

# REGIONAL ELECTRICITY REGULATORY PRINCIPLES

A report prepared for



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## 1. Background and Introduction

In August 1995, Southern African Development Community (SADC) Heads of State signed an Inter-Governmental Memorandum of Understanding that marked the formal launch of the Southern African Power Pool (SAPP), the first international pool to be established outside North America and Western Europe. A year later, in 1996, the Protocol on Energy was promulgated. These key events symbolised the culmination of years of efforts to institutionalise the collective deployment of the region's energy resources for the common interest of the community's more than two hundred million people. As SAPP has grown and developed, SADC has accorded high priority to projects for increasing national and cross border transmission capacity. In addition, since 2003, a focal point of attention for SADC and SAPP has been the diminishing generation capacity in the face of rising electricity demand in the region.

Such a common, region-wide approach to the challenge of electricity is informed mainly by five objectives of the Protocol on Energy which are to:

1. Strive to harmonise national and regional energy policies, strategies and programmes on matters of common interest based on equity, balance and mutual benefit.
2. Cooperate in the development of energy and energy pooling to ensure security and reliability of energy supply and the minimisation of costs.
3. Cooperate in the development and utilisation of energy in the Region in the following sub-sectors: wood fuel, petroleum and natural gas, electricity, coal, new and renewable energy sources, energy efficiency and conservation, and other cross-cutting themes of interest to Member States.
4. Strive to ensure the provision of reliable, continued and sustainable energy services in the most efficient and cost-effective manner.
5. Promote joint development of human resources and organisational capacity building in the energy sector.

The energy challenge in general, and for electricity in particular, consists in bringing the resources of the region to bear on the poverty levels, which are the highest in the world. As the Protocol says in the statement of principles the purpose of cooperation in the energy sector is to

*“use energy to support economic growth and development, alleviation of poverty and the improvement of the standard and quality of life throughout the Region”*

When crafting solutions for development, the region has to pragmatically confront the realities of pervasive poverty and constrained economic performance. In many of the Member States “severe poverty”, based on the notion of life at US\$1 per day or less, afflicts more than fifty per cent of the population, and can reach eighty per cent in some countries, particularly for rural and peri-urban areas. The paucity of development resources in these countries mean that an overwhelming majority of people lack, or have inadequate access to the essential amenities of life: health, education, shelter, potable water - and modern energy services.

In adopting a cooperative approach to electricity issues, each country primarily serves self-interest: without such collaboration many of the investments needed outstrip national fiscal capacity and, in addition, the larger investments cannot be justified for the small national economies. Therefore without a regional perspective the resources will likely remain untapped, and therefore unavailable to all. Second, differences in national resource endowments create possibilities for cost-effective solutions that exploit complementarities.

In nearly every region of the world countries collaborate in the supply of electricity and, in some, trading is integrated and the management responsibilities shared. Thus, the principle and practice of interconnected electricity supply systems are well-developed in, for instance, North and South America, Europe (and parts of Asia). All such arrangements exist to

- a) spread the burden of investment in plant and equipment;
- b) enhance the security of supply through sharing of resources; and
- c) reduce supply costs and increase efficiency through market competition.

For instance, referring to its relationship with the United States, the Canadian Electricity Association said the following:

*“Building on our respective domestic desires to meet electricity requirements, a Canada-U.S. electricity relationship has evolved over the last half century. What began with small tie-lines and the development of boundary waters for hydroelectricity has evolved into extensive cooperative*

arrangements for managing transmission system reliability, major interties across the Canada -U.S. border coast-to-coast, and growing exports and imports.

The diversity of our systems -- the different balances of the various conventional and emerging technologies in our various regional generation mixes and the differing market demands region by region over days, weeks, and seasons -- has prompted a level of cooperation that benefits electricity consumers in every region across the continent. When linked across the national border, our diverse systems have created opportunities for efficiencies in regional systems management, reduced environmental impact and improved reliability."

