of formation and characteristics underlying the SAPP, it has been found that it falls within the category of a negotiated regime. The analytical framework provided clear guidelines in assessing the degree of effectiveness regarding the case study at hand. After an analysis of the historical and organisational functioning of the regime - it can be argued that the SAPP is a stable and effective regime, at least on paper. It however faces various challenges, which have constrained its efficient functioning. It is concluded that members of the regime are committed to the SAPP's continued development despite the problems identified.

OPSOMMING

Elektrisiteit is die sleutel tot ekonomiese groei en baie ander aspekte van menslike ontwikkeling. Afrika se geïnstalleerde opwekkingskapasiteit is net so nypend soos die feit dat dit die grootste befondsing agterstand in die kragvoorsiening sektor is. Daar is egter hoop met die projeksie dat, tot op datum, slegs 7% van hierdie kragpotensiaal benut word. Die toenemende erkenning van die belang van elektrisiteit vir state om vooruit te gaan, gepaard met die wete dat die kapasiteit beskikbaar is, het state binne suider Afrika gedryf om hulle tot toenemende en volgehoue samewerking met mekaar te verbind. Binne die groter visie vir streeksintegrasie van die Streek se Ekonomiese Gemeenskappe (SEG) [*Regional Economic Communities (REC)*] in Afrika, was energie een van die eerste formele korporatiewe akkoorde van die Suider Afrikaanse Ontwikkelings Gemeenskap (SAOG) [*Southern African Development Community (SADC)*], wat die streek is waarop hierdie studie sal fokus. Die vorm wat elektrisiteit samewerking aangeneem het, was die Suider Afrika Krag Poel (SAKP) [*Southern African Power Pool (SAPP)*], wat aangepas is om elektrisiteitshandel oor grense heen te bevorder en veilige, asook betroubare lewering aan die lede te verseker.

Hierdie studie ondersoek die totstandkoming van 'n elektrisiteit 'regime' binne suider Afrika deur die SAKP as 'n gevalle studie te gebruik. Om die ontwikkeling van die SAKP behoorlik te asesseeer, sal die regime teorie gebruik word. 'n Analitiese raamwerk, wat afgelei is van verskeie studies met betrekking tot regime teorie, is dus saamgestel. Hierdie raamwerk help met die analise van die totstandkoming en evolusie van die SAKP wat die assessering van die tipe regime, wat ontstaan het, vergemaklik en dit rig ook 'n streng analise met betrekking tot die graad van effektiwiteit van die elektrisiteit regimes.

Gegewe die proses van totstankoming en die eienskappe onderliggend aan die SAKP, is daar bevind dat dit binne die kategorie van 'n onderhandelde regime val (negotiated regime). Die analitiese raamwerk het duidelike riglyne voorsien om die effektiwiteitsgraad, met betrekking tot die gevallestudie, te assessee. Na 'n analise van die historiese en organisatoriese funksionering van die regime – kan mens aanvoer dat die SAKP, ten minste op skrif, 'n stabiele en effektiewe regime is. Dit staar egter verskeie struikelblokke in die gesig, wat die effektiewe funksionering beperk. Daar kan egter

afgelei word dat die lede van die regime toegewyd is tot die volgehoue ontwikkeling van die SAKP, ten spyte van die probleme wat geïdentifiseer is.

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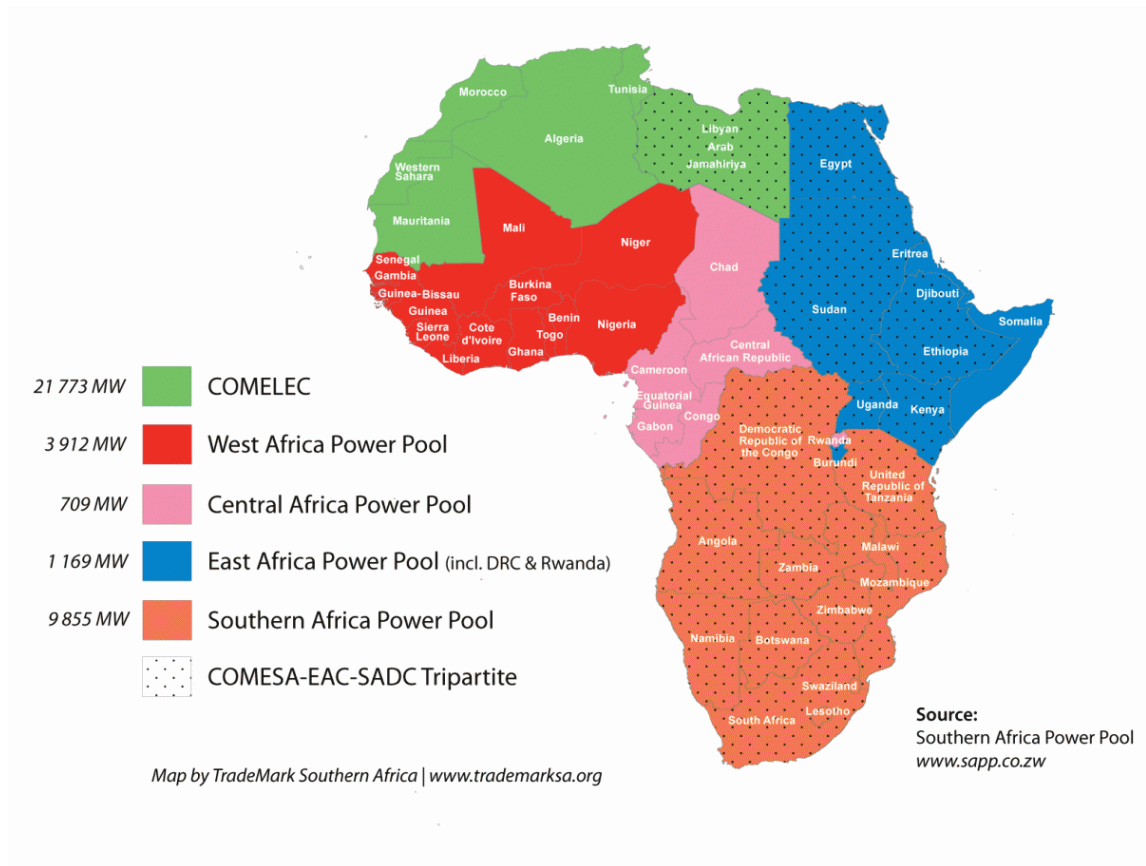
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ABBREVIATIONS

AU	African Union
AFUR	African Forum for Utility Regulators
CAPP	Central African Power Pool
COMELEC	Comité Maghrébin de l'Electricité
COMESA	Common Market for Eastern and Southern Africa
DAM	Day Ahead Market
DBSA	Development Bank of Southern Africa
DFID	Department for International Development
DRC	Democratic Republic of the Congo
EAPP	East African Power Pool
ECA	Economic Consulting Associates
ECOWAS	Economic Community of West African States
ESC	Electricity subcommittee
GATT	General Agreement on Tariffs and Trade
ICT	Independent Transmission Company
IGMOU	Inter Governmental Memorandum of Understanding
IPP	Independent Power Producer
IRP	Integrated Resource Plan
ITC	Independent Transmission Company
IUMO	Inter-utility Memorandum of Understanding
JSE	Johannesburg Stock Exchange

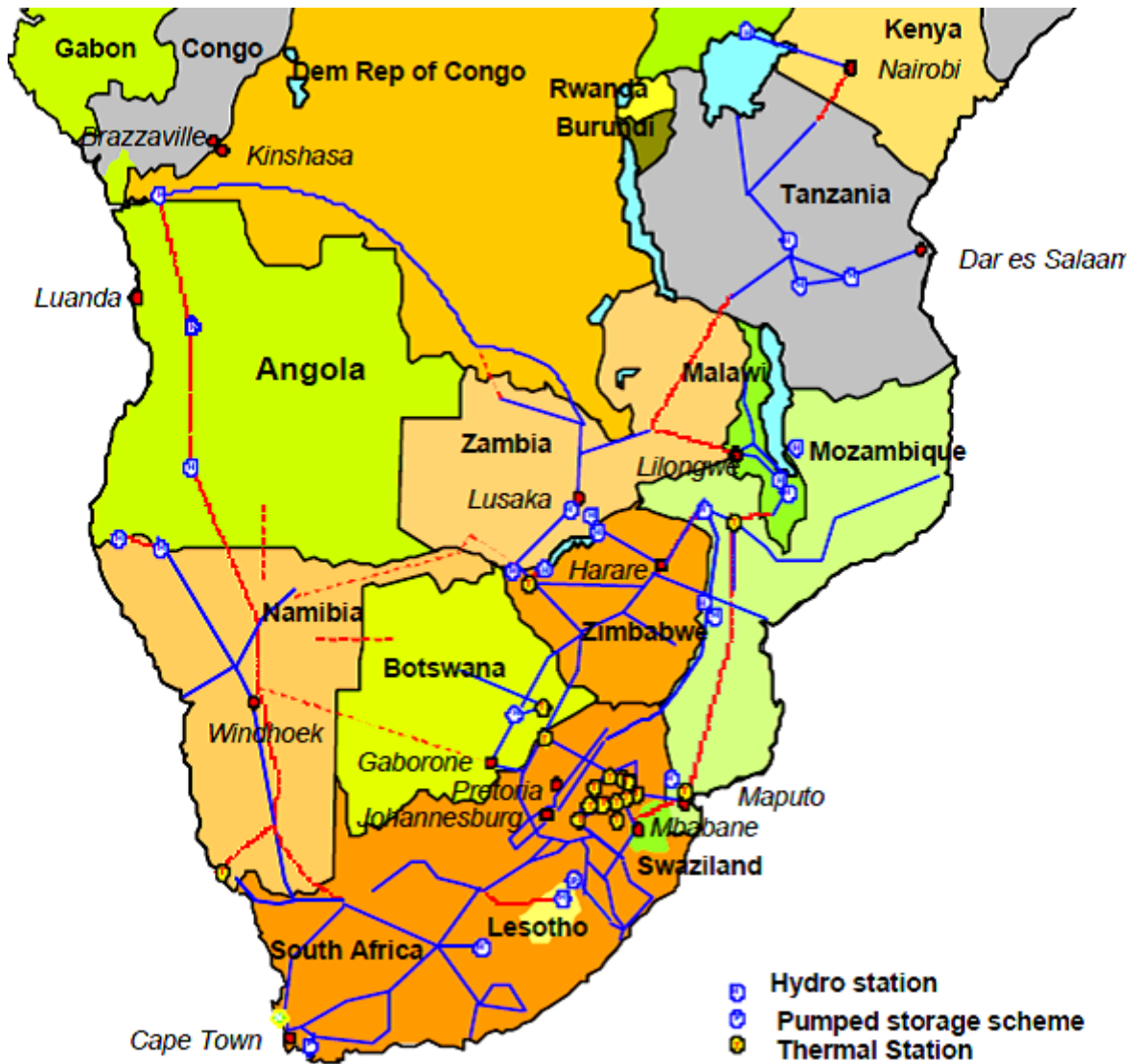
MEC	Mineral Energy Complex
MOU	Memorandum of Understanding
NEPAD	New Partnership for Africa's Development
OG	Operating Guidelines
REC	Regional Economic Community
RERA	Regional Electricity Regulating Agency
SACU	Southern African Customs Union
SADC	Southern African Development Community
SADCC	Southern African Development Coordination Conference
SAPP	Southern African Power Pool
STEM	Short Term Electricity Market
TAU	Technical and Administrative Unit
USA	United States of America
WAPP	West African Power Pool
WB	World Bank

MAP 1: POWER POOLS WITHIN AFRICA



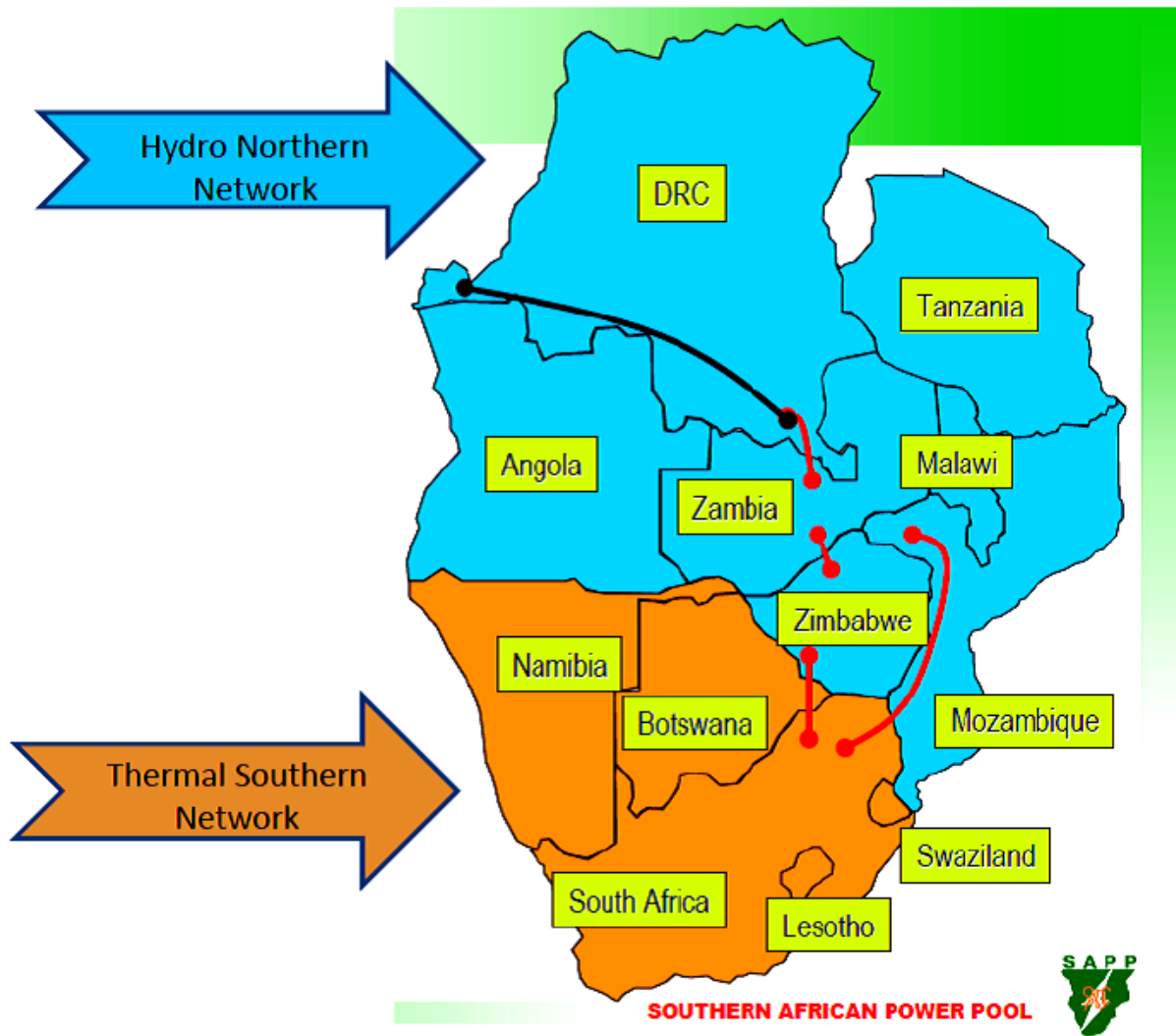
Source: TradeMark, 2012

MAP 2: SOUTHERN AFRICAN POWER POOL CONNECTIONS 2011



Source: SAPP, 2011: 69

MAP 3: THE SAPP DISPLAYING THE *HYDRO NORTH* AND THE *THERMAL SOUTH*



Source: Musaba, 2010

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 ELECTRICITY COOPERATION AS THE KEY TO UNLOCKING AFRICA'S POTENTIAL

Electricity is important in various capacities, but especially in the sense that it is the key to increased economic growth and various aspects of human development. Without it, these are constrained along with various other pertinent basic services and needs (World Bank Group, 2010: 1). Africa's available electricity supply amounts to around 73 GW, which is the equivalent to that of one country, namely Spain. In Africa, the electrification rate of countries is shockingly low, where 31% of countries are merely electrifying 10% or less of their country, while the rest of the African countries average at around 30% electrification rate (ICA, 2010: 6). This sketches a picture of just how undersupplied the region is when it comes to electricity. What is more, a strong positive link exists, connecting the availability of electricity with that of economic growth, especially in Africa, where the economies are very dependent on this.

The good news is that the available exploitable electricity in Africa ranges at around 13% of the entire world supply, whilst only 7% of the entire potential in Africa has already been harnessed, which leaves a lot of room for future opportunities and expansion (OECD, 2009: 5). The bad news, on the other hand, is that it is the continent with the greatest backlog – requiring enormous amounts of government spending in the future. The fact that the cost of the construction of power infrastructure in Africa is extremely high in relation to the rest of the world does not make the issue at hand any easier (Foster and Brinceño-Garmendia, 2010: 182).

As the continent understood the importance of necessary investments in order to ensure “strong and sustained growth”, the African Union (AU) set a vision for the greater regional integration of Africa, by using the New Partnership for Africa's Development (NEPAD) as a key driver of development in order to develop a power focused infrastructure. On a smaller level, the Regional Economic Communities (RECs), especially the Southern

African Development Community (SADC), is geared towards the same goal by fostering power cooperation in order to attain greater regional integration (Cilliers et al., 2011: 55).

The Southern African Development Community (SADC) (with its 15 members) is the front runner in all sectors in comparison to the other 13 regional economic and trade partnerships within Africa. The constant runner up to SADC is the Economic Community of West African States (ECOWAS). In terms of economic growth, SADC is making progress, and this requires the support of various elements which contribute to this. The one sector that does not promote economic growth yet, could be a great catalyst is the power sector.

In order to counteract the backlog of power infrastructure, a promising solution to this dilemma has been developed. This solution entails cooperation within the electricity sphere in the continent, which is made possible through the use of power pools (Foster and Brinceño-Garmendia, 2010: 53& 187). Even though the power situation within SADC is thought to be a negative contributor to growth, it is still the biggest and most effective power pool within the region. Of the entire generation capacity within Africa, which amounts to 73 193 MW, the SAPP alone constitutes around 33 319 MW. This is nearly half of the entire continent's generation capacity (Foster and Brinceño-Garmendia, 2010: 53& 187 and ICA, 2010: 10). Given SAPP's large size and very fast growing demand, it also requires around 40% of projected infrastructure spending.

Interdependence and cooperation are what characterize SADC. The reason for this is the increased understanding that without it, the single actors will only be able to achieve smaller goals in relation to if they were to cooperate. Therefore, the actors within SADC have been working hard at cooperation initiatives, within the region, in order to see this vision of regional integration that will positively affect economic growth and development, be realized. Mere ad-hoc cooperation was tried and tested, however only sub-optimal outcomes were attained, which was deemed unfavourable. The implementation of a power pool, within SADC, by the efforts of an electricity regime, SAPP, was envisioned to be the key vehicle in decreasing the infrastructure gap and through cooperation, also the backlog in spending.

Cooperation within the sphere of electricity is advantageous on various levels. These include increased power stability and reliability through the diversification of power

sources, creating economies of scale and therefore obtaining a greater output, whilst decreasing costs; shared expertise and information and also better outcomes for not only the region as a whole but also for the individual actors.

These advantages, fostered through cooperative engagements within the electricity field, are also known as power pools. In order to analyse and assess SAPP) thoroughly, which will be the case study of the thesis, an analytical framework, comprising various theoretical discussions, surrounding regime theory has been created. This analytical framework as shown in table 2 on page 28 will guide the study in order to properly identify what type of regime the SAPP is and to assess its effectiveness.

1.2 PROBLEM STATEMENT AND RESEARCH QUESTION

Electricity is a key resource in order to attain increased economic growth and the betterment of lives. Southern Africa attempted to effectively harness and develop the field of this important resource. Due to challenges faced and the initial exclusion of the big regional electricity player, South Africa, these attempts merely led to sub-optimal outcomes. The recognition of this and the desire to achieve the optimal outcomes fostered, which has been harnessed through an electricity regime, namely the Southern African Power Pool. The SAPP will be assessed against an analytical framework, created from various discussions around regime theory. The main problem statement revolves around the type of regime that has been established and finally, how efficient it is.

The main research question for this thesis therefore reads as follows: *What kind of regime has been established in the form of the SAPP and is it efficient?*

Sub questions include:

1. What are the underlying power dynamics of electricity cooperation in the region?
2. What are the main factors influencing the SAPP to change?
3. What does the future of the SAPP look like?
4. Will the regime persist, be strengthened or decay?

The study will answer the research question by providing a thorough analysis of regime theory (see chapter 2) and constructing an analytical framework (see table 2) will serve as a guideline in assessing the life of a regime, and in this case, the life of the SAPP. This

includes the formation of the SAPP, its evolution and what its characteristics are. These findings will assist in the identification of the type of regime at hand and enable an assessment of its effectiveness as an operating regime.

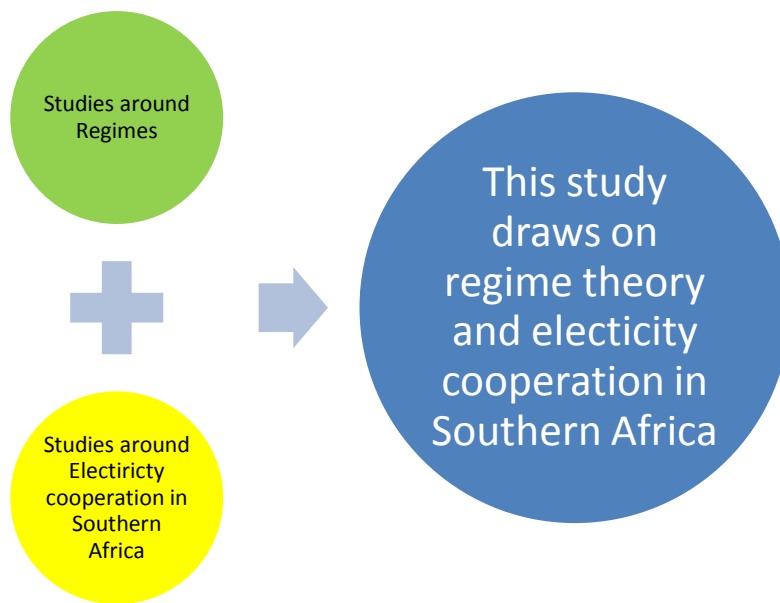
1.3 RESEARCH AIMS AND PURPOSE

The purpose of this study is primarily to assess the Southern African Power Pool as an electricity regime within the region. This will be done by looking at the electricity dynamics within SADC, an analysis of its effects and a discussion on the importance of electricity for the region. Electricity is a resource which is expensive to harness, in terms of infrastructure, its maintenance, skills development and also transmission. Also, due to droughts in the region and lagged generation investment, electricity blackouts were experienced in South Africa that affected the rest of the region severely (Hartzenberg, 2010: 236-237). In order to fulfil the ‘electricity need’, it is beneficial to cooperate with states in the region so that economies of scale may be created, grow together and share costs and benefits. This transboundary cooperation needs to be regulated by a body, with agreements, which over time become more formalized. This cooperation body was established in 1995 as the SAPP. Regime theory will be used to explain the electricity cooperation within SADC, which is the ‘supra regime’ and the SAPP can be seen as a regime within a regime (Figure 7).

The purpose of this study is to fill the existing research gap which was outlined in the literature review section. The crux of this is the overlapping of two areas, namely studies around regimes and studies around electricity cooperation in Southern Africa, as depicted in figure 1 below.

The main contributions of this thesis therefore include:

- Linking the fields of regime theory and electricity cooperation and thereby filling an existing research gap
- Explaining electricity cooperation within SADC with specific focus on the SAPP by using regime theory.

FIGURE 1: RESEARCH GAP DISPLAY

1.4 RESEARCH DESIGN AND METHODOLOGY

The study at hand is qualitative as it “emphasizes the social context for understanding the social world” (Neuman, 2006: 158). This holds true for this study; for in order to understand the dynamics of electricity cooperation within the region properly, it is important to understand not only the historical context but also the political and power dynamics that are at work within it. In order to properly assess electricity cooperation, within the region, the guiding framework, which is required in order to complete such a study, has been compiled into an analytical framework in section 2.3.2. This analytical framework will be applied to and tested against the case study.

Marshall and Rossman (2011: 265) argue that case studies can “take the reader into a setting with vividness and detail” [which] cannot be found in different “reporting formats”. The use of a case study can therefore “provide a kind of deep understanding” of the subject matter at hand, or as Geertz terms it, provide a “thick description” (Geertz, 1973 in Berg, 2007: 285). The case study approach will be applied to the Southern African Power Pool as the subject of analysis. It will apply the theory accordingly, by using the analytical framework (Table 2). The replicability of this study is not the aim as it is of a qualitative nature. Also, due to the fact that only one case study is being used, no generalizations can

be made and therefore, it cannot substantively shape theory. If this is the aim, then a few case studies should be embarked upon, to be able to make generalizations.

Before the study was embarked on, a visit was paid to the Lethabo power station in the Vaal Triangle, where a historic overview was presented to the author, along with a video about power in South Africa. After this informative session, the coal fields and places of electricity generation were visited and informal conversations were held with the staff operating the power plants, of which many had been working at Eskom for more than 30 years. This exposure assisted in gaining background information and greater perspective and insight into the electricity workings of South Africa.

Megawatt Park in Johannesburg, where the Eskom offices are located, was also visited. Appointments and illuminating interviews were held with two officials. The insight, especially of the one official, who has been working at Eskom for more than two decades, was very enlightening.

Besides the usual academic secondary sources consulted, various SAPP monthly and yearly reports were analysed to get a sense of the everyday functioning of the power pool, which makes up for most of the primary sources used. Secondary data include academic journal articles, edited books, and Internet articles depicting the most recent evolvments in the electricity sector. Further helpful sources of secondary data were reports, which were often prepared for different fields such as engineering. Other theses, surrounding more technical analysis of power pools, were also used.

1.5 LITERATURE REVIEW

The literature, which provides a good base for the study at hand, cover three main areas, with other, more dispersed sources, to fill the gaps and sketching an overview. The types of literature which will be used include theory related academic journals and texts that will inform and shape the analysis of the case study. The literature that sets the scene of electricity cooperation in Southern Africa is the second main area of study. These mainly consist of academic journals or reports. The second area is very much related to the second area and deals specifically with the Southern African Power Pool which will be used as the case study of this thesis.

An in depth analysis of regime theory in chapter two will provide the necessary detailed information about the literature used for the theoretical analysis. However, a few of the main authors will be outlined here. Some of the most influential theorists informing and to a great extent shaping regime theory include: Keohane (1982; 1984; 1988; 1993), Krasner who formulated the most widely used definition of regimes (1983), Puchala and Hopkins (1982) along with Young (1982; 1993), Haggard and Simmons (1987), Levy (1994) and Hasenclever, Mayer and Rittberger (1997; 2000) who all created sound processes of evaluation or categorization of regimes.

One key piece of literature that sets the scene for regional cooperation in southern Africa, is a very recent book written by Saunders, Zdinesa and Nagar (2012), *Region-Building in Southern Africa: Progress, Problems and Prospects*. One of the most relevant chapters for this thesis is chapter 7 which focuses on regional economic integration. Yearbooks by Tralac (Hartzenberg et al., 2010; 2011; 2012) also sketch a very good idea of southern African regional integration.

Probably one of the most influential sources for this thesis is *Electric Capitalism: recolonizing Africa on the Power Grid* by David McDonald (2009). The book includes various chapters with key topics, relating to the electricity field of southern Africa; however it mainly focuses on South Africa. Studies by Anton Eberhard have also shaped the nature of this study (2009).

Power Pool specific literature was derived mainly from reports from the Republic of South Africa's Department of Energy, the Southern African Power Pool, the Southern African Development Community and the World Bank.

A thesis written on the water regime within southern Africa by Msukwa (2010) has been very influential in guiding this thesis. It is noteworthy that no literature was found, which combined the study of electricity cooperation and regime theory. *This is the way in which this thesis intends to try to fill the research gap, by providing a study which combines both regime theory and a case study on electricity cooperation within southern Africa.*

1.6 THE LIMITATIONS OF THIS STUDY

Patton (2002: 223 in Marshall and Rossman, 2011: 76) argues that “there are no perfect research designs. There are always trade-offs”. This shows that no research, including this thesis, can be perfect. One of the specific trade-offs made, was the focus on one case study, namely SAPP. This means that the findings cannot merely be used as generalizations and applied to other power pools in the region. The scope of the study was too limited for this. As the study is bound to a certain context, it will automatically limit the ability to be generalized (Marshall and Rossman, 2011: 77).

It is important to note that the scope of this thesis is specifically related to regime theory and SAPP. The study intended answering the research questions at hand, while staying focused on the above points. There is however a lot of information which might have contributed to even greater understanding of the dynamics at hand, which can however not all be included in such a restricted study. These will be discussed in the concluding chapter, in a section dealing with possible areas of future study.

1.7 OVERVIEW

Chapter two:

International Relations theory, relating to international cooperation, whilst delineating the stumbling blocks, will set the tone for the discussion on regional cooperation. The chapter is guided by a theoretical discussion on regimes, where the different stages of regime existence are discussed. The chapter ends off with the presentation of an analytical framework, which was drawn from the regime theory literature, in order to guide the case study analysis that follows in chapter three.

Chapter three:

The chapter aims at sketching an overview of electricity cooperation within southern Africa. Not only are the historical milestones discussed, but also the interesting power dynamics, which come into play when dealing with such a strategic resource. The analytical framework, presented in chapter two, is then applied to this case study in order to answer the research question at hand.

Chapter four:

An overview of the findings and final concluding remarks about the SAPP will be made, concluding with suggestions for future research.

CHAPTER TWO

THEORETICAL DISCUSSION

2.1 INTRODUCTION

This chapter will introduce and discuss the theoretical framework, which will be used to analyse electricity cooperation in Southern African Development Community (SADC). There has not been a vast amount of research conducted on electricity cooperation within SADC, specifically referring to the SAPP, both (i) in general and (ii) in terms of an international relations theory. This is therefore the challenge for this study: to contribute to filling the current research gap. More specifically, this section will discuss International Relations theories, relating to international cooperation, and analyse the existing literature of regimes, which will be the core theory used for this study. After introducing the regime theory and contextualising the theoretical debates around it, the second part of the chapter aims to provide an analytical framework, based on regime theory, whereby the SAPP may subsequently be analysed.

In order to gain a better understanding of the workings of the international system, various International Relations theories aim to provide a framework of understanding, each with its own set of assumptions. The two main theories of International Relations, that deal with cooperation in the international sphere, which is also the greater theme of this thesis, are realism and liberalism. For this thesis, neo-liberal institutionalism, which is regarded by many scholars to be the most “convincing challenge to realist and neo-realist thinking” (Lamy, 2001: 189), will be utilized. Within the International system, the subject of international cooperation is probably the most important topic, and therefore also the overarching and introductory theme of this thesis. A more specific sphere of international cooperation is the study of regimes. In order to provide a sound analysis of the electricity regime, the SAPP within the Southern African development Community (SADC), the study of regimes will be closely examined.

2.2 INTERNATIONAL COOPERATION

The theories, which are regarded as most established, and those which offer the best explanations of the international system, are of realist and liberalist descent. The more recent and therefore, in this case, more applicable versions of these theories will be utilized and contrasted against one another. Neo-realist and neo-liberalist theorists have different beliefs about the nature of the international system; given their different world views. Neo-realists focus on security issues and are concerned about power in order to ensure their survival; whilst neo-liberalists aim to find a way in which international cooperation, within a system of anarchy, can be enhanced. However, they do agree on important underlying principles, which will be discussed later, that support the argument made by theorists Martin and Keohane that these “two are half-siblings” (cited in Jervis, 1999: 43).

As the “structure of the system is a major determinant of actor behaviour”, and *anarchy* is what prevails, it describes a system where there is a lack of central authority, which has the power to enforce rules on actors (Keohane, 1984: 7). For neo-realists, this ultimately translates into the fact that no overarching authority exists to ensure the protection and survival of the actors (Lamy, 2001: 186). Neo-realists, therefore, underline the fact that states have to take care of their own *survival*, as no other actor (especially not institutions) can be trusted with this important objective. The reason for this is that all actors are driven by *self-interest*; this is to say that all states will act in such a way in order to increase their own well-being and thus have to adopt a stance of *self-help*, in order to protect themselves. States will thus always attempt to maximise their power, as this would ensure their security and ultimately their *survival* (Dunne and Schmidt, 2008: 98). Neo-realists agree that cooperation is possible but due to the innate nature of states, as discussed above, the degree of trust amongst states is very low and therefore the likelihood of cooperation is also minimal. As Mearsheimer (1995: 12) argues, states will only cooperate with other states if two conditions are fulfilled: The first condition is that they should benefit more than their counterparts from the cooperation; whilst the second condition emphasizes that there should be no cheating.

Even though neo-liberalists also believe that anarchy is a defining characteristic of the international system, in contrast to neo-realists, neo-liberals adopt a much more positive stance towards cooperation. They believe that the “world has become more pluralistic in

terms of actors involved in international interactions and that these actors had become more dependent on each other” (Lamy, 2001: 189). Little describes this as *interdependence*, which is an elaboration of pluralism. Pluralists “recognized a growing interconnectedness in which changes in one part of the system have direct and indirect consequences for the rest of the system” (Little, 1996: 77 in Dunne, 2008: 115). The ideal situation, as coined by Keohane and Nye (1984: 731), would be “complex interdependence”, which they argue, does not reflect the current reality; but would reflect an ideal situation, where a few countries have various opportunities to engage in communication. Societies are increasingly connected and a “hierarchy of issues” is non-existent, just as the desire to utilize military force against one another does not come into the equation.

The interdependence, referred to above, “brought with it enhanced potential for cooperation as well as increased levels of vulnerability” (Dunne, 2008: 115). Given this vulnerability, it becomes clear that harmony is not what reigns between actors and cooperation does not organically come about; but is rather deliberate in its interaction. Keohane (1984: 12), a neo-liberal institutionalist, argues that “cooperation, as compared to harmony, requires active attempts to adjust policies to meet the demands of others. That is, not only does it depend on shared interests, but it emerges from a pattern of discord or potential discord (given that every actor, in this case state, will have its own goals and motives). Without discord, there would be no cooperation, only harmony”.

2.3 INTERNATIONAL REGIME THEORY

The solution to cooperation problems has increasingly been found in the formation of regimes. Regime theory is an attempt at explaining the “existence of rule-governed behaviour in the anarchic international system”. Due to globalization and the increased interdependence of actors within the international system, regimes can now be regarded as a rule rather than an exception (Little, 2008: 302). Since regimes have been studied for more than three decades, important aspects have been explained in varying manners by different theorists. Such aspects include the possible *different stages* of a regime. This process includes the formation, development, (Young, 1982: 279 and Stokke, 2001: 1) and ultimately the decay, or as Keohane” (1982: 329) terms it, the “dissolution of regimes.”

Even though it has become widely accepted that regimes play an important role in the international system, different theories have their own conclusions about why this is so.

The main theoretical discussions regarding regimes, which include the aforementioned discussion, have evolved around the liberalist and realist core theories. Theorists Hasenclever, Mayer and Rittberger have however sternly argued that this approach is too narrow and a constructive element should be included within this debate. The theoretical discussion in this thesis will include neo-liberal institutionalism, neo-realism and, on a more basic level, constructivism, for which Hasenclever prefers the term 'cognitivism'. Accordingly, the term 'cognitivism' will be used. Hasenclever, Mayer and Rittberger (1997: 3-5) divide these into three main subjects of analysis, which are: interest (neo-liberal institutionalism), power (realism) and knowledge (cognitivism).

The most widely accepted definition of regimes stems from Krasner (1983: 2) who defines a regime as "a set of implicit and explicit principles, norms, rules, and procedures around which actors' expectations converge in a particular issue-area". Another definition argues that "a regime exists in every substantive issue-area in international relations where there is discernibly patterned behaviour. Wherever there is regularity in behaviour, some kinds of principles, norms or rules must exist to account for it" (Puchala and Hopkins, 1982: 247). It is important to note that one cannot call any regularity in behaviour a regime, rather all the factors (such as principles and norms) need to be accounted for, as indicated by Puchala and Hopkins (1982). A more recent and encompassing definition by Keohane (1993: 28) reads as follows:

agreements in purely formal texts (explicit rules agreed upon by more than one state) and ...[considering] regimes as arising when states recognize these agreements as having continuing validity....[A] set of rules need not be "effective" to qualify as a regime, but it must be recognized as continuing to exist. Using this definition, regimes can be identified by the existences of explicit rules that are referred to in an affirmative manner by governments even if they are not necessarily scrupulously observed.

Levy et al. (1994: 6) have formulated a definition of regimes that distinguishes them from international organizations and allow for the definition of regimes, which may, or may not include conventions:

International regimes [are] social institutions constituting of agreed upon principles, norms, rules, procedures and programs that govern the interactions of actors in specific issue-areas.

The important questions, relating to regime theory, will be discussed topic by topic, whilst the views of the different theories will be discussed throughout.

2.3.1 REGIME THEORY: THEORETICAL DEBATES AND DISTINCTIONS

2.3.1.1 ANARCHY AND ACTORS IN THE INTERNATIONAL SYSTEM

In order to gain a more in depth understanding of the theories and what differentiates them, an overview of the main assumptions that these theories hold, will be provided. As discussed above, neo-liberalists have come to agree with neo-realists that *anarchy* is the main factor influencing state behaviour and correspondingly the greatest obstacle to cooperation within the international system.