The Norwegian Water Resources and Energy Directorate (NVE) says the following about Nordic cooperation in electricity:

"Interconnecting a hydropower-based system with ones based on thermal power also makes it possible to reduce the need for new power stations and multi-annual reservoirs in Norway. When the Norwegian electricity price rises sufficiently above the marginal cost of thermal power output, it becomes profitable for neighbouring countries to export to Norway. Conversely, it is profitable for Norway to export power when the price at home is lower than in neighbouring countries."

These kinds of arrangements work best when key features of market structures and regulatory frameworks in the participating countries are consistent with one another.

Under the direction of ministers responsible for Energy in SADC, the Regional Electricity Regulators Association of Southern Africa (RERA) commissioned Mclink Consulting Services to recommend a set of Regulatory Principles that should guide its members. Faced with an impending crisis of generation and transmission capacity, the Ministers' immediate goal is to build new generation, and to increase the capacity and reach of the international transmission backbone of the region. To realise these projects within a reasonable timeframe, SADC needs to promote public-private partnerships with local and foreign investors. This is one motivation towards *sound* and *robust* regulatory frameworks that reduce risk for potential investors and mitigate

the cost of finance. A regulatory framework is sound if it inspires confidence among the market players and governments, and it is robust if it is immune to capricious action by the political leadership.

The harmonisation of regulatory frameworks is also a matter of priority to the African Forum for Utility Regulators (AFUR) that in November 2003 produced a set of general principles for utility regulation. In undertaking this work, RERA is thus responding to AFUR's desire that sector specific principles be developed, in this case for electricity regulation in SADC.

### ***1.1 Terms of Reference***

The Regional Electricity Regulators Association of Southern Africa outlined the following Terms of Reference for the assignment as follows:

- i) Conduct an assessment of the regulatory practices in the ESI across the SADC region. Focus should be on regulatory methodologies and rules on things such as tariff setting & reviews, interconnections, standards, licensing (for instance, independent power producers, concessions and regional electricity distributors), power purchase agreements, among others;
- ii) Categorise similarities and differences in regulatory practices across the SADC region;
- iii) Identify gaps in current regulatory practices
- iv) Identify and recommend core areas / issues that should form part of the RERP;
- v) Define comprehensive electricity principles that should be promoted in the SADC region to attract investments and minimise regulatory risk; and
- vi) Recommend strategies for promoting, entrenching and assessing the implementation of the RERP across the SADC region

### ***1.2 Approach to Assignment***

Following discussions with RERA, Mclink adopted a methodology that took account of the constrained time available and consisted of the following

- Study of background documents from (AFUR) and (RERA)
- A desk study of international regulatory and market practice

- A survey by questionnaire of regulatory practice among members of RERA Interviews with members of RERA committees and sub-committees based in Zambia; and
- A teleconference interview with the Manager of the Southern African Power Pool Coordination Centre.

### ***1.3 Arrangement of Report***

After the introduction the report has two background sections. Section 2 highlights some generic principles of regulation, with special reference to conditions in developing countries. Section 3 describes regulatory requirements for successful regional markets pinpointing important aspects of institutional frameworks, technical standards and economic considerations. Thus the first three sections give a general backdrop to the subsequent sections dealing with the specific situation of the SADC.

Section 4 gives a brief description of the SAPP, pointing out some conditions necessary for its migration to a competitive regional energy market. Section 5 reports on a survey conducted to characterise regulatory practice in the region and the nature of the electricity industry in the region. The outcomes are commented upon in relation to good practice and to common policy objectives in economic and social development. This section also provides a summary of what is common and what is different among SADC countries in general and among members of RERA in particular.

In Section 6 the report highlights areas of regulatory principle and practice that RERA should focus on for regional harmony, recognising the considerable work that still remains to reform utilities and align them to the requirements of a regional market for electricity. In this section the report also suggests a strategic approach for meeting the various challenges to improving regional regulatory frameworks.



## **2. Elements of Regulation**

Arising from the wave of reforms in countries across the globe, a large amount of literature has accumulated on the purpose and nature of regulation in the electricity industry. The interest in the subject arises from a number of innovations generally associated with utility reforms - the establishment of regulators outside government, the involvement of the private sector in infrastructure services and the creation of markets for services traditionally provided directly by government monopolies. The reasons for the reforms had as much to do with a global trend away from centralised planning and towards markets, as they had to do with local pressures (in the major world economies) to improve quality, enhance efficiency and allow the benefits of competition to accrue to the consumer and to the investor. The entry of private participants required that regulation be removed from the often impenetrable shroud of government bureaucracy and politics and established as an independent function operating at arms length with government. This, together with related laws governing competition and property rights, as well as legal traditions of due process, were essential for providing necessary comfort to private investment.

A general conclusion on the success or failure of these reforms is of limited value because of the wide variation of the economic and political contexts for such reforms. What seems generally accepted is that infrastructure services need not be monopolies. The supply chain for services has distinct parts, each of which can be treated differently, in terms of both ownership and control. Furthermore, if structured carefully, participation by the private sector can result in substantial benefits to user communities.

Regulation may be categorised in three interrelated elements

- Rules contained in laws, licences, contracts or similar instruments that define the boundaries of acceptable conduct;
- A body (or bodies) charged with administering and enforcing the rules
- Regulatory processes by which the regulatory bodies discharge their responsibilities.

## **2.1 Regulatory Rules**

### **2.1.1 Approach to regulation**

International experience spanning the last 15 years shows that when governments combine ownership, regulatory oversight and operational responsibility the outcome is unsatisfactory on all fronts. In this arrangement regulation is intended primarily to protect a national utility from competition and especially to enable government retain control over pricing. But whether publicly owned or not, and whether competition exists or not, the service will be sustained only if it is paid for fully. Furthermore, this form of regulation erects barriers to entry that preclude participation of the private sector, even when governments and state utilities have limited capacity for service expansion. Thus one key area for regulatory oversight is *market entry*. Particular attention should be paid to the removal of exclusivity laws for the national utility, fair access to transmission networks access by producers.

### **2.1.2 Governance context**

It is important also to re-examine the legislative framework for property laws. Investors putting money in power projects have to consider that the payback periods are much longer than in many other types of investments. Unless there are traditions and laws for the protection of property rights considerable risk of expropriation, real or imagined, overhangs investment decisions resulting, at best, in high cost of finance, but more likely, in decisions not to invest. These considerations are closely tied to general governance issues concerned with the rule of law and the independence of the judiciary. Matters of this kind are critical to the credibility of a regulatory framework that purports to provide free entry to electricity markets.

### **2.1.3 Price regulation**

Price regulation is generally premised on the economic concept of monopoly power which, in the absence of competition, often results in a high cost of services. Regulatory intervention in prices is conceived as a proxy for competition, with the corollary that regulators should generally withdraw from competitive segments of the supply chain.

However where price regulation is necessary there are two broad categories of approach, and their impacts on the utility and on the consumer can be very different. Price regulation of the first kind focuses on inputs. This refers, for instance to the 'cost plus' method using agreed rates of return based on cost elements like capital investments. This kind of input-based regulation can and often does result in lack of incentive for the utility to minimise costs, as these can be passed to the consumer. The utility may also invest selectively to deliberately exaggerate the basis for the rate of return, at the expense of improved services to the consumer. The method also poses difficulties for the regulator because of the large amount of information that the utility must provide, and which the regulator must verify for authenticity and accuracy. In spite of the criticisms this approach is common because of its relative simplicity, which is attractive especially to regulators facing challenges of limited technical capacity.