This discussion leads to a further distinguishing factor amongst the theories, namely the debate around the *major actors* in world politics. The actors focused on are the state and international institutions. Neo-realists and neo-liberal institutionalists both agree that states are the main actors in international politics. States are rational utility maximizers, always looking for ways to adapt in order to increase the “expected value of outcomes to them” (Keohane, 1982: 335). States are also the actors which can exert the most influence in the international system; due to the principle of sovereignty. A stance on which these two theories differ concerns the importance of international institutions. Neo-liberal institutionalists underline the importance and influence international institutions have in the sphere.

Neo-realists believe that institutions are not “worthy goals in and of themselves” but rather, are a reflection of the international power structure, and that these entities would only be created if states would see them as necessary (Garib, 2005: 293). Neo-realists believe that regimes will indeed emerge, if “uncoordinated strategies interact to produce sub-optimal outcomes”. Regimes would then serve as this “regulation”, allowing for a more optimal outcome (Little, 2008: 305). The effect that institutions have can therefore only reach as far as states lend them powers. States have to willingly submit to these

bodies and give them consent to hold them accountable. This begs the questions of how effective this international regulation, which is embodied, amongst others, by the United Nations and the International Criminal Court, can be. Neo-realists would therefore argue that institutions contribute to the working of the international system, but anarchy is still the underlying condition and states, as the main actors, have to commit to these institutions. Given the increasing interdependence of states and actors, the benefit of states, willingly submitting to institutions, will decrease the likelihood of cheating, allowing states to cooperate in this uncertain world sphere.

2.3.1.2 RELATIVE VERSUS ABSOLUTE GAINS

A further great debate revolves around the importance of relative versus absolute gains. Neo-liberal institutionalists argue that states are concerned with increasing their power and influence, a concept known as ‘absolute gains’. They believe that states will cooperate with other states and actors if they know it will increase their capabilities (Lamy, 2001: 186). Grieco claims that states are also concerned with how much power and influence other states might achieve (relative gains) in any cooperation endeavour (Grieco, 1988: 487) and, in line with neo-realist thinking, he argues that states would be more concerned about “who will gain more if we cooperate?” representing the relative gains argument.

Neo-realists argue that, because every state should look out for its own wellbeing and survival, it is not advantageous if you gained anything in the process of cooperation if the other state gained more, meaning that it has more power and influence than your own state. This could potentially threaten your survival. Thus, relative gains are important to consider, not merely absolute gains.

Both neo-realists and neo-liberal institutionalists argue that, in the event of gains varying substantially for different actors – those which might seem to profit less at first glance, should not dismiss cooperation or the formation of regimes. In this case, it is possible for regimes to “assume additional functions, the purpose of which is to mitigate members’ relative gains concerns.” In practice, therefore, certain stipulations would be made, indicating differential treatment of members who would not be able to profit as much as other stakeholders from regime-based cooperation, as an attempt to decrease this disparity, taking into account relative gains. An example of such an arrangement is the Generalized

Agreement on Trade and Tariffs (GATT), where concerns were raised by developing countries, as they feared that the proposed cooperation and unconditional acceptance of the GATT might result in obstructing their growth trajectory, instead of allowing them to get on par with the industrialized world. The implementation of the “Generalized System of Preferences” however allowed for the differential treatment of actors, ensuring the inclusion of partners, who would initially not have, according to the relative gains argument, benefitted as much from the regime (Hasenclever et al., 2000: 15).

Neo-realists have identified relative gains as the one barrier to international cooperation. They claim, however, that there is a second barrier to international cooperation. This second barrier, with which all neo-liberal institutionalists agree, is cheating. When states fail to comply with the rules that encourage cooperation; in other words cheat, other states may abandon multilateral activity and act unilaterally, which ultimately destructs cooperation (Lamy, 2001: 186). This exploitation by other parties can be mitigated by regimes (Hasenclever et al., 2000: 5).

2.3.1.3 THE ROLE OF POWER IN THE LIFE OF A REGIME

An important debate, within the field of international regime theory, is the role of power (neo-realism) and hegemony (neo-liberalist institutionalism). As Msukwa (2010), however argues, power and hegemony are closely associated concepts. This section will, nevertheless, discuss the different views of hegemony and power and further relevant discussions within the study of regimes.

Neo-realists consider power to be the principal feature of both regime formation and sustenance (Little, 2008: 299 and Brahm, 2005). In their view, there needs to be a concentration of material power resources in order for a regime to emerge (Haas, 1993: 181). Just as the concentration of power plays a role in the formation of a regime, so the decline of this power concentration will usher a demise of a regime (Haas, 1993: 181).

Within the field of neo-liberalism there are varying ideas about the importance of hegemony. The stern camp believes in a crude version of the hegemonic stability theory, which can be compared to the neo-realists stance towards power. They believe that:

- 1) Regimes are established and maintained by actors, who hold a preponderance of power resources (relevant to the issue-area in question).
- 2) Regimes decline (for instance, decrease in strength or effectiveness) when power becomes more equally distributed among their members (Hasenclever et al., 1997: 90).

The strength of a regime, according to Hegemonic Stability Theorists, is therefore directly linked to the existence and strength of a hegemon (Hasenclever et al., 1997: 86-87; Haggard and Simmons, 1987).

There is a distinction embedded in the Hegemonic Stability Theory, between the different leadership styles that the hegemons take. Hasenclever et al. (1997: 90, 94) distinguish between *benevolent* and the *coercive* leadership models. A benevolent hegemon will gain much from a well-ordered system and thus implements it whilst bearing the cost. By supplying this public good, other smaller actors also benefit without having to pay for this advantage. It is said that “the weak are exploiting the strong” in this case (Haggard and Simmons, 1987: 503), however the hegemons still gain more from their initiative than the smaller actors (Hasenclever et al. 1997: 90).

Even though the benevolent hegemon does not have the strength to tax the smaller states, it can nevertheless implement sanctions, which would compel these actors to comply with their established regime (Hasenclever et al. 1997: 94). The coercive hegemon, just as the benevolent hegemon, supplies a collective good. The coercive hegemon, however, forces all beneficiaries to share the cost burden of this collective good (Hasenclever et al. 1997: 91).

Hasenclever et al. (1997: 87) argues that Keohane, who he believes produced the most influential work on regimes, relies on the Hegemonic Stability Theory as much as he criticizes it. Keohane adopts an approach where he rejects the coercive version of the Hegemonic Stability Theory. Keohane and other theorists believe that hegemony plays an important role in regime formation as it facilitates the process; however, evidence suggests that it is not a requirement (Rittberger, 1993: 228; Young and Osherenko, 1993: 245).

Young and Osherenko (1993: 229) argue that, according to results from various case studies, even though hegemony per se is not a necessity for the formation of regimes;

different configurations of power have become important in the formation of regimes. This argument is supported by Keohane and Nye, who also presented a different approach to hegemony in regime formation. They argue that hegemons, in a “specific issue system, will dominate the weaker ones and determine the rules of the game” (Keohane and Nye in Haggard and Simmons, 1987: 500). Therefore, they do not refer to a hegemon in an absolute material sense, but rather as a strong actor, who is the front-runner within a certain issue-area. This is consistent with an observation made by Young and Osherenko (1993: 229), which underlines the importance and necessity of an individual leader in the regime formation process. Levy et al. (1994: 16) reinforce this by arguing that “in virtually every case of successful regime formation, one or more key individuals have provided leadership in crucial turning points.”

Even though hegemony and power, in their “original” sense, are not necessities for regime formation, they should not be fully dismissed. Young and Osherenko (1993: 240; 229) argue that hegemony can indeed, in some instances, be a critical factor in the regime formation process. Furthermore, power can also be utilized as an important bargaining tool.

2.3.1.4 COGNITIVE THEORY

A theoretical overview of international regimes would be incomplete if the knowledge-based approach, also known as cognitivism, was not discussed. Haggard and Simmons coined the term cognitivism to explain the constructivist approach of regimes in 1987 (Hasenclever et al., 1997: 7). Cognitive theorists underline the importance of ideas and knowledge in explaining international politics (Hasenclever et al., 1997: 136). They believe that these factors are an important basis that causes variation in international behaviour. Therefore cognitivism fundamentally disagrees with neo-realist and neo-liberal institutionalist (also known as rationalist) approaches, which “treat actors’ preferences and (perceived) options as exogenous ‘givens’; for example as facts which are either assumed or observed, but not theorized about” (Hasenclever et al., 2000: 10). Cognitivists underline the importance of ideas and knowledge as explanatory variables (Mayer et al., 1993: 409). Furthermore, it is important to distinguish between weak and strong cognitivism. The former, also known as “minimalist” cognitivism, is less radical than strong or “maximalist” cognitivism. Weak cognitivists concentrate on the “role of causal beliefs in

regime formation and change”. They are interested in the “role of epistemic communities in international policy coordination” whilst strong cognitivists such as Cox, Ruggie and Kratchowil, focus on the social character of international relations. They are more concerned about the knowledge of norms and understanding of self and the other, also known as social knowledge. This position brings them into stark contrast to the rationalist approach (Hasenclever et al., 2000: 10-11, 30).

TABLE 1: SCHOOLS OF THOUGHT IN THE STUDY OF INTERNATIONAL REGIMES

	Realism	Neoliberalism	Cognitivism (especially ‘strong cognitivism’)
Central Variable	power	interests	knowledge
Metatheoretical Orientation	rationalist	rationalist	sociological
Behavioural Model	relative gains seeker	absolute gains maximizer	role player
Institutionalism	weak	medium	strong

Source: Hasenclever et al., 2000: 11

Table 1 above, provides an overview of the three main theories relating to international regime theory. It indicates yet again that neo-liberalist and realist theories are more in line with one another, when compared to constructivism. Constructivists continue criticizing rationalist theories given their stance as explained above. Rationalist theorists, to some extent, agree that they cannot explain everything, but argue that cognitivism has to date not provided an alternative which could better explain the international system (Mayer et al., 1993: 409). In order to make up for these “gaps”, many debates have evolved around constructing one “grand synthesis” which would include strong cognitivism and rationalism. Due to their very different fundamental beliefs, which are not compatible with one another, there have been overwhelming doubts over this amalgamation. What, however, seems to be more acceptable, is taking weak cognitivism and filling the gaps of rationalist theory with it, thereby complementing each other (Hasenclever et al., 1997: 216). This aforementioned approach of using cognitivism, to fill the gaps that rationalism leaves, has more recently been explored. It is therefore not yet sound enough, relating to

regime theory, to provide a thorough analysis. The scope of this thesis does not evolve around theoretical debates; but this could be an interesting field to explore for future research. A more rationalist, more specifically neo-liberal institutionalist approach will be taken to construct an analytical framework to assess the electricity regime in SADC. The following section will provide a review of the different stages in the life of a regime with different approaches. The most relevant and applicable of these will subsequently be drawn into an analytical framework, available at the end of this chapter, which will subsequently be applied to assess the SAPP in chapter three.

2.3.2 THE FORMATION OF REGIMES

A central question which has been touched on in this thesis is *why* actors should *establish regimes*. Young indicates that, due to the increase in exchange and transactions at the international level, political regulation “beyond the nation state” has increased substantially. Implementing the same system, used at a state level, would not work at an international level. Furthermore, Keohane (1984: 92-94), argues that in an ever increasing interdependent world, which is characterised by uncertainty, incomplete information and high transaction costs; states are in a dilemma, as these are all features which put the individual state at a disadvantage. The solution to these problems has been found in the emergence of international regimes, as these are mechanisms that can reduce the barriers to cooperation (Keohane, 1982: 336). Herrmann (2002: 128) argues that through managing communication efficiencies and managing risks, that are inherent in international relationships, these obstacles can be overcome.

The goal of states is not merely to cooperate, but also to achieve desirable outcomes. Pivotal debates, surrounding cooperation and the necessity for regulation, stem from the micro economic field, also known as ‘game theory’. The game theory attempts to explain that anarchy dominates the world system, inhibiting cooperation. It uses an example of two actors, which in turn have two possibilities: namely to either cooperate or be competitive. This model, also known as the ‘prisoner’s dilemma’, therefore allows for four different outcomes. It can rationally explain how irrational decisions are made at times. Three of the outcomes would leave at least one party worse off. In the worst case, both actors would automatically take up the competitive stance as they believe that the other actor will also pursue this avenue. Therefore, both actors, in this case states, merely

achieve sub-optimal outcomes. The only thing keeping them from achieving optimal outcomes (the fourth possible outcome) is their fear of other states infringing on their commitment to cooperate (Little, 2008: 304).

Keohane (1984: 88) presents the solution to this dilemma by arguing that “regimes are developed, in part, because actors in world politics believe that, with such arrangements, they will be able to make mutually beneficial arrangements that would otherwise be difficult or impossible to attain”. Regimes increase international cooperation in this way. If a state forms part of a regime, it is more beneficial for it to cooperate than to take a competitive stance, as the latter would turn their relations into a “tit for tat” attitude, achieving nothing more than sub-optimal outcomes yet again. Therefore, it is more beneficial for all states that form part of the regime, to comply with it, avoiding any non-optimal outcomes (Little, 2008: 305). The next section will look at aspects of regime formation and evolution in a more technical manner. Different frameworks will be presented, which can be used in order to analyse varying aspects of regimes more accurately.

I) Under what conditions would regimes come about?

Efinger et al. (1993) argue that when the “density of transactions between states is high”, or as Keohane (1982: 336) argues, “there is big enough common interest”, the likelihood of a regime coming into being is great. Neo-liberal institutionalists and neo-realists both support the reasoning that the desire to cooperate and form regimes will be high, when “uncoordinated strategies interact to produce sub-optimal outcomes” (also known as anarchy) (Keohane, 1984: 365 and Little, 2008: 307). When there is wide common interest, other factors need to be taken into consideration to ensure the emergence of a regime. For one, the cost of cooperation should be feasible and the “the supply agreement [should] not [be] infinitely elastic and free. “If these conditions are in place, and an ad-hoc agreement would not suffice, a regime can be regarded to be necessary and “efficient” (Keohane, 1982: 337).

This aforementioned great density of issues and the presence of common interest are important for the process of regime formation; this does not however mean that regimes will automatically come into being. There are different **processes of regime formation** (Levy et al., 1994: 13).

II) Processes of regime formation

Young (1982) distinguishes between three regime types: Spontaneous, negotiated and imposed regimes. The main distinguishing factor is the way in which these are formed, resulting in both varying advantages and disadvantages of the different types. *Spontaneous regimes* emerge due to a high degree of participants' expectations converging. This suggests that no institutional design process is required for the regime to come into being. An advantage of the spontaneous regime type is the absence of high transaction costs and the vast amount of liberty of individual participants as formal restrictions are absent (Young, 1982: 283). Spontaneous regimes struggle when it comes to change because their stability and their capacity to change weaken as their environment changes (Young, 1982: 289).

Negotiated regimes, in contrast to spontaneous regimes, require a conscious effort from the participants to concur on mutually agreeable provisions. These result in a form of formal expression of their explicit agreement. This process requires a vast amount of bargaining and negotiation. This regime type is most likely to occur on the international level but is, unfortunately, characterised by high transaction costs and the liberty of the individual participant will be decreased (Young, 1982: 283 and Levy et al., 1994: 13).

Imposed regimes are fostered deliberately by either a dominant actor or a group of dominant actors. As they are imposed, formal expressions of agreement or bargaining processes are not important to this regime formation process. The possible disadvantage of imposed regimes is the possibility of the leading state bearing the whole burden of responsibility and at times even financial cost, except if the dominant actor gets the subordinate actors to comply with the requirements they have set out and share the burden. As these regimes are created mainly to serve one dominant actor, or a small group of them, the outcomes might not be as efficient as they could be (Young, 1982: 284) and the usefulness of imposed regimes is also increasingly questioned. Powerful actors have come to believe that instead of merely sanctioning non-compliant actors, they can make more progress through a cooperative and more engaging approach. This should materialise by focusing on capacity building measures and assisting smaller actors to comply with the terms of a regime (Levy et al., 1994: 14). These three regime types should not be looked at from a stringent point of view, but rather from an analytical one. This is vital; as, at times,

a regime formation process will portray characteristics of all three types, usually, however, with one type more predominant (Levy et al., 1994: 13).

III) Stages of Regime formation

There are not only different stages within the life of a regime, but also different stages within the process of the initial formation of the regime. Levy et al. (1994: 14) argue that there are at least three stages: agenda formation, institutional choice and operationalization.

a) Agenda formation:

- i) Emergence of an issue on the political agenda
- ii) Framing of an issue for consideration in international forums
- iii) The rise of the issue to a high enough place on the international agenda to warrant priority treatment

b) Institutional choice:

- i) Takes an issue [the issue which has been decided on in the former agenda formation stage] from where it becomes a priority item on the international agenda to the point of agreement on the provisions of a specific regime

c) Operationalization:

- i) All activities required to transform an agreement on paper into a functioning social practice
 - 1) For example the effort of member states to bring a regime's rules to bear on various non-state actors operating under their jurisdiction.

2.3.3 REGIME CHARACTERISTICS, THEIR MAINTENANCE AND DECLINE

Once a regime has been established and it has run its course for a while, it is easier to distinguish between the varying characteristics of a regime. Puchala and Hopkins (1982: 248-250) have identified four areas which will assist in properly characterising a regime:

- a) *Specific versus diffuse regimes*. Does the regime deal with single-issues or rather multiple-issues? It is customary for specific regimes to be embedded in diffuse regimes, whilst the former will automatically internalize the norms and principles of the latter.
- b) *Formal versus informal regimes*. Is the regime legislated, maintained and monitored by different bodies (formal) or is it rather maintained by consensus due to self-interest, without any formal codification (informal)?
- c) *Evolutionary versus revolutionary change*. Are the rules, norms and power structure kept whilst principles change? (Usually linked to functionally specific regimes); or are the norms of a regime overturned in order to change its principles (usually characteristic of diffuse regimes / highly politicized functional regimes / regimes where the distributive basis is high)?
- d) *Distributive basis*. To who are rewards distributed? Usually, regimes favour the interests of the strong, but “fairer” regimes tend to survive longer than those that favour the interests of one side (the latter usually occurs).

As Puchala and Hopkins have touched on, regimes tend to evolve and change. In order to distinguish between the different types of change, they use two categories, namely: evolutionary and revolutionary. Young (1983: 106) agrees with the notion that regimes are never static constructs; but rather continually undergo some form of transformation. These transformations, Young argues, occur due to both internal dynamics and external changes.

Given that regimes are ever evolving rather than static, the study of *regime change* has increasingly gained importance within the field of international regime theory. Krasner (1983: 5) distinguishes between change within a regime and change of a regime itself. The former, he argues, involves alterations of rules and decision-making procedures, however not of norms and principles. The latter change, namely change of a regime, implies a change of norms and principles.

Young (1983) differentiates between several types of processes leading toward *regime transformation*:

- 1) Internal contradictions that eventually lead to serious failures and mounting pressure for major alterations (Young, 107).