Because of the criticisms of input-based price regulation, interest has grown in performance-based forms of regulation. In this approach the regulator uses a combination of incentives and benchmarks to stimulate the desired behaviour in the utility. However, performance-based regulation is often more demanding because of the regulator's greater need to understand the technical and financial operations of the utility. Only an adequate grasp of utility operations will enable the regulator to determine appropriate incentives and benchmarks.

#### **2.1.4 Concerns about access**

In the context of SADC where poverty is widespread and most people are not connected, tariff design may be subject to national policies for electrification. In some countries connected consumers are surcharged to finance network extension, especially to rural areas. Another consideration is whether the disadvantaged among the connected should be subsidised by other categories of consumers, and if so, how. There is a common principle by which those among the consumers that have greater financial ability are charged more for electricity and vice versa. Nevertheless, the design of cross-subsidy tariffs generally suffers from failure to be sufficiently discriminating so that the benefits accrue to the targeted consumers. On the contrary, the benefits are largely 'captured' by the more affluent, posing a particular challenge for the regulator.

### **2.1.5 Service quality**

The fact that so many people in our countries are not connected impinges on the kind of approach that is needed for the third area of attention for the regulator – service quality. Service quality is concerned primarily with safety, health and the environment. A secondary level of service quality deals with continuity of service, technical standards and customer relations. Regulatory intervention in service quality has the same broad justification as price regulation. Competitive markets would generally provide sufficient incentives for players to provide above-minimum levels of service. On the other hand, left to themselves, monopolies, or utilities that wield monopoly power, are often inclined to give scant attention to service quality and to view it rather as an area of non-essential costs. Indeed, there is merit to the argument that when those served constitute such a small proportion of the community, the right balance needs to be found between the costs of providing high quality of service against the imperative of network extension. These considerations do not apply to health and safety standards which generally should not be relaxed.

Service quality costs money: the higher it is the more expensive. Therefore the regulator needs to carefully consider the levels of service quality demanded of a provider because the associated costs must eventually be met by the consumer. Industrial and commercial processes need high levels of continuity and consistency of voltage and frequency – and such customers are willing and able to pay for the guarantee of such a service. Similarly residential consumers that enjoy relatively high incomes demand and can pay for a high quality of service. The regulator should distinguish between these kinds of consumers and those whose need is for a service that enables basic essentials like lighting and cooking. The regulator's task is to design a framework that matches the cost of the service to the level of quality guaranteed.

### **2.1.6 Regulatory Impact Assessment**

This brings in the question of regulatory impact assessment. Increasingly, regulators are concerned with the costs involved in implementing regulatory decisions especially regarding service quality. The question is whether or not the net outcome of regulatory decisions is beneficial, especially to the consumer. Thus, as regulatory experience has grown greater attention is being paid to assessment of the impact of regulations on cost before decisions are implemented.

## **2.2 Regulatory Institutions**

When utility regulation is removed from regular civil service structures questions arise concerning the extent and nature of their delegated functions. A second related issue is that of autonomy or independence of the regulator. In the context of this report independence refers to the establishment of regulators outside of government structures. Questions regarding the regulator's scope to act freely are discussed in their specific contexts.

### **2.2.1 Functions**

In essence the regulators' functions are to administer pricing and to set up rules for access to transmission and distribution networks. Equally important are the establishment and enforcement of technical standards and the quasi judicial role in mediation and arbitration. It is the regulator's responsibility to monitor the rules and to enforce them either directly or through the courts. Depending on the structure, size and complexity of the system the regulator's work has a corresponding demand on its range and depth of expertise. Nevertheless regulatory institutions in electricity will require competencies in engineering, law, economics, finance and related management disciplines. These objective requirements should be complemented by the softer, but essential, and often critical, attributes of integrity and political astuteness.

### **2.2.2 Expertise**

In the context of SADC and countries in other developing regions, these kinds of skills and expertise are often in short supply, and governments face considerable challenges in attracting and retaining qualified personnel. One practical approach is to be flexible and pragmatic about the remuneration and conditions of service for staff in regulatory institutions, and separating them from civil service structures is a positive initial step. In this respect, an additional consideration is that, more often than not, regulated firms offer conditions of service that are substantially superior to those in government. Regulators need to interact with these firms on a more or less equal basis if they are to be effective.