- 2) Shifts in the underlying structure of power in the international system. Imposed orders are unlikely to survive for long following major declines in the effective power of the dominant actor or actors (Young, 108).
- 3) The impact of exogenous forces (Young, 110).

Keohane (1982: 354) argues that economic theories of risk and uncertainty explain the occurrence of regime change well. As power conditions, or as other theorists argue, power systems shift, so too will the ways in which the solutions to manage this risk adjust and ultimately, the nature of the international regime will change. Puchala and Hopkins' (1982: 257) case study supports this argument of regime change due to an initial change within the power structure of the international system, which is also the most common reason for regime change.

Regime change is necessary if they seek to continue to exist. Research, within the field of international regimes, has increasingly been moving from regime formation towards regime consequences (Levy et al., 1994: 1). A further vital requirement for the continuation of the relevance and survival of regimes is their *effectiveness*, which forms part of the field of regime consequence. If regimes are not effective and contribute to the facilitation of the removal of various impediments to cooperation, the need for their existence could be questioned.

Underdal and Young (2004) argue that regimes are in the first place effective if members adhere to the set norms and rules, and secondly, to the extent that the regime achieves the intended objectives or certain purposes. As previously mentioned, the biggest aim of regimes is to facilitate international cooperation. These factors fall within the subcategory of effectiveness, also known as regime strength.

Keohane (1982: 349-350) specifically mentions the provision of high-quality information to policy-makers. He also created a list, which indicates when a regime will most probably be more effective and therefore in higher demand.

The factors Keohane (1982) deems most important are as follow:

- 1) Regimes, which are accompanied by **highly regularized procedures and rules**, will provide more information to policy makers. These more structured regimes will therefore be in greater demand when it relates to information. This trend will

also encourage states to change their approach, which usually involved vague rules and policies.

- 2) Regimes, in which the participants have **internalized norms** (especially if these relate to honesty and straightforwardness), will be more sought after than those which lack this creation and internalization of norms.
- 3) Regimes linked to “open governmental arrangement[s]”, which engage in **transgovernmental affairs**, will be more sought after and esteemed than those that merely engage in traditional forms of interaction.

Having discussed the effectiveness of a regime, a much interlinked issue is that of *compliance*.

Effectiveness and compliance are to a great extent interlinked. The degree of actors' compliance to the regime norms and rules, will surely affect the effectiveness of the regime. The reasons Keohane (1984: 100) provides as to why states, the self-interested actors, would comply with a regime; even if at a given moment, it might be more profitable for them to seek their own gains above that of the regime, are twofold: Firstly he argues that due to the difficulty of establishing a regime in the first place, it would be a rational decision of states to adhere to the rules if non-adherence might contribute to the demise of a regime. He claims that an imperfect regime is better than any other mechanism known to date. Secondly, as regimes are not mere independent and isolated bodies, but rather entities which form part of a greater structure. This inter-relatedness and broader sphere creates different incentives for the actors, in contrast to seeing a regime in isolation, facilitating their decision to comply with the regime norms and rules.

The reasons used above, as to why states would indeed comply with regimes, also assist in explaining why they are so robust. Regimes develop a life of their own and are thus not bound to collapse, even if change occurs in the environment, which initially created them (Hasenclever et al., 1997: 221). The most prominent reason for the durability of a regime is probably the fact that it is easier to maintain a regime than to create it - not only due to efforts required, but especially given the high costs involved in the establishment of a regime (Keohane, 1984: 103). Regimes, which are unsatisfactory, would in that case rather be modified and eventually evolve, rather than die (Keohane, 1984: 107). Seeing that actors have poured vast resources into the creation of a regime, it is expected that they want it to be successful. If other actors, that are part of the regime, jeopardize its existence,

other members might seek to apply sanctions against the defecting member. This might decrease the benefits it might have gained once-off, however, making it more beneficial in the long-run to adhere to the regime (Hasenclever et al., 1997: 173).

Taking into account that hegemony is not a requirement for the existence of a regime, if the strength of a hegemon declines, this does not equate to the regime declining. Keohane (1982: 350) argues that international institutions might assist in compensating for the decline in hegemony. The effectiveness of this is however unclear.

2.3.4 WHEN DOES A REGIME DECAY?

This section of regime theory is probably the most understudied. Looking at what leads to the decline of a regime is however a good indication of what factors are important for the persistence of regimes (Levy et al., 1994: 20). As argued above, given the high cost of regime formation, they are more likely to remain, or change in order to become relevant again, than to decline. There is, however, a possibility of regime decay, which, in some cases, start off with the weakening of the regime. Krasner (1983: 5) argues that a regime has *weakened* “if the principles, norms, rules, and decision-making procedures of a regime become less coherent, or if actual practice is increasingly inconsistent with principles, norms, rules, and procedures.”

Levy et al. (1994: 19) argue that if the regime fails to solve problems, the possibility of the regime not persisting increases. The role of power also plays a role in the maintenance and decline of a regime. According to some theorists, when power is increasingly being equally distributed throughout all actors, then regime decay is likely. Levy et al. (1994: 43) argue contrary to this, saying that regime decay, (as part of regime change) cannot merely be attributed to a change in the configuration of power. The different stages of a regime and also different tools of analysis will be put into an analytical framework (Table 2) in order to assess the Southern African Power Pool as an electricity regime within Southern Africa.

A) Regime needs assessment	B) Regime type	C) Stages of Regime formation	D) Test whether a Regime is present:	E) Characteristics of a Regime (maintenance)	F) Regime Change	G) Regime Effectiveness
1) Incomplete information	1) Spontaneous Regime	1) Agenda formation	Existence of explicit rules pertaining to an issue area	Distinguish in each category between:	Has regime change taken place?	Is the regime accompanied by highly regularized procedures or rules?
2) High transaction costs	2) Negotiated Regime	2) Institutional Choice	Rules with prescriptive status	a) Specific vs. diffuse	If yes, then due to what?	Do members have and adhere to the norms and rules?
3) Will actors be better off if they cooperate?	3) Imposed Regime	3) Operationalization		b) Formal vs. informal	1) Internal Contradictions	Does the regime achieve the objectives/ does it fulfil its purpose?
<i>If you answer yes to the above, a regime is needed</i>				c) Evolutionary vs. revolutionary	2) Shifts in the power in international system	Does it facilitate international cooperation?
				d) Distributive basis	3) Exogenous factors	Are the above mentioned criteria fulfilled - or is there a possibility that the regime might decay?

TABLE 2: ANALYTICAL FRAMEWORK

2.4 Conclusion

This chapter started off by discussing International Relations Theories in an attempt at explaining the dynamics of international cooperation. Neo-realism, neo-liberalist institutionalism and the cognitive theory have been explored as feasible approaches to study this phenomenon. Rationalists concur on the most important constraints, which keep them from international cooperation. The foundational argument is that the world is characterised by anarchy, and because this means that there is no overarching authority, it cannot be guaranteed that other actors within the international system will not cheat, possibly causing another actor to be worse off. A further hesitation to international cooperation was the question of how much an actor would gain, and also, in comparison, how much better or worse off other actors would be? These factors were all recognised as barriers to international cooperation. A self-reliant and sufficient attitude might be safer, but it does not lead to optimal gains, which is what actors generally look for. The best solution found to date, is the formation of regimes, which ensure that states can engage in cooperation without the fear of constantly being cheated. The main discussions, surrounding the formation, evolution and decay of a regime, were all explored, offering a detailed exploration of the different phases and different tools offered by regime theorists. These tools were also explored in order to establish the effectiveness and strength of a regime. In order to make this theoretical framework more applicable and practical, an analytical framework has been created which can be used to track the formation, evolution and characteristics surrounding the case study which will be presented in the following chapter, concerning the SAPP.

CHAPTER THREE

DYNAMICS OF THE SOUTHERN AFRICAN POWER POOL

3.1 INTRODUCTION

This chapter will present a case study on the Southern African Power Pool (SAPP); starting off with a historical review of electricity cooperation in the Southern African Development Community (SADC) and the emergence of the SAPP. Interesting insights into the power politics of electricity will also be outlined. This background and context setting will provide a foundation to work from; in order to effectively assess the electricity regime formation process. To ensure a thorough analysis of the formation and development of the regime, the analytical framework, which was derived from the theoretical discussion in chapter two, will be applied to assess the SAPP electricity regime. It will be argued that the SAPP is indeed a regime and fits into the category of a negotiated regime model created by Young (1982). It is a strong regime as it fulfils all the necessary criteria that characterise an effective regime, nevertheless, it does face several challenges, which will be discussed in the chapter. The regime has however made provision to deal with these, and this commitment to cooperation will ensure the continued existence of a strong electricity regime within southern Africa.

3.2 HISTORY OF ELECTRICITY COOPERATION IN SOUTHERN AFRICA

Electricity cooperation started long before the formation of the SAPP in southern Africa, which implies that most of the electricity generation and transmission infrastructure in the region had already been erected before 1995. In 1882 the first electricity connection was established in Kimberly (before London); a mining town in South Africa. The reason for the rapid growth in electricity production was to satisfy the Mineral Energy Complex¹ (MEC) which characterises a specific form of capital accumulation, namely through the great utilisation of mineral extraction, that required a vast amount of electricity. The majority of power developments, before the inception of the SAPP, were therefore made in order to satisfy the power demands of mainly South Africa, and also the Federation of Rhodesia, the

¹South Africa's heavily capital and energy-intensive development pathway, which has been driven by resource extraction (especially coal) and related economic activities are termed as the Minerals-Energy Complex. For a more detailed discussion on the Minerals Energy Complex see Fine, B. and Rustomjee.

former Nyasaland, and finally, today's Democratic Republic of the Congo (DRC) copper belt (ECA, 2009: 1).

The initial bilateral agreements witnessed in Africa, occurred in the 1950's when the Belgian Congo, now known as the DRC, established its first cross-border transmission line of 132kV. This bilateral arrangement was followed by the construction of the Kariba hydropower station on the border of Zambia and Zimbabwe that supplied electricity via a transmission line to Zambia's copper mine. At the time, the largest connection established was between Mozambique and South Africa in 1975 (ECA, 2009: 1 and Musaba, 2010)².

As South Africa was the biggest electricity generator, many neighbouring electricity systems were created as off-shots of the South African power sector, fostering a regional dependency on South Africa. South Africa had envisioned and planned to gain access to future, more hydro-based electricity from the northern part of southern Africa, which made cooperation attractive to this power hegemon. In order to decrease dependency on South Africa's Apartheid Government; Zambia, Zimbabwe and Botswana constructed a vertically integrated system through the use of interconnectors (UNECA, 2008: 1).

As countries within southern Africa planned on harnessing more electricity for the region, it was noticed that the only economy large enough to use this large amount of electricity was South Africa. Due to political complications and the subsequent outbreak of civil war in Mozambique, much of the erected power infrastructure was torn down in 1981 and not re-erected until 17 years later (ECA, 2009: 21).

Given South Africa's long history of electricity management; it is the country that has the greatest generation capacity in Africa (and among the top ten electricity producers in the world) (Koen and Bahadur, 2010: 8); it has amongst the lowest priced electricity in the world; the best skills in the region within the electricity industry and, since democratisation, it has rolled out mass electrification programmes, connecting a record amount of households to the electricity grid (Nagar, 2012: 135 and McDonald, 2009: 17). The reason why South Africa has become such an electrically skilled country is because it is "uniquely dependent on electricity and is uniquely electricity-intensive" (McDonald, 2009: 8). All this stems from South Africa's economy being driven by mining and mining-related sectors. MEC

² For a more detailed overview of electricity arrangements in Southern Africa see the "*South African Power Pool Transmission and Trading Case Study*" by Economic Consulting Associates. A report compiled for ESMAP. October 2009: 20-23.

dependence is still very strong, even though South Africa's services sector has become prominent, especially referring to the financial sector (McDonald, 2009: 8). As unstable electricity access, or power outages, have a seriously negative impact on businesses, South Africa has continued planning very big investments, aimed at expanding generation and transmission. It is argued that this would be the largest public infrastructural investment ever undertaken in South Africa (McDonald, 2009: 10, 14). In 2006 around one-quarter of the country was still off-grid, which the post 1994 government promised to electrify (McDonald, 2009: 17). The continued economic reliance on electricity and the promise of electricity access, that has to be met, shows that South Africa's power hunger will continue to grow and not be stilled soon.

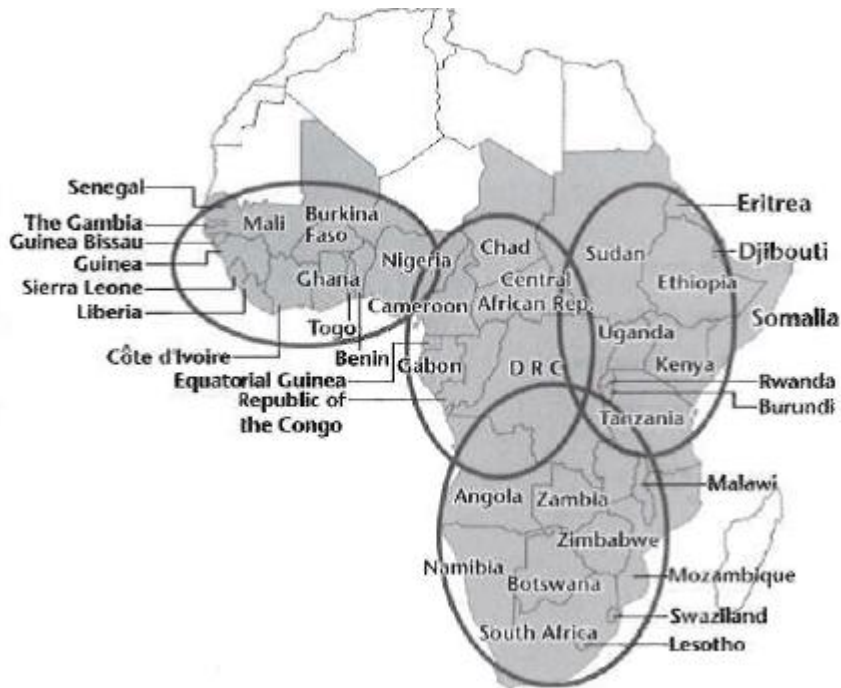
3.3 GEOPOLITICS OF ELECTRICITY GENERATION IN SOUTHERN AFRICA

Many countries, which are located within southern Africa, form part of not one, but often various cross-boundary bodies or initiatives. Melber (2004) makes the example of Namibia and Swaziland that are both members of the Southern African Customs Union (SACU), the Southern African Development Community (SADC) and the Common Market for Eastern and Southern Africa (COMESA). This is a clear indication of the desire to form part of greater regional cooperation (Hartzenberg et al, 2010:1). Even though the overall effectiveness of SADC is at times questioned, it has been regarded as one of the most promising regional integration efforts in Africa, and amongst the more promising in the world.

This trend of regional cooperation is being implemented by the whole of Africa, where other Regional Economic Communities (RECs) have been formed, such as the Common Market for Eastern and Southern Africa (COMESA) and the Economic Community of West African States (ECOWAS) (RSA, 2003). The power sector has been identified as the most promising sector that could contribute to further regional integration. The successful establishment of the SAPP has inspired many other power pools to be established, mainly within their given REC. Figure 1 depicted below aims to provide an overview of the African power pools (Sparrow et al., 2005 in McDonald, 2009: 33). There are currently five power pools within Africa, namely (from left to right and then down) the West African Power Pool (WAPP), the Central African Power Pool (CAPP), East African Power Pool (EAPP) and then the Southern African Power Pool (SAPP). One of the power pools not displayed in the figure is le Comité

Maghrébin de l'Electricité (COMELEC), which is located in the north of Africa and formed by the Maghreb Electricity Committee (McDonald, 2009: 33).

FIGURE 2: AFRICAN REGIONAL POWER POOLS – CAPP, EAPP, SAPP AND WAPP



Source: McDonald, 2009: 33

The SAPP is, to date, the biggest power pool within Africa with 28 agreements and is by far the largest power trader. The table below (ICA, 2010: 10) shows just how large the gap between the power pools are, with the SAPPs installed capacity nearly twice as big as the EAPP, the second largest power pool. The joint capacity of the other power pools, namely CAPP, COMELEC and the WAPP does not even reach the installed capacity of the SAPP.

TABLE 3: INSTALLED CAPACITY PER THOUSAND HABITANTS BY POWER POOL

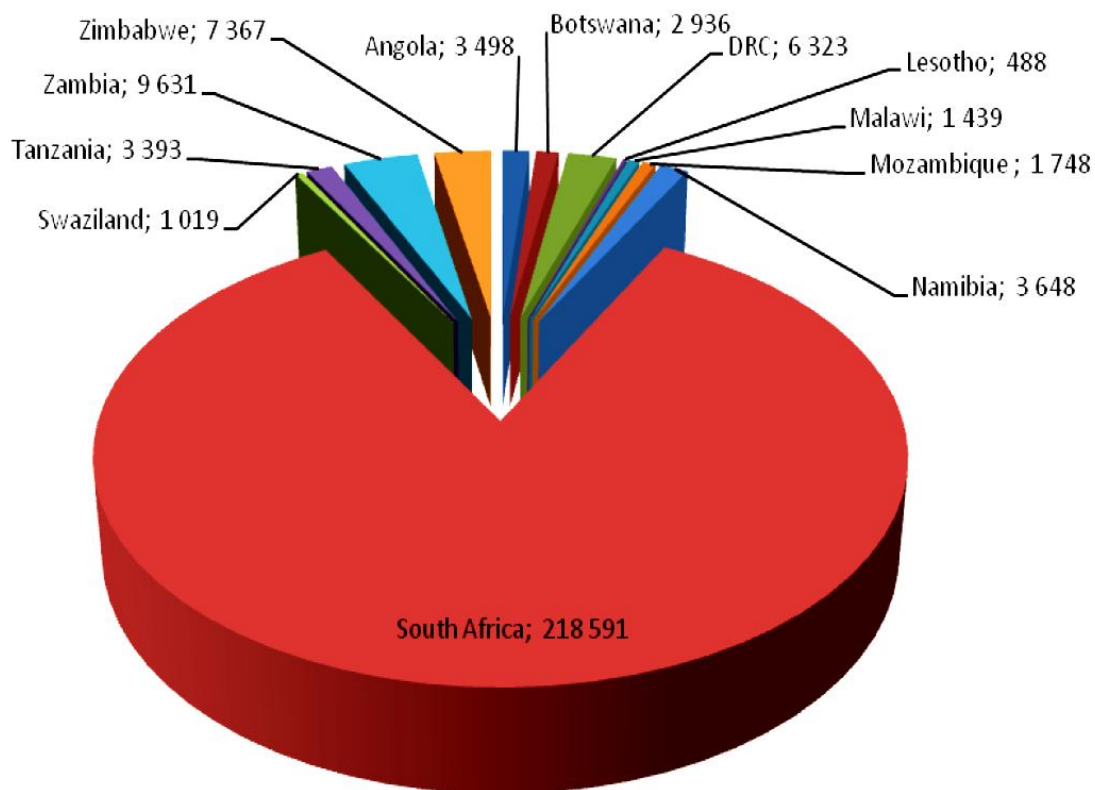
	CAPP 2009*	COMELEC 2009*	EAPP 2008*	SAPP 2010*	WAPP 2010*
Installed capacity (MW)	6073	27 347	28 374	49 877	14 091
Hydropower Share (%)	86%	8%	24%	17%	30%
Thermal Share (%)	14%	91%	73%	83%	70%
Population (millions)	123.9	85.6	385.6	160.5	260.6
kW/1000 habitants	49	319	74	311	54

*Base year: most recent year for which data is available for all countries of the power pool.

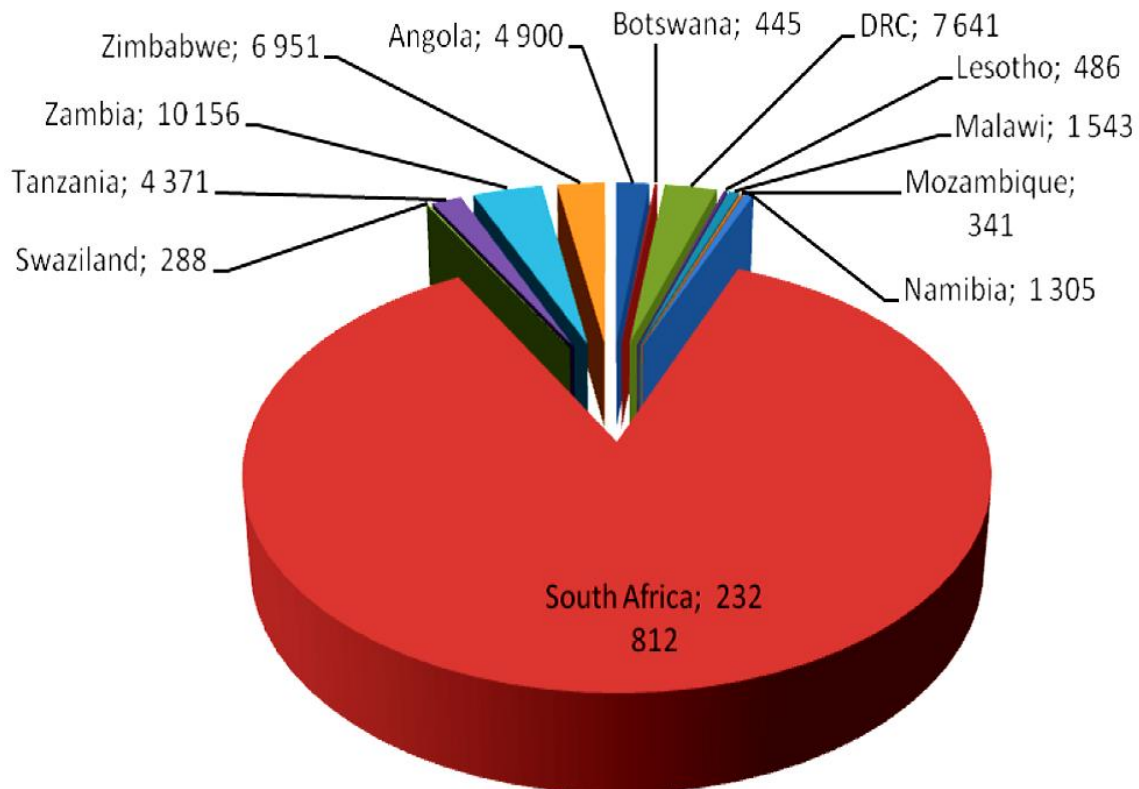
Source: ICA, 2011: 10

When looking at power generation from a broader perspective, the SAPP is clearly the largest player amongst the power pools; however the composition of the power pool is much skewed with South Africa showing itself to be the front runner in almost all categories. It is ahead in terms of generation capacity as well as consumption within Southern Africa and is also supplying the most electricity to the SAPP. In order to meet its electricity needs, by being the country with the highest electricity consumption, it correspondingly needed to be the largest producer in order to meet most of its needs.

FIGURE 3: SAPP – 2010: POWER CONSUMPTION BY COUNTRY (GWH)



Source: ICA, 2011: 52

FIGURE 4: SAPP 2010: POWER GENERATION BY COUNTRY (GWH)

Source: ICA, 2011: 53

Given South Africa's very long history of electricity production, its national utility, Eskom, is the most knowledgeable, most resourceful and therefore independent electricity corporation within the region. This independence was increased before SADC had been established; due to the fact that the rest of the countries within the region had created vertically integrated power systems in order to foster greater independence from the dominant South Africa themselves, forcing South Africa to rely mainly on itself.

South Africa's economy evolved around the Minerals Energy Complex, always needing to satisfy the broader mining industry, which is extremely electricity dependent. In the mid 1990's, this industry accounted for more than 40% of the electricity consumption in South Africa. South Africa has the biggest gold reserves in the world – and gold is also one of the most electricity intensive minerals to extract. In order to extract one ounce of gold, the equivalent amount of electricity that a suburban household uses in a month is required (Fine and Rustomjee, 1996 in McDonald, 2009: 8). To put things into perspective, in 1999 South

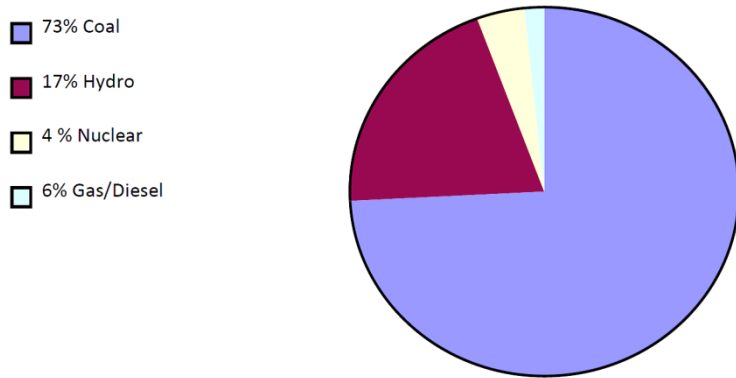
Africa's economy was three times as electricity-intensive as one of the world's largest economies; the United States of America (USA).

Having had an oversupply of electricity since the 1980's and seeing the economy moving towards an increased focus on services and finance, South Africa stopped building new generation infrastructure that led to serious electricity supply problems after about 20 years, not only within the country, but within the region as well.

When the region started moving towards electricity cooperation initiatives - South Africa had excess generation capacity, which it could trade. This excess has in the meantime, due to economic growth and increased demand, been depleted, not even allowing for a healthy reserve margin which is why the extensive power outages occurred (Hartzenberg et al., 2011: 245). An electricity crisis was already projected by experts in 1998. The vision of the state was to implement an independent electricity regulator, which however took years to be established. Waiting for this vision to be implemented first, the ministry responsible for increased investment did not authorize this investment, which had grave effects years later. Increased infrastructure investment was only restarted around 2004; given the vast amount of processes and actual building which needed to be completed, the actual generated electricity would only be available years later (McDonald, 2009: 11).

South Africa's energy mix is dominated by coal-fired electricity that constitutes 85% of the country's total production. The rest of the mix is made up of nuclear, open cycle gas turbines, hydro and pumped storage (Singh, 2011: 4). South Africa has however relied heavily on coal dependent electricity production. South Africa's national utility Eskom, produces 95% of South Africa's electricity, of which 93% is coal based (Greenpeace, 2012: 3). As South Africa is the biggest producer of electricity within the SAPP, it will surely affect the regional available electricity composition. The figure below depicts the skewed bias towards coal, which graphically undermines the great hydro plants within the region.

FIGURE 5: SAPP ENERGY MIX OF THE INSTALLED CAPACITY IN 2010

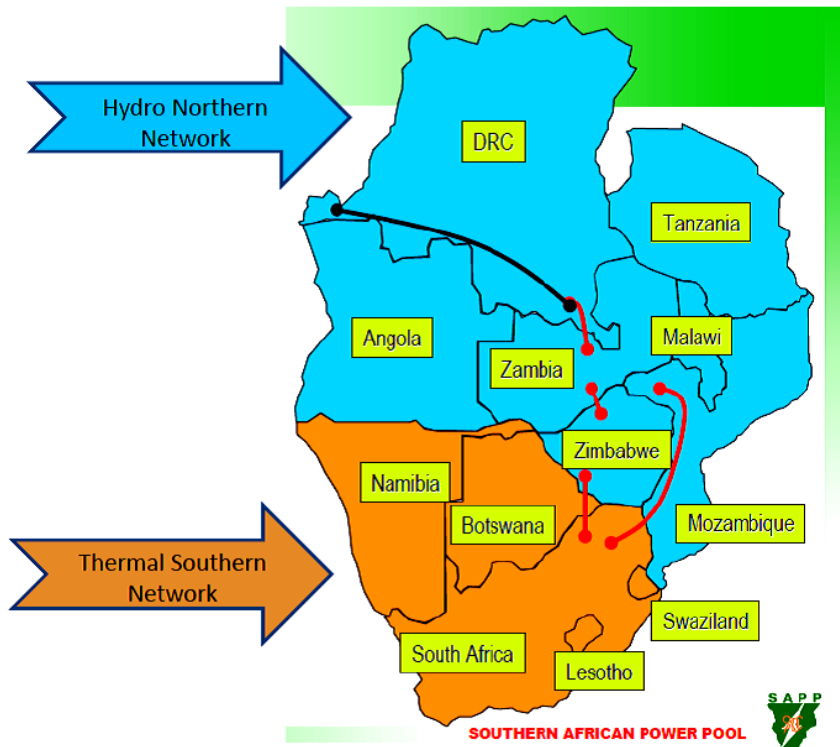


Source: SAPP Utility General Information, 2010 Statistics.

Source: ICA, 2010: 55

The two main distinctions of electricity production within the region are among the lines of hydro or thermal electricity production. The north has become known as the “hydro north” and the south as the “thermal south” as can be seen in figure 5 (Musaba, 2010).

FIGURE 6: SAPP THERMAL – HYDRO DIVISION



Source: Musaba, 2010

With pressure to move towards a more environmentally friendly direction, suppliers in the south that rely heavily on thermal energy are increasingly attempting to include alternative sources such as hydro energy. This is where the SAPP plays an important role, with the sharing of resources. The SAPP had formulated its vision to include the “[implementation of] strategies in support of sustainable development priorities’ (SAPP, 2006: 2). In line with this, one of the initiatives established is the SAPPs environmental and social impact assessment guidelines within the region (SAPP, 2010). The greater change and effects, in terms of more environmentally friendly infrastructure, will only come about in the long-run however.

The implementation of such a goal will require a lot of planning, on both a regional and a national level. The regional vision can indicate the general direction its members aim to move towards, however the real planning must occur on a more national level, as every SAPP member has a different profile in terms of desires, amounts of consumption and generation, and most of all, the availability of resources. In moving towards the goal of generating cleaner and alternative electricity, the Democratic Republic of the Congo is a step ahead, as the greater part of its electricity production would come from harnessing the hydro potential from the Inga Dam, which is said to have the capacity to supply electricity to the whole continent and still have excess supply, which it would then sell to European countries (McDonald, 2009: 34-35). The DRC becoming a member of SADC and therefore also the SAPP was a very strategic move. South Africa lobbied for the DRC’s inclusion because it understood the potential gains for not only SADC, the SAPP, but also for itself (Hentz, 2005). It would potentially in future be able to tap into this abundant source of clean electricity. Thus, South Africa has been involved in the Inga Dam projects for a long time – assisting in drawing up plans and accessing how to best harness the great potential. South Africa, even though it is currently the dominant electricity provider within the region, would increasingly have to make greater use of the power pool to tap into a cleaner source of energy and also invest more in alternative energy possibilities, as more than 90% of its current production is coal based (Koen and Bahadur, 2010: 10). This would mean that South Africa would increasingly be dependent on the rest of the power pool.

A further alignment with the vision of the SAPP, namely being an efficient electricity provider alongside the desire for the region to be characterised by clean energy, was the change one can observe firstly within the framework of the SAPP and its main documents, which have been amended to include a wider variety of actors; this would include the increased usage of Independent Power Producers (IPPs). This was emphasized and the

government of South Africa had decided to reserve a certain percentage of the total electricity output to come from Independent Power Producers, of which many make use of cleaner electricity. The problem at hand was however that South Africa's national utility, Eskom, was so dominant in not only the amount of electricity it produced and the competitive advantage of having been in the business for a long time, but the fact that its electricity price is also among the cheapest in the world. Independent Power Producers, which were new market entrants, did not stand a chance to effectively compete with this big player. Only when the country's policy was amended and assistance was lent to the Independent Power Producers (IPPs), would these come into play (McDonald, 2009: 77). The understanding that these IPPs would need assistance only happened in the mid-2000s, which meant that the actual implementation and benefits for these IPPs were only observed at a much later stage. IPPs are now beginning to enter the South African market (RSA, 2012).

Countries, whose energy sectors are mainly dominated by national utilities, come with both advantages and disadvantages. In the case of Eskom, due to its size and experience it can produce electricity at a very cheap price. Being a state-owned utility and now also part of the Johannesburg Stock Exchange, the government makes a profit from its operations. Due to its dominance and monopolistic status, there is however no true competition which allows for less efficiency, as there is no real structure that can truly hold it accountable. The South African State has thus set up a system in which electricity reform is increasingly being encouraged, facilitating a move towards a more competitive system. This move towards a more neo-liberal landscape has strategically encouraged two changes. The first change related to privatisation and the second to pricing (McDonald, 2009: 20).

Even though the SAPP established a strong cooperative approach, it soon started to adopt an increasingly competitive approach, attempting to apply this free enterprise concept that South Africa already started working on, namely the increased competition in electricity provision, leading to increased efficiency. The Integrated Resource Plan (IRP) for electricity 2010-2030 embodies the proposed changes, which are already being rolled out in part. As witnessed in the case of South Africa, the SAPP revised its founding documents, restructured its management and encouraged the participation of more actors. SAPP changed its Inter-Utility Memorandum of Understanding (IUMOU) to include membership status to more than the initial, one national utility per country allowed, towards allowing four different categories of membership, including both operation and non-operating members. This means that even if the country or producer is not physically connected to the grid yet, it can take part in the

functioning of the power pool, which could potentially lead to strategic insights on how to connect them to the SAPP grid, making it more inclusive and more competitive.

The great complexity of power and the best way in which this can be harnessed have been discussed above. The next section will look at the actual emergence of an electricity regime in its preparation and establishment phase.

3.4 THE DEVELOPMENT OF THE SOUTHERN AFRICAN POWER POOL (SAPP)

The history and context setting has sketched a broad idea of why an electricity regime is needed. The fact that states attempted electricity cooperation for over 20 years, without any substantial success, indicates the aspiration for a regime. The events leading up to regime formation and finally the emergence of the SAPP will be discussed in this section.

3.4.1 LEADING UP TO THE FORMATION OF THE REGIME

Having looked at the history behind electricity cooperation in the region, it is obvious that electricity cooperation had already taken place long before the establishment of the SAPP. The Southern African Development Coordination Conference (SADCC) wanted to foster independence as the apartheid governed South Africa was too dominant (and clearly still is). The fact that SADCC did not trust South Africa and therefore sought an independent path, instead of a cooperative one, inhibited them from drawing on the potential benefits derived from increased regional cooperation. The electricity sphere was, at that stage, only able to produce sub-optimal outcomes. In order to reach **optimal outcomes**; the formation of an electricity regime was then contemplated.

The analytical framework, laid out in chapter two, discusses the criteria that need to be present in order for a regime to be required. This section also correlates with the *agenda formation* stage of Levy's three stages of regime formation, which was discussed in the previous chapter (section 2.3.2.III.a). In order to assess the formation of the electricity regime in southern Africa, the SAPP, we need to assess if the following three criteria (See section 2.3.1.2 and 2.3.2) hold true: a) Incomplete information; b) High transaction costs; and c) Actors will be better off if they cooperate.

- a) *Incomplete information:* The fact that one of the first committees to be established is the planning committee, which is, amongst other things, commissioned to gather and collate information (concerning future demand, capacity and new plant data) for the power pool plan. This shows the demand for information (SAPP, 1997: 6). Complete information, regarding the region is hard (if not impossible) to attain, if there is no cooperation amongst the relevant countries. If one body, independently, without any cooperation from other countries, would attempt to obtain important information regarding electricity, the results would be severely affected as different countries and utilities might not want to share accurate information, to protect their own sovereignty. The cost of obtaining such information would also be high.
- b) *High transaction costs:* Bilateral agreements are still widely relevant to the southern African Power Pool; but when these were the only form of energy cooperation, the running of the processes (managing, monitoring etcetera) had to be replicated for each cross border connection. This means that when South Africa traded energy with three of its neighbours, it had three offices doing the same tasks, just in different areas. Due to the integration of the various energy systems and the existence of an electricity grid in the SADC region, these tasks could all be centralized, which meant that cost could be decreased and centralization increased.
- c) *Will actors be better off if they cooperate?* Before the establishment of the SAPP the SADCC members attempted to foster their own energy community, excluding South Africa. They subsequently discerned that, in order to reach more optimal outcomes, it was necessary to adopt a cooperative stance. There are various benefits of cooperation in general, as a member part of a bigger region and especially when it comes to energy trade. Benefits come in the form of cost reductions and especially, due to the diversification of electricity sources, increased security of reliable electricity supply.

As power plays an important part in the effectiveness of economies, the shortage of electricity would increase countries' vulnerability; which is exactly what states want to avoid. Thus, apart from aiming towards self-sufficiency, the security of access to diversified sources of energy is welcomed (SAPP, 1997: 2). A further benefit that occurs due to the pooling of resources is economies of scale. As power infrastructure (which is a fixed cost) is very expensive, economies of scale would increase the output and efficiency of production,

decreasing the cost per unit produced (Hartzenberg et al., 2012: 240 and KPMG, 2011: 8). The results of studies have shown that there were indeed gains from trade in the short run, but that much greater gains could be obtained in the long run from electricity co-ordination (ECA, 2009: 25).

The formal process of the formation, and a catalyst of an electricity regime, started with the establishment of the SADCC in 1980. This process of electricity cooperation was embedded in the bigger vision of regional economic integration. In order to make this a reality, Angola was appointed as the SADCC member to lead the energy integration agenda within the region. In order to assist Angola in this task, the Technical and Administrative Unit (TAU) was established, that facilitated the occurrence of many SADC energy ministerial meetings, that in turn indicated the importance of the greater vision of regional integration and the role that energy has to play in order to achieve it. The outputs, of what the TAU had arranged, were various resolutions and action plans (ECA, 2009: 21).