### **2.2.3 Competitive Markets**

From this perspective, and apart from the generic economic benefits, regulators have an interest in promoting competitive markets, because they reduce the extent of intervention needed, thus lessening regulatory costs. Therefore regulators have a role in assessing the feasibility of competitive markets that are suitable for the essential characteristics of their national industries. Size, national and regional resources, economic policies and history are all important considerations. Where potential for competition exists, the regulator will identify and assess barriers to entry, and pay special attention to anti-competitive behaviour, working closely with other agencies that monitor economy-wide competition, such as competition commissions.

Of special significance to regulatory practice in developing countries are community outreach programmes to understand consumer needs and to educate and provide information that empowers, especially the poorer segments. The regulator should resist expansion of regulatory intervention if this inordinately hurts poor consumers.

### **2.2.4 Independence**

Regulatory institutions should, notionally at least, be independent of government and of the regulated firms. Independence from regulated firms poses few conceptual problems because the interest of the regulator and the firms rarely coincide. In this meaning of independence, benefit derives from the separation of service provision from regulation, enabling both activities to be performed more effectively. For this kind of independence safeguards are needed to prevent regulators being 'captured' by regulated firms. This happens when a regulated firm exerts significant, self-interested influence on the regulator, preventing the regulator from performing its functions effectively.

The independence of the regulator from government is a different matter altogether and is often challenged by political authorities. One contentious issue is the pricing of energy services consumed by large sections of the population and, to a large extent, commonly viewed as essential. Politicians are loath to increase prices to levels that court popular disaffection, with the consequence that government regulation results in sub-economic pricing, which, in turn, leads to deterioration of network infrastructures, poor reliability and lack of capacity for service expansion. Viewed in this light, regulatory institutions are established to operate at some distance from government

and specific steps are necessary to insulate them from the political arena. To this end, reforming governments adopt a package of safeguards covering such areas as the tenure of commissioners, financing arrangements and appeal processes against regulatory decisions. Where regulators have the authority to determine electricity prices, or other politically sensitive issues, it is especially important that they be seen to be free from political pressure. The extent and efficacy of the measures that are instituted has a significant impact on the perceived level of regulatory risk faced by investors and hence on the cost of capital.

In practice, establishing a fully independent regulator is difficult in any country. Often the problem in developing countries manifests as one of general attitudes of the political leaders to the practical implications of a liberal democratic dispensation. The legacy of central planning and authoritarianism is partially responsible for an enduring reluctance to cede authority to, or share power with legally established national institutions. There is an overwhelming tendency to question and undermine the authority of the regulator, even when this is enshrined in statutes and other legal provisions. In some instances even the independence of the judiciary may be questioned. To compound the situation, regulatory institutions may themselves be reluctant to fully assert spheres of autonomy granted to them partly because they too are subject to similar negative traditions and legacies. Such considerations cannot be wished away and require to be addressed through careful design of regulatory frameworks, with special attention to levels of discretion and safeguards against abuse. In addition, there is a strong case for regular exposure of commissioners and staff to best practice through training programmes and attachments. Similarly government officials and political leaders would benefit from orientation and discussion seminars on regulatory principles.

### **2.2.5 Perceived Corruption**

Concerns about the capacity and independence of regulators in developing countries, coexist with perceptions of corruption. In this situation, regulation may be seen simply as providing corruption opportunities for officials rather than legitimate regulatory purposes. The lack of faith in the integrity of the regulator, and the suspicion that real regulatory power resides elsewhere, whether such views are justified or not, can lead to circumvention by direct lobbying of the political leadership, and politicians are often tempted to exert influence on the regulator outside legally established procedures. This

kind