As electricity cooperation gained more importance and also complexity, a further body was established in 1990 namely: the Electricity Subcommittee (ESC). The ESC consisted of the national utilities of the different countries that served as technical advisers to the high level decision makers, namely the energy officials and ministers, dealing with the increased cooperation in the electricity sector (ECA, 2009: 22).

The fact that more energy was spent around electricity, as more actors got involved and more committees and bodies were created, one may assume that the region obtained an increased understanding that, in order to catalyse economic and social development, not only are regional integration and cooperation important, but that energy has an important role to play (Aldrich, 2000: 1). The constant attempts to exclude South Africa and foster independence and sectarianism were increasingly understood to be neither viable nor beneficial, especially after the emergence of a power crisis due to a drought in the region in 1992. SADCC members understood that if progress was to be made, it was important to include the major electricity player; South Africa. An advantage to this cooperation was the fact that the shared and available energy resources would be diverse. This means that South Africa, which is mainly a thermal-based energy producer - could tap into an electricity source which is cleaner (hydro energy), while countries that are more hydro intensive would have access to electricity, even if the environmental context changes and a drought should arise. The reason for this is that without water, as in the case of a drought, the hydro based electricity

production systems are useless. South Africa's hydro-independency makes it attractive in this sense (ECA, 2009: 1).

When SADCC grasped that in order to make true progress and move towards increased **optimal outcomes**, the region needed to include South Africa - the SADCC body started engaging with South Africa's electricity utility, Eskom, to discuss future cooperation opportunities. These meetings allowed for the members' ideas to converge into reports, frameworks and action plans. An example of this is the policy documents, which were drawn up in 1982 and 1992, setting the tone for regional electricity cooperation. The document was finalized before the establishment of the SAPP called "Towards an Energy Policy for Southern Africa", which was signed by all the member states in 1996, and thereby adopted as the official SADC protocol on Energy (Department of Environmental Affairs and Tourism, 2005: 37). All the meetings held, the resolutions and action plans written as well as negotiations and cooperation, which took place over a period of more than ten years, facilitated the establishment of the SAPP only one year after South Africa, an important SADC member and electricity contributor, became a democracy. A further catalyst for electricity cooperation in the region was the occurrence of a drought in the region from 1991 - 1992. This meant that hydro dependent countries did not have access to energy, apart from tapping into diverse, non-hydro dependent electricity sources (Aldrich, 2000: 2; ECA, 2009: 2).

Once SADC had been established in 1992, it was acknowledged that trade would not increase instantaneously. One could however witness the members making use of this opportunity by forming various tripartite agreements such as the Matimba Connector (Botswana, South Africa and Zimbabwe), the CahoraBassa interconnector (Mozambique, South Africa and Zimbabwe) and ensuring there were sufficient transmission lines connecting each other (ECA, 2009: 22).

3.4.2 FORMATION OF THE SAPP

Levy's second stage of regime formation (section 2.3.2.III.b), also known as *institutional choice*, marks the point of agreement which is reached on the provisions of a specific regime. In our case study, the official agreement, which brought the SAPP into being, was the Inter-governmental Memorandum of Understanding (IGMOU). The IGMOU was signed by the energy ministers of the twelve (land based) SADC members on 28 August 1995 (SAPP,

2011: 4). The members are divided into two categories: operating and non-operating members. There are nine operating countries, which imply that they are connected to the grid, including Botswana, the DRC, Lesotho, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, while there are three non-operating members, Angola, Malawi and Tanzania³. Non-operating members are formal members of the SAPP, but as they are not connected to the grid, they cannot fully take part in all the decision making of the pool, as this would not affect them, at least not at this stage of non-connectedness (ECA, 2009: 2 and Musaba, 2010).

The third and final stage of Levy's regime formation is called *operationalization*, which requires the actual functioning of a regime by putting plans into action (Section 2.3.2.III.c). After the initial formation of the SAPP, other important documents were added; in order to ensure the smooth operation of the SAPP. Thus, the SAPP is currently based on four documents (SAPP, 2011: 4, Musaba, 2010 and ECA, 2009: 42), which include: 1) Inter-Governmental MOU; 2) Inter-Utility MOU; 3) Agreement between Operating members; 4) Operating Guidelines (OG).

Operating members had to sign all the necessary documents, relating to the SAPP, which included the listed agreements, whilst the non-operating members had to only endorse the Inter-Utility Memorandum of Understanding (IUMOU). The operating members are responsible to ensure that they meet all the SAPP policy procedures as well as guidelines. Non-operating members are part of all the activities, relating to the SAPP, except the actual operation of the power pool (SAPP, 1997: 3).

The actual membership of the SAPP is not the country itself, but more specifically the national utility. Every member country is allowed to nominate one national utility operator that will then form part of the power pool. The membership of non-SADC utilities has to be approved by a two-thirds majority by the SAPP Executive Committee and subsequently passed onto the SADC energy Ministers' Committee for ratification (SAPP, 1997: 3). In 1998, observer status was granted to the private Mozambican electricity generator, Hidroelectrica de CahoraBassa (Zobaa, 2005: 1). The importance of other players in the field is increasingly being acknowledged, especially that of Independent Power Producers (IPP's) and various founding documents, which will be discussed in more detail at a later stage

³ See Appendix A for a list of the members and the national electricity providers

(section 3.5), have been amended and ratified recently, dealing specifically with the importance of non-state utilities (Zobaa, 2005: 1).

The discussion above has clarified some facts and assisted in the determination of the type of regime which has been established, according to the framework Young created. Section 2.3.2.II distinguishes between three possible regime types which include a *spontaneous*, a *negotiated* and an *imposed regime*. This classification is mainly an indication of how the regime came about, and less clear about the continued character of the regime, apart from some hints the theorist delivers. Therefore the regime, once it has been classified in terms of Young's framework which mainly looks at how it came about, will surely have an effect on the type of regime it turns out to become, but this does not limit the regime from entering into different classifications or characteristics.

The SAPP does not align with any characteristics used to describe a *spontaneous regime*, whilst one might think twice when looking at the features of an *imposed regime*. McDonald (2009) called his recently published book: "Electric Capitalism: Recolonising Africa on the Power Grid"; and for good reason. South Africa has been positioning itself in order to harness and gain access to the regions electricity production for its own domestic use (McDonald, 2009: 29). Eskom, or rather Eskom Enterprises, used the African Union's development vehicle called NEPAD (New Partnership for Africa's Development) to launch its capitalist expansion into Africa (McDonald, 2009: 92). Greenberg (2009: 101) makes a very radical statement by arguing that Eskom geared into Africa under a developmental guise, with the main intention of making a profit. It was however more difficult to conduct business in Africa, and Eskom Enterprises made an unpredicted annual loss of R47 million between 2000 and 2006. After having made a great loss, it ended most of its cross-border projects and started with a renewed focus on its regulated activities— in other words returning to business as usual (McDonald, 2009: 91).

South Africa has been in the electricity industry for a very long time; so this could support the argument that it had an influence on the formation of the regime in terms of its power. The attributes Young (1982) uses to describe an *imposed regime* do not effectively correlate in this case. If the SAPP were an imposed regime, it would have been fostered deliberately by South Africa and the "formal expressions of agreement or bargaining processes" would not be important to the regime formation process, which is inaccurate in this case (Young, 1982: 284). The fact that the SAPP is not an imposed regime does not, however, discount the fact

that South Africa is a very powerful actor within the electricity regime. Section 2.3.1.3 was dedicated to the role of powerful actors, also described as leaders by Young and Osherenko (1993), who emphasize the necessity of an individual leader in order for a regime to form. This is supported by Levy et al. (1994: 16), who argue that a leader can be identified in every successful regime formation phase. While the SADCC still existed, Angola was given the responsibility to drive energy integration within the region; however, South Africa had an innate interest having been commissioned. Also, due to its success and strength in various sectors, it is automatically a dominant actor.

Having looked at how the SAPP came into being, namely through a conscious effort of the different members, who after various meetings which involved negotiating and bargaining, formed explicit agreements, captured in a formal way. It is also important to note that this arrangement occurred on an international level. These are all indicators that Young uses to describe a *negotiated regime* (Young, 1982: 183).

As mentioned above, there are many positive aspects of a negotiated regime. This does not discount the possibility of the negative aspects of a negotiated regime, which include high transaction costs and a decrease in the liberty of regime members. The way in which high transaction costs are incurred is, to mention but one, through the vast amount of meetings held where all the ministers or representatives have to be flown in for frequent consultations. Secondly, liberty is decreased due to the rules they set up for themselves. This constrains them from acting in ways not aligned to the established procedures. The next section will support the argument that SAPP is a negotiated regime due to the degree of formality. The intricate governance system of the SAPP shows that it required a lot of planning, with deliberate attention and commitment from the members.

3.5 EVOLUTION OF THE SAPP AS A NEGOTIATED REGIME

Regime change, as discussed in chapter 2, has become a very important part of the study around regimes. It can be expected that the SAPP would undergo changes; because of the initial contextual state of affairs and needs have changed as time has passed. One example of unexpected events was the 1981 civil war, which broke out in Mozambique, hindering Mozambique's initial strategy of increasing electricity trade through the establishment of transmission lines. These were physically destroyed and only got erected again 17 years later. A further example of how the SAPP would be influenced by the change of context is set

during the time when the SAPP was created, namely in 1995. South Africa, at that time, had an oversupply of electricity which it wanted to sell. Various transmission lines were therefore built in a strategic way; as the economy was focused (and to a great extent still is) around the MEC; electricity generation was geared towards providing electricity to the aluminium smelters and industry in general. SAPP had not initially envisioned increasing access to electricity for the poor, but rather for industry and economic growth. To date, South Africa, alongside its vision of capital accumulation, has embarked on an investment that forms part of its greater plan of development, connecting 73% of the population to the grid, which is up from one-third of household connections in the early 1990s (McDonald, 2009: 16). Much has changed since its inception, accompanied by changes in the SAPP's functioning and formal documentation.

The most explicit illustrations of change within the SAPP can be found in its governance structure, its functioning and foundational documents. A considerable change, that altered the nature of the functioning of the *SAPP from being a purely cooperative towards a more competitive pool*, is also part of the evolution of this electricity regime. These will be reviewed below, concluding with an analysis of the changes that occurred within the regime.

3.5.1 GOVERNANCE OF THE SAPP

The Southern African Power Pool is governed by various committees and structures, which are all guided by the four documents listed in appendix B. The governance of the structure and all the rules surrounding the regime need to be in line with SADC protocol, as the SAPP emerged from SADC. This section will look at how the SAPP has changed since its inception in 1995. This can be assessed by looking at 1) how the founding documents have been altered; 2) how the governance structure has changed; and 3) the nature of the regime, which is an important point, as the focus changed from being a purely cooperative to a more competitive regime.

Even before the formal establishment of the SAPP, there was a continuous expansion of electricity cooperation in the region. As mentioned in the historical review (3.2), SADCC called for the TAU to be established in order to assist Angola, which was followed by the formation of the ESC. This shows that the more important electricity became, the more resources was allocated to it. The following change was for the SADCC to become the South African inclusive SADC.

3.5.1.1 MANAGEMENT

Initially decision-making only occurred at a very high ministerial level. As the SAPP is a specific regime within a diffuse and bigger regime (See section 2.3.2.a and Figure 7) (the SADC), it was closely linked to the decision making procedures of SADC. At that stage, the ministers, responsible for energy, were also responsible for managing the formation of the SAPP and related processes. As time passed, decision making has increasingly been reorganized. SADC energy ministers still play an important role when important policy or membership issues need to be decided on - but the entire functioning of the SAPP is now being run by the established SAPP Coordination Centre. The fact that the Coordination Centre has a permanent status and a physical office, allows it to act as a secretariat for the SAPP, its committees and subcommittees (ECA, 2009: 38). It can be affirmed that this structure has gained legitimacy and is successful because of the increased requests to act as a consultant and to head up projects (ECA, 2009: 38).

The management structure of the SAPP can be noted in the two figures depicted in the appendix D⁴. All of these functions were not there from the beginning – but some were added onto the management as the regime evolved. Amendments to the governance structure have been debated for a while. The governance structure, for example, expanded with an additional sub-committee: the markets sub-committee and a further body, functioning under the management committee, called the “Coordination Centre Board” that is responsible for governing the activities of the SAPP Coordination Centre (SAPP, 2011: 3)⁵.

On a more functional and managerial level, there are various changes that can be witnessed. The expansion of sub-committees, by creating the markets subcommittee as well as establishing the Coordination Centre in 2000. The Coordination Centre is a key establishment, which leads to clearer conclusions about occurring regime change. The fact that the SAPP went from being governed by ad-hoc meetings, held by top officials, towards the move to permanent quarters in Zimbabwe is a big shift. The occurrence of more frequent, low-key meetings amongst officials rather than ministers, as well as the investments made

⁴These reveal the level of formality, which was discussed in the previous section. In order to obtain a better understanding of the functioning of the SAPP, the various committees were drawn up with a description and explanation of their responsibilities and attached as an appendix C.

⁵The graphical comparison of the initial set up of the SAPP and a current management structure, see appendix D.

shows that the members are committed to the future of the SAPP; otherwise they would not commit staff, resources and time into such an establishment.

3.5.1.2 REGULATING DOCUMENTS

Change can be witnessed by looking at the appendix D that shows all documents, which underline the SAPP coming into existence, have been amended and revised since their inception.

On 23 March 2006 changes of the IGMOU were reviewed and signed by the SADC Energy Ministers. This revised MOU took into account the more recent evolvments within the region. These included the changes, which occurred at a higher level, namely the restructuring of SADC and its institutions. The electricity subcommittee that was established even before the inception of the SAPP was dissolved in this revised version of the IGMOU. Positive changes, included the inclusion of all SADC members (except for Mauritius and Madagascar), also the proposed restructuring of the Coordination Centre and the emergence of new players within the electricity field (SADC, 2006: 2-3).

The wave of change was also applied to the IUMOU. On 25 April 2000, the revised IUMOU was signed which documented various changes to the membership of the SAPP. Instead of only allowing one national utility to form part of the SAPP per country, also only including the categorisation of operating and non-operating members, there are now four different categories, allowing for a more inclusive and relevant body. The different categories include, as before, the National Power Utilities, and amendments that support the inclusion of Independent Power Producers (IPPs); Independent Transmission Companies (ICTs) and finally; Service Providers (Musaba, 2010). New membership therefore includes the ICT in Zambia called the Copper belt Energy Cooperation and an additional observer, namely the Mozambique Transmission Company (Musaba, 2010).

The Economic Consulting Associates (ECA) (2010: 43) argues that the reasons for these changes in the founding documents are fourfold:

- 1) The diffuse regime, SADC, in which the SAPP is embedded, has been restructured. The functions of one unit (Energy Technical and Administrative Unit) were taken over by another section (Department of Infrastructure and Services with an energy division).

2) Electricity reform took place in various SAPP member countries. Electricity regulators were created and the intention of unbundling utilities. Also, different actors were to be involved with the SAPP, apart from only one national utility per country, such as the inclusion of transmission companies or divisors.

3) The DRC became a SADC member after the initial establishment of the SADC. This was a very strategic move.

4) SAPP participation was extended, over and above national utilities. It sought to include participants from commercial parties such as independent power producers (IPPs) and independent transmission companies (ITCs).

3.5.1.3 FROM A COOPERATIVE TO A COMPETITIVE REGIME

One of the most influential changes, within the SAPP structure, was the implementation of the Short Term Electricity Market (STEM) and at a later stage the Day-Ahead Market (DAM), which are both structures that allow for competitive electricity trade. This changed the nature of the regime, from being a purely cooperative regime, characterised by long-term contracts, to a competitive one. In order to ensure the smooth running of a competitive system, formal documents were compiled (rule book, agreement of participation) and also a structure ensuring the implementation of these regulations (ICA, 2011: 62).

In 2001 a Short Term Energy Market (STEM) was established in order to “provide a market for the surplus power not covered by bilateral contracts” (ECA, 2009: 28). STEM was restricted to power utilities and electricity trading occurred through bidding. The system, which was already in place, was not ideal for the situation at hand. Members could not make the best profit with the current system and the way in which trading occurred, the burden of working out and wheeling charges with the MW-km method were not optimal (UNECA, 2008: 43 and ECA, 2009: 25).

Not only was STEM not necessarily an ideal system, but exogenous factors had influenced the short term trade market as well. When STEM was created, there was still a surplus of energy generation, which the producer wanted to sell. As the years passed and electricity demand increased, the surplus energy decreased substantially, to such an extent that, in 2005, only 7% of energy available for trading was actually traded. In 2004 a burst of electricity was

traded, however, since 2005 until 2007 trade decreased substantially, until STEM ceased to exist (ECA, 2009: 23).

The problem experienced with STEM was the way it operated, which was not fitting to the needs of its members and it was not competitive enough in order to be sustainable. The exogenous factors assisted in its collapse in 2007, which brought about a better model in 2009 called the Day-Ahead Market (DAM). Research for a better system had already begun in 2003. Unlike the STEM's bidding system for national utilities, the DAM is an "auction market that is open to utilities, independent power producers, transmitters and distributors, in line with the opening up of membership beyond the founding vertically integrated utilities" (ECA, 2009). The aforementioned challenge, with having too little energy being available for trade, is still present and, when trade does take place, the current transmission infrastructure cannot handle the capacity being traded, oftentimes wasting energy (ICA, 2011: 12).

3.5.2 EVALUATION OF REGIME CHANGE

Quite a few changes occurred since its inception. As time passes, the context in which the regime is situated changes; this automatically affects the relevance of current needs and structures. The SAPP therefore witnessed quite a few changes, which were discussed in the above section, 3.4.1. As the SAPP grew in relevance and importance, its management structure expanded in order to encompass a further sub-committee. The establishment of a permanent coordination centre was another big change, which also indicates the commitment of SAPP members, as they automatically commit to contributing towards the funding of this body. In order to be able to embrace such changes, and also the change of becoming more inclusive in terms of membership, the core documents of the SAPP needed to be amended; in order to allow for such provisions. Without such amendments, the power pool would not have been able to be as relevant as it currently is. As mentioned, probably the biggest change witnessed within the SAPP, is the move from being purely cooperative to being more competitive. The context allowed for this to come about. The context, at that time, was characterised by excess electricity supply which South Africa wanted to sell. This, as we will see, has changed drastically and, as such, also the regime itself. In order to not collapse as certain "initial truths" change, the ability of the SAPP to adapt is very important.

The SAPP's rules and regulations made provision for the possible amendment of procedures, which might potentially take place in the future. Thus, the changes, which occurred, such as

the changing of documents or the move from being a cooperative to a more competitive regime, all fall within the current structures of the SAPP. This shows that changes, which occurred within the power pool, occurred in line with the established norms, while a change in principles came about. This is the first of two indications of what type of regime change took place.

According to the SAPPs framework, such big changes, as the above mentioned move from being a purely cooperative to a more competitive power pool, would need to be ratified by a certain amount of member countries. This procedure warrants that power distribution does not change substantially. Looking at the changes and how they affect power distribution is the second indicator as to what type of change took place.

Changes occurred in line with established norms⁶, whilst principles changed. The distribution of power amongst actors did not change substantially. Therefore, it is safe to say that *evolutionary*, rather than revolutionary *change* occurred in the case of the SAPP (Puchala and Hopkins, 1982: 248-250).

One of the changes recently ratified, was to allow access to a broader range of different actors to form part of the SAPP, which previously only allowed for national utilities to constitute a member of the power pool. The Inter-Utility Memorandum of Understanding, which was revised on 25 April 2007, established four different categories of membership. These include: National Power Utilities; Independent Power Producers (IPPs); Independent Transmission Companies (ITCs) and Service Providers (Musaba, 2010).

Not only is it beneficial for the SAPP to incorporate more actors into the regime, strengthening it – but the fact that there are different bodies, apart from the SAPP, that support the vision geared towards energy integration and expanding an electricity grid across not only the region, but the continent. These actors will be looked at in more detail in the next section.

3.6 OTHER ACTORS

The Southern African Power Pool, as an electricity regime, forms part of a greater vision for continental integration and a pan-African electricity grid. In order to make this vision

⁶ The values outlined in the SAPP 2011 year report (SAPP, 2011: 2) include respect, mutual trust, honesty, accountability, openness and objectivity.

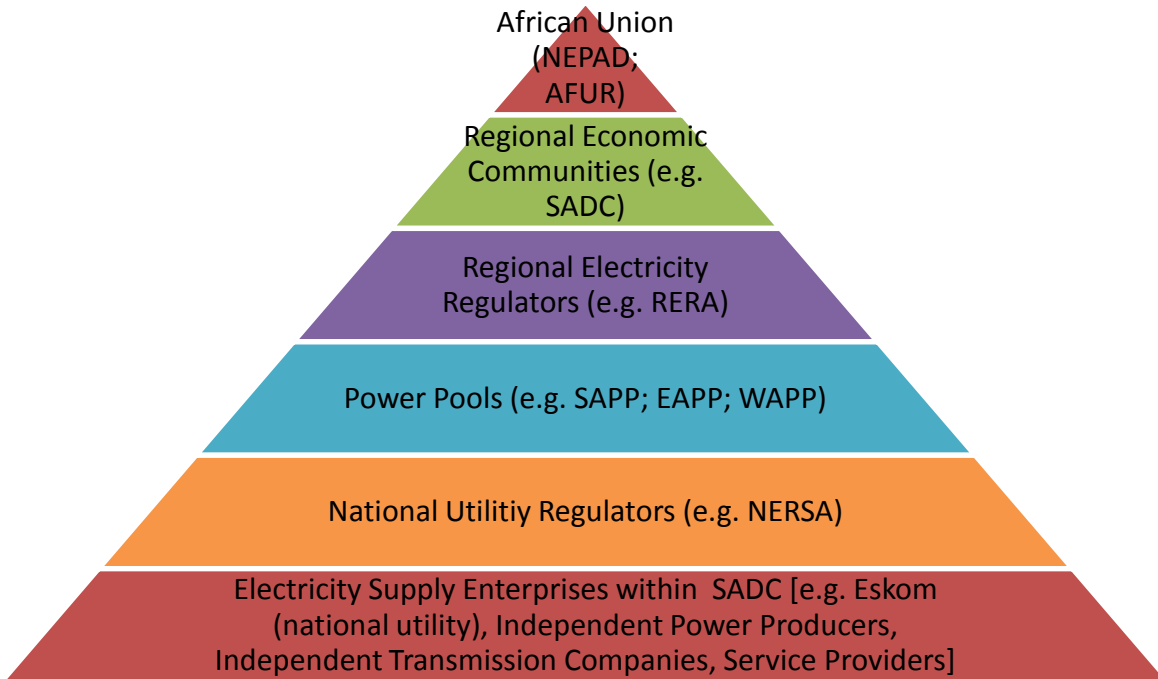
feasible, members of the African Union (AU) and also the Regional Economic Communities (RECs) (for example SADC), implemented this vision on a regional level. Therefore, the process of electricity cooperation is supported and facilitated by a vast amount of actors at different levels.

As electricity production, in individual countries, was established before electricity cooperation came about, each country had already constructed their own legal, regulatory and licensing systems before the current cross-boundary and cross-system interaction came about, making the process more complicated. In order to accomplish regional integration, it would be advantageous to ensure conformity to a regional framework and system, guiding a more harmonized approach to the electricity cooperation within the region (UNECA, 2008: 48).

It is therefore not surprising how many specialist electricity bodies have been formed. These are mainly geared towards assisting with the standardisation of electricity systems and in increasing the efficiency of the cooperative engagement. On a continental level, the overarching regulatory agency for Africa is the African Forum for Utility Regulators (AFUR). The regulators, which form part of AFUR, are linked to a Regional Economic Community (REC), in the case of southern Africa, the corresponding REC is SADC and the established regulator is the Regional Electricity Regulating Agency (RERA). These regulators currently act as associations, where actors can strategize around increased possible standardization and how to streamline cooperation in the current context - rather than a regulator, which enforces certain standards upon its members (ECA, 2009: 39).

For a better grasp of the different actors involved with the cooperation of electricity in the continent and where they fit in, figure 6 (depicted below) has been drawn up. This also shows that the SAPP falls within a greater structure and is influenced by many structures and factors, not only is it electrically focused, but also in a political manner.

FIGURE 7: STRUCTURE DEPICTING WHERE THE SAPP FALLS WITHIN THE GREATER AFRICAN SYSTEM



RERA is the overarching body that facilitates operations of the countries' national electricity regulators. Not all the SAPP member countries have, to date, established their own national electric regulators, therefore RERA does not comprise of all SAPP members. The positive contribution that this regulator already makes, explains the constant pressure for non-members to get on board. The membership has grown from an initial six to eight members, which include the regulators of Namibia, Tanzania, Zambia, Angola, Lesotho, Malawi, South Africa and Zimbabwe (SADC, 2006: 5 and ECA, 2009: 39).

RERA's objectives are threefold: 1) capacity building and information sharing (including skills training); 2) facilitation of electricity sector policy, legislation and regulations (harmonization of these on a regional level); 3) regional regulatory cooperation (Advisory capacity dealing with efficiency and issues outside of the jurisdiction of national utilities); Even though not every SAPP member is a direct member of RERA, the SAPP and RERA have formed a partnership, acknowledging the importance and advantages, which could emanate from this cooperative engagement that would include the increased electricity trade in the region (ECA, 2009: 39 and RERA, 2012).

Actors, contributing to the attainment of regional electricity integration, are not only limited to the African continent, but include a vast amount of development contributors / donors. These include the United States Agency for International Development, the Danish International Development Agency, the United Kingdom Department for International Development (DFID), the Development Bank of Southern Africa (DBSA), the World Bank (WB), the Government of Norway, the Swedish International Development Agency and the European Union (ECA, 2009: 40-41). These actors have mainly contributed in the form of skills investment and development, sponsoring studies and research, but also in the form of financial contributions. These skills and funds would be geared toward infrastructure implementation or refurbishment. The Swedish International Development Agency, for example, funded a study on the “long-term transmission pricing policy, implementation procedures and ancillary services market development for SAPP” (ECA, 2009: 41).

Electricity cooperation is a complex task, thus the existence of the vast amount of bodies aiming at facilitating this very important process. The support from outside actors is welcomed in the sense of knowledge sharing or facilitating and also relating to finances. Due to a sensitive history with colonialism, various African countries are however sceptical about western inputs, at least in terms of western donors indicating in what manner something needs to be done. For this thesis, apart from the national utilities and the SAPP itself, RERA is definitely one of the most important actors.

3.7 SAPP EFFECTIVENESS

Various actors, especially those discussed above, have made a huge impact on the effectiveness of the SAPP. Regulatory agencies are other actors that have contributed to the well-functioning of the regime.

Regime effectiveness is dependent on a wide variety of factors. It is not a sector on its own, but rather an assessment of how all the different sections allow for it to function at its best. Its interdependence can be displayed through the example of change. The SAPP, as will be discussed in this section, can be labelled as an efficient regime. The regime would not be as effective now if it did not allow for or facilitate change. The regime would have started to stagnate if changes to the rules and therefore also to membership were not made.

The analytical framework (Table 2) provides an amalgamated assessment method, derived from the theoretical discussions, relating to the effectiveness of regimes (Underdal, 1992; Young, 1994; Keohane, 1984). It is not an easy task to evaluate the effectiveness of a regime, in terms of their adherence to norms, for example, as the measurement is more of a qualitative rather than quantitative nature.

One of the more obvious criteria of an effective regime is the degree to which it facilitates international cooperation. Due to the membership of the SAPP, it is already internationally characterised and its mission is to facilitate electricity cooperation. It is therefore safe to say that it does indeed *facilitate international cooperation*. The SAPP falls within the African Unions (AUs) vision of a pan-African power grid, in order to achieve regional integration (African globe, 2012). As the SAPP is the first power pool to be established in Africa and also being the most effective one, with 28 established agreements – it could play a big role in interconnecting various power pools across Africa, which is usually done through the use of trade “corridors” such as the Maputo Corridor (Nagar, 2012: 135).

As there are varying types of regimes, some fitting the characteristics of spontaneous regimes - which come into being through the convergence of actors’ expectations, and thus, without the need to establish formal frameworks or rules, Keohane (1984) argues, however, that the more *formalized and regularized these rules and procedures* are, the higher the probability of the effectiveness of a regime. The SAPP, as has been discussed in section 3.3.1, was preceded by a vast amount of meetings and negotiations, which led to various documents and finally the possibility of establishing the SAPP, founded on formal Memorandums of Understanding, rules and guidelines. The fact that the coordination centre was established furthermore underlines the formalization of the SAPP, as it now has a permanent base and staff in Zimbabwe. The SAPP, therefore, surely satisfies these criteria of regularized procedures and rules, which contribute to its effectiveness.

The second level of assessment is set up to evaluate if the regime members *adhere to the set norms and rules*. In order for this to occur, it is vital to understand what these entail. The rules have been laid out in the various regularized documents. The SAPP annual report delineates the values, which the members had decided on; these include the principles of mutual respect and trust. In order for members to trust each other; every member has to commit to acting with honesty, fairness and integrity, which is the second set of values outlined in the report. Furthermore, the commitment of members, have to execute and

implement the tasks assigned to each member and they have to act in an accountable manner, will strengthen the regime. A constant commitment to transparency will surely facilitate the manner in which these values can be applied.

Members of the SAPP also form part of other cooperative arrangements with each other, for instance in the Southern African Customs Union (SACU). SADC, as the body in which the SAPP is embedded, is a great facilitator of various regional agreements, which has helped in establishing a culture of cooperation. This would not be possible if the values, outlined above, especially honesty, integrity, trust and transparency, are not internalized, as they ensure that members do not have to constantly fear cheating (see 2.3.1.1). There are systems in place, which will sanction or punish members if they do intend to cheat.

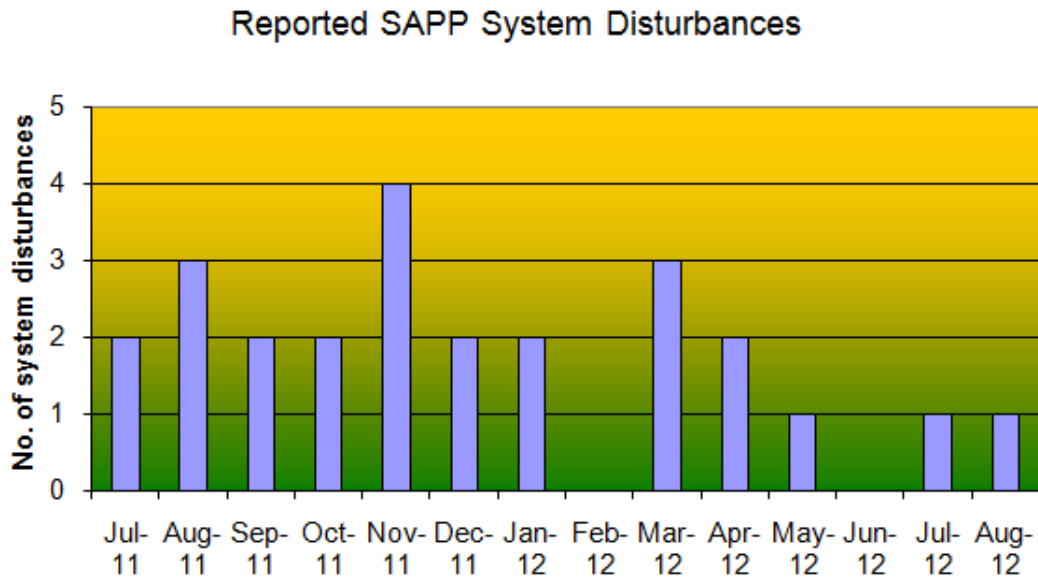
Having a regularized set of rules and procedures, a commitment of the members to adhere to these is important in order to achieve the expected results that the regime should deliver. This is the next assessment, looking at whether the SAPP indeed *achieves the articulated objectives*. The SAPP, in its Annual Report of 2011 delineates the objectives, which will be assessed; these include (SAPP, 2011: 2):

- 1) To provide a forum for the development of a world class, robust, safe, efficient, reliable and stable interconnected electrical system in the southern African region.
- 2) Coordinate and enforce common regional standards of quality of supply, measurement and monitoring of systems performance.
- 3) Harmonise relationships between member utilities.
- 4) Facilitate the development of regional expertise through training programmes and research.
- 5) Increase power accessibility in rural communities.
- 6) Implement strategies in support of sustainable development priorities.

By setting up formal rules, guidelines, procedures and committees – the SAPP has established the necessary *environment for the development of an excellent electricity system for the region*. Having such a stable base, with the permanent coordination centre functioning as a type of “headquarters”; it facilitates the standardisation of how tasks are embarked upon. Constant efforts are witnessed, as recently displayed in the August 2012 report, which

suggests the adoption of certain standards, not only at the regional but also continental level (SAPP, 2012b, 1). Aiming towards “common regional standards of quality of supply, measurement and monitoring of systems performance”(objective 2) can be indicated in a document, however the vast disparities between the different power pool members, makes this objective hard to obtain. South Africa’s national utility, at that stage, the Victoria Falls Company, was established in 1906, while the establishment of other national electricity utilities, that form part of the SAPP, took place in the 1950s and others even later (ECA, 2009 and Musaba, 2010). This indicates an experience gap of more than 40 years, which poses various challenges while executing the objective. These challenges will be discussed in more detail in section (3.7.1).

A further factor influencing the difficulty of not establishing, but rather *enforcing regional standards of quality of supply*, is the impact of exogenous factors on the member’s utilities and infrastructure. As mentioned in section 3.2, Mozambique was embroiled in a civil war, which destroyed transmission infrastructure. If plants do not pay the necessary attention to maintenance and the upgrading of power plants, the quality of supply will deteriorate and electricity trade will be unstable. In the SAPP monthly report, released in February 2012, it was indicated that a priority projects peer review would be done on the basis of selected criteria. The same criteria would be applied to all actors in the same way, ensuring consistency in the assessment of their readiness for establishing projects that are of vital importance (SAPP, 2012b: 1). In every monthly SAPP report, one of the categories reported on is titled “System Disturbances”. In the report for April, it was indicated that there were two system disturbances. The first disturbance took place in Zimbabwe, while electricity was being evacuated from the power station, when the lines tripped; causing 400 MW to be lost. The second disturbance took place when the interconnection between DRC and Zambia tripped and more electricity was lost (SAPP, 2012c:2-3). In August 2012 another line, this time between Mozambique and Zimbabwe tripped, causing a loss of 560MW (SAPP, 2012d: 2). The fact that a section within the published monthly reports, as displayed in figure 9 below, includes a section reporting on system disturbances, underlines the fact that these do not occur seldom.

FIGURE 8: REPORTED SAPP SYSTEM DISTURBANCES

Source: SAPP, 2012d: 2

In order to counter this from happening, the necessary skills and knowledge are required, and thus the fourth objective is imperative, which stresses the *development of regional expertise through research and training programmes*. There are a many organized training programmes offered by SAPP, RERA and also AFUR - that seek to bring together staff from the various different electricity utilities and train them on how to improve their systems and on how to obtain the regional electricity imperatives⁷. One of the more recent examples is the AFUR hosted training programme, which took place in Zimbabwe in August 2012. The programme covered a wide range of power pool focused topics and was attended by three AFUR members, of which two were also SAPP members (SAPP, 2012d: 1). The fact that not all participants are from the same power pool allows for expertise sharing, which is very beneficial for the SAPP. This supports cooperation initiatives because utilities are going to be more confident about the reliability of electricity supply if they know that all utilities are strong and efficient. If the expertise and quality is not ensured, then efficiency could be decreased and the possibility of electricity being lost, as discussed in the above paragraph - is high. This would impose barriers to cooperation once again, which is exactly what the SAPP is gearing away from.

⁷ For more examples of recent regional workshops and regional training see the SAPP 2011 Year Report pages 33 and 34.

In December 2011 a meeting of the SAPP Executive Committee was tasked to construct a standardised method that would help in assessing project readiness and be able to supply a detailed status report of selected priority projects. This committee then formed a task team which met in the beginning of 2012; in order to learn to use the tools, which would then be applied to SAPP projects – this specific tool comes from the USA and has already been used by Eskom. The team would then use the new knowledge and apply it to SAPP priority projects (SAPP, 2012a: 1). This shows that the region is indeed investing in developing the required regional expertise, spoken of above, and doing this in a harmonized manner, as they will be using one system which is applicable to all the priority projects within the region.

What will contribute to the increased regional expertise development objective is the diminishing of the vast disparities between the various members, especially between operating and non-operating members. Such disparities usually make it more difficult for cooperation to take place. A factor contributing to the *harmonization of the sector* is the partnership and contribution of RERA and the “other actors” discussed in section 3.6. A further SAPP monthly report argues that the factors, which contribute to success, include good legislative frameworks, regulatory structures and regulatory alignment (SAPP, 2012d: 1). The SAPP seeks to ensure the well-functioning of the regime as a whole while also aiming at greater standardization, which RERA also works towards. RERA can have a more focused goal of assisting the national regulators and also the SAPP, on a greater scale, to ensure the aforementioned greater standardization in order to move towards the more ideal situation, which would ideally be one type of system and framework, which would be implemented at the different levels. These levels would include 1) national utility regulator members, which include national electricity utilities and amongst others, Independent Power Producers; 2) Regional Electricity Regulators and then lastly at a 3) Continental level which would affect AFUR. This would facilitate the integration of not only the regional power pool, but of trans-power pool cooperation via trade corridors and then, finally, the African grid could be established.

The current state of affairs, regarding standard procedures, is not as advanced as wished for. The fact that every country has its own existing legislation and frameworks, which it needs to at times amend in order to accommodate for new possibilities, such as trade, or even its own electricity market, will definitely complicate the process at a regional level. What is

encouraging, however, is the fact that SAPP members are aware of this and that through constant output via reporting, the importance of these factors are being continuously reemphasized. A positive step to such harmonization and further cooperation was the recent statement by Tanzania's Minister for Energy and Minerals, indicating Tanzania's pledge to finally commit and work towards becoming an operating member by 2015 (ESI, 2012 and Ubwani, 2012). This shows that members are working towards a unified body that will increase the harmonization of the regional electricity system.

When aiming at the harmonization and the development of regional expertise, an important factor (laid out in the final objective), is the implementation of strategies around sustainable development priorities. This objective, once again, shows how all the objectives are inter-linked with one another. It is not useful to develop standards and expertise if they are not checked against their sustainability. The utmost quality is only to be ensured if things are done on a regional level but it would take a vast amount of effort to change these implemented strategies.

The one objective that is probably the farthest from success is the *increase in power accessibility within in rural communities*. The fact that the power pool was not established in order to ensure greater rural electrification is one of the first stumbling blocks towards this. It is also problematic for a regional power pool to ensure the more micro-management oriented goal of rural electrification. The fact that minimal success has been attained is proof for this. The one country that has, however, been a champion in this field, is South Africa, who has ensured that 70% of its citizens have access to electricity. This development begun in 1994, when the new democratically elected government, made electrification one of its priorities.

3.7.1 Challenges:

From the discussion on regime effectiveness above, it can be argued that the SAPP has done a lot right on paper in terms of cooperation. In order to make a proper evaluation of its true effectiveness, it is necessary to see the formation and evolution of the SAPP as a more organic process and not necessarily a step, by step or block by block procedure.

Given the existence of exogenous factors and variety of cross-border interactions, it can be argued that any cooperative agreement, that these are not faultless or perfect. Some of the

challenges the SAPP faces is the *shortfall of generation capacity*. No new electricity generation infrastructure was constructed for a very long time, which caused a lot of blackouts and instabilities, especially in South Africa in 2008 and 2009. This has a negative effect not only on people and their everyday lives, but especially the economy which is severely reliant on electricity access. This shortfall has however been acknowledged and new generation infrastructure has begun, with projections indicating that the demand will be met by 2015.

The fact that countries at times do not have enough supply to satisfy their own demands means that there will *not be enough electricity available to be traded*. This is one of the factors which led to the demise of the Short Term Energy Market (STEM). The system of STEM was not appropriate for the competitive market which was envisioned. The essence of the power pool is about cooperation on the grid lines, power sharing and power trading. If all of the members are however short of electricity supply, then the intrinsic idea of a power pool is defeated. Thus, in line with the continental master plan regarding electricity, lie the varying regional power master plans, which overarch the national master power plans. Across the region many countries have committed to investing in the building of power infrastructure and decreasing the huge backlog (Foster and Brinceno- Garmendia, 2010: 181).

A third challenge, which is a very pertinent one to both of the above, regards the transmission lines. Even though the regional regulators and the power pool attempt to ensure a certain quality control, the transmission lines are often not up to the necessary standard to which they need to be in order to transmit the power for general production and trade. On top of this, there are not enough transmission lines this, once again, inhibits the power pool from functioning at an efficient rate. The members of the SAPP have identified this problem and implemented a project in order to counter this inefficiency. The interconnector and project is called Zizabona, which will link Zambia, Zimbabwe, Mozambique, Namibia and South Africa.

A more exogenous challenge is that of environmental factors, which cause the fluctuation of water availability and at times causes droughts, or even extreme floods. It is projected that the Zambezi River Basin will experience these in extreme forms. These cannot be controlled, but especially through the power pool, provisioned for. The power pool would allow for electricity which is not affected by these environmental challenges to be transmitted to the areas that have a shortage of supply.

3.8 CONCLUSION: AN EVALUATION OF THE SAPP

The electricity regime in Southern Africa fits the established framework and fulfils the set criteria, in order to be classified a regime and to have the potential of being effective. The process of regime formation, its subsequent evolution and an assessment of the effectiveness of the SAPP, were guided by the analytical framework of regime theory, which was presented in chapter two (table 2). The theoretical analysis assisted the classification of the regime according to Young's (1982) categorisation. Concluding evidence found that the electricity regime, within Southern Africa, fits the characteristics of a negotiated regime due to the fact that 1) conscious effort was required in order to establish the SAPP; 2) The formulation of explicit agreements which were manifested in the form of the four core documents which are listed in appendix B and 3) cooperation occurred across border lines.

The evidence that the SAPP evolved since its inception can be found in these core documents spoken of above and which can be found in appendix B. The fact that regime change can be witnessed is a sign that the SAPP is adapting to the changing context it finds itself in, ensuring its relevance and therefore the unlikelihood of its decay. The most prominent changes, which took place during this evolution, include the progression from being a cooperative to a more competitive regime and the increased relevance, through the greater inclusion of actors within the SAPP.

The SAPPs stability and existence is ensured through this attentive adaptation to ensure it remains a relevant body. Further factors, which support the continued existence of the SAPP, include the establishment of a permanent coordination centre in Zimbabwe, the expanded management structures and revised and more relevant core documents.

The negotiated regime within the electricity sphere of Southern African, fitting the analytical framework of regime theory, is an effective regime on paper. In real life it does face its challenges, but given the commitment and efforts of its members, it can be said that it will not enter into the phase of decay any time soon; rather, it will continue to be strengthened.

CHAPTER FOUR

CONCLUSION

4.1 INTRODUCTION

The thesis has sought to provide a thorough analysis of electricity cooperation in southern Africa by using an analytical framework derived from various studies around regime theory. This framework has allowed for not only the classification of the regime but an assessment of the effectiveness of the Southern African Power Pool (SAPP). The various parts of the thesis have all contributed to the clarification of these two main points.

4.2 MAIN FINDINGS

International Relations theory has provided a clear overview of how regimes work. The point made was that *without cooperation in the international sphere, only sub-optimal outcomes could be expected*. The solution to avoiding these sub-optimal results, but rather attaining the desired optimal outcomes, was the evolvment of a regime in that specific issue-area.

An analytical framework, derived from regime theory, has guided the analysis of the formation, evolution and also the characterisation of a regime. This has provided the necessary insight and analysis in order to *determine what types of regimes* there are and which criteria are required in order to be able to *classify a regime as effective*.

Without cooperation, the theory contends, optimal outcomes are not possible. The study of electricity cooperation reemphasizes this. The fact that states within the SADCC have for around 20 years unsuccessfully attempted to establish favourable outcomes through electricity cooperation whilst, at the same time, actively trying to exclude South Africa, reemphasize the strong argument for cooperation in the region. Once this had been acknowledged, South Africa was included in negotiations to *establish a cooperative electricity regime*, which is how the *Southern African Power Pool (SAPP)* came into being in 1995.

The analytical framework allows for the classification of a regime. The SAPP, according to the criteria which it fulfils, is a *negotiated regime*.

A common feature within the life of a regime it is very likely for it to undergo a phase of *regime change*. The SAPP has experienced *evolutionary* regime change, which brought about a very interesting and substantial difference. This change the SAPP underwent was that of shifting from a *cooperative to a more competitive regime*. This can be supported by the changes in regulations, founding documents and even the management structure.

As the analytical framework has established that the SAPP is indeed an electricity regime, the next finding is that of the effectiveness of the regime. According to the criteria outlined within the provided framework, the *SAPP can be categorized as an effective regime*. The SAPP fulfils all the criteria as mentioned on paper and in its functioning structure. It has a permanent coordination centre with a complex management system, various regulating documents and a structure in place which provides frequent and thorough information sharing through various mechanisms and reports. The following table summarises the main features of the SAPP in terms of regime theory.

TABLE 4: MAIN FEATURES OF THE SAPP IN TERMS OF REGIME THEORY.

	Options	SAPP Characteristic
Type of regime according to Young (1982)	Spontaneous/ Negotiated/ Imposed	Negotiated
Characteristics of a regime (Puchala and Hopkins, 1982)	Specific vs. Diffuse	Specific (Electricity focused) within a diffuse regime (SADC)
	Evolutionary vs. revolutionary change	Evolutionary change
What indicates that Regime Change occurred		Revised changes in most important regulating documents ; Move from Cooperative to a Competitive Power Pool .

However, the SAPP still faces various *challenges*. The greatest challenge at hand is the fact that the SAPP is ready for increased electricity trade, given that all the necessary structures

are in place. However, South Africa's failure to invest in new generational infrastructure, when appeals for this were made, has caused an electricity supply crisis. The initial status of electricity supply was marked by excess generation capacity, which has now diminished to a situation where the region is not supplying enough electricity to keep up, with their current demands. Therefore, if there is not even enough electricity for the consumption of the countries themselves, then the excess electricity – that is to be traded through the SAPP - will be very little.

Nevertheless, whenever there is excess generation capacity, this is traded. This concern, as well as the infrastructural limitations, which were discussed in chapter three, is the biggest hindrance for the SAPP to be characterised as a fully effective regime. In comparison to other power pools within Africa, the SAPP remains the front runner with the most agreements and the largest installed capacity. The SAPP is an *effective regime in structure* and it has been running well apart from some technical difficulties. It can therefore be argued that, *when* there is excess generation capacity, this regime will be able to fully come into its own.

The findings in terms of the SAPPs prospects and future will be discussed in this section. The SAPP has a very strong and formal management structure and a permanent coordination centre which show that its *members are serious about this cooperation* as a lot of time and resources are needed in order to sustain such a formal agreement, and concur with being bound by certain rules which constrain them. The fact that member countries have set up a master plan for their own country and are in the phase of either securing funding, or some, at rolling out the indicated projects, show that the *members are planning ahead* for long-term commitments and successes. The expected increased generational capacity to come from these plans will be vast, allowing for the SAPP to become more effective.

An interesting dynamic which runs throughout the thesis is that of a *leader in the power sector*. It cannot be denied that South Africa is the biggest electricity leader in the region. The power of South Africa, as a power producing country, and that of Eskom in particular is noteworthy. It is a very powerful member of the SAPP, and plays a huge role in the decision-making of the sector, skills development and strategic insight. Given the fact that it is the biggest electricity generator and also consumer within the SAPP, it is a very dominant actor within the electricity regime. However, this is accompanied with its commitment to future, more environmentally friendly energy production, which is very unlikely to only come from

South Africa as the hydro potential, for example, is very limited. *A unique dependence has therefore been developed, with the powerful actor having to depend on other smaller actors within the regime.* Therefore, the big player is to a certain extent, constrained by the cooperative agreements of those which are smaller. In short, the fact that the region's potential generation capacity has not yet been harnessed is likely to strengthen future cooperation, especially given that South Africa needs to supplement its hydro-energy in the face of global demands to lower its heavy coal-based carbon footprint.

4.3 SUGGESTIONS FOR FURTHER RESEARCH

Firstly, comparing the SAPP to other power pools could bring about very interesting findings about electricity cooperation on the continent. Secondly, and more broadly, is the need to develop a basis for the evaluation of the link between the availability of electricity and that of economic growth. Such a study could take place either in one country or across different regions in order to be able to make some possible generalizations in this regard. Finally, a more detailed study of the way in which South Africa's influence, within the region, is either constrained or enhanced specifically in relation to electricity and in relation to the concept of leadership as provided by Young has emerged.

5. APPENDICES:**Appendix A: SAPP national Utility Members****SAPP Membership**

Full Name of Utility	Status	Abbreviation	Country
Botswana Power Corporation	OP	BPC	Botswana
Electricidade de Mocambique	OP	EDM	Mozambique
Electricity Supply Corporation of Malawi	NP	ESCOM	Malawi
Empresa Nacional de Electricidade	NP	ENE	Angola
ESKOM	OP	Eskom	South Africa
Lesotho Electricity Company	OP	LEC	Lesotho
NAMPOWER	OP	NamPower	Namibia
Societe Nationale d'Electricite	OP	SNEL	DRC
Swaziland Electricity Company	OP	SEC	Swaziland
Tanzania Electricity Supply Company Ltd	NP	TANESCO	Tanzania
ZESCO Limited	OP	ZESCO	Zambia
Copperbelt Energy Cooperation	ITC	CEC	Zambia
ZESA HOLDINGS	OP	ZESA	Zimbabwe

OP = Operating Member

NP = Non-Operating Member

ITC = Independent Transmission Company

Appendix B: Revision of Main Documents

Main SAPP governing documents that display the dates of revision. As can be seen, all of the underlying guidelines and structures have been updated and revised.

- 1) Inter-Governmental MOU
 - a. The IGMOU brought the SAPP into being
 - b. Signed by SADC member countries in 1995
 - c. Revised document signed on 23 February 2006
- 2) Inter-Utility MOU
 - a. Established the management of the SAPP
 - b. Revised document signed on 25 April 2007
- 3) Agreement between Operating Members
 - a. Signed by Operating Members only
 - b. Revised document was signed in April 2010
- 4) Operating Guidelines
 - a. Signed by Operating Members only
 - b. Under Review and to be finalized in 2010

Appendix C: SAPP Committee Overview and Explanation

SADC Energy Ministers' Committee: The highest level within the SAPP is composed of members of the SADC Directorate of Infrastructure and Services, which energy falls under. The government ministers and officials part of SADC are responsible for any electricity related policy issues (ECA, 2009: 36).

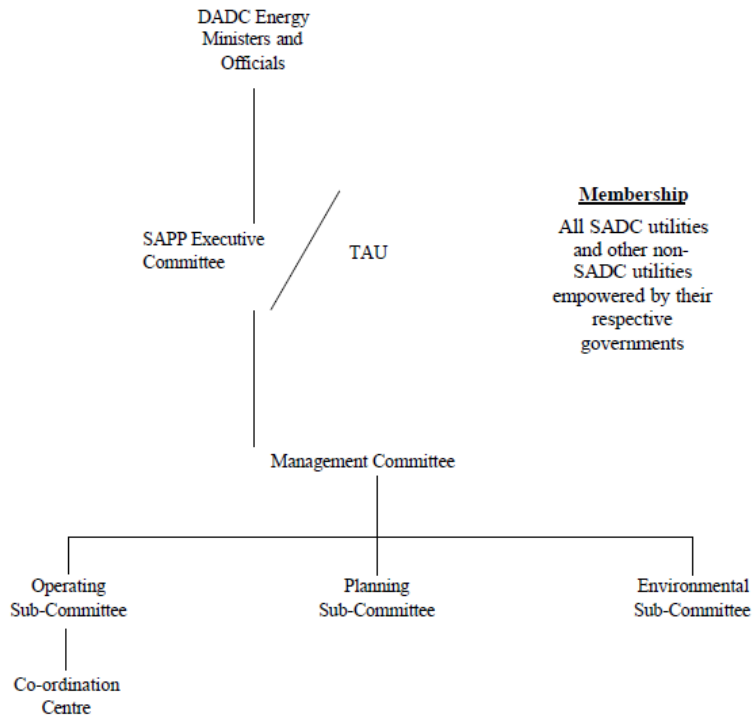
SAPP Executive Committee: This is one of the two main committees of the SAPP. The Executive Committee is formed by the chief executives from each power utility. This committee refers non-SADC membership requests and other difficult and important policy issues to the SADC energy ministers.

SAPP Management Committee: This is the second of the main committees. This committee is made up of officials from the various member utilities and their task is to oversee the management of the SAPP (ECA, 2009: 35).

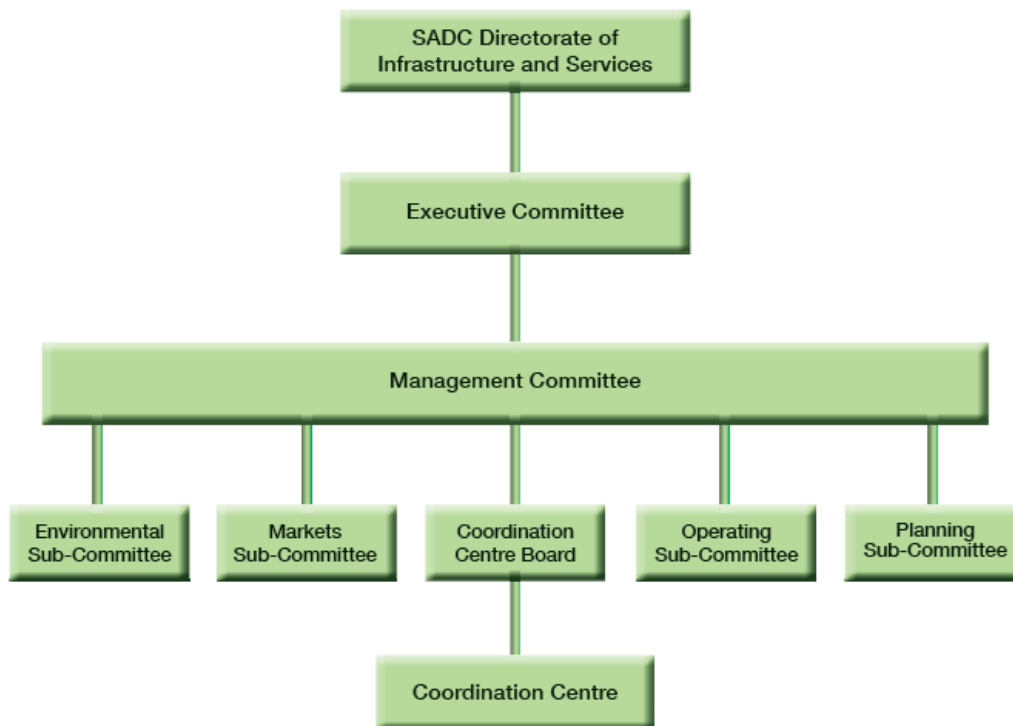
In 1995, the SAPP only had three Sub-Committees which reported to the Management Committee. With various amendments, which were accepted in 2008, a further sub-committee was established, namely the **markets sub-committee** (in 1995 and then in 2008 this changed with the markets sub-committee (SAPP, 2011: 3 and SAPP Coordination Centre, 2012). The subcommittees include the Operating Subcommittee, Planning Subcommittee and the Environment Subcommittee (ECA, 2009: 37).

In 2000, a permanent **Coordination Centre** was establishing in Harare, Zimbabwe. The Coordination Centre has various functions, which include facilitating the energy market, monitoring operations between SAPP members; to research output in order to assess the future impact of projects, the training of staff members and to maintain a database, which will allow for more accurate planning and development (ECA, 2009: 37). The fact that the Coordination Centre has permanent status and has a physical office, allows it to act as a secretariat for the SAPP committees and subcommittees (ECA, 2009: 38). It can be affirmed that this structure has gained legitimacy and is successful because of the increased requests to act as a consultant and to head up projects (ECA, 2009: 38).

Appendix D: SAPP Management 1997 and Below that of 2011



Source: SAPP, 1997: 5



SOURCE: ECA, 2010: 35

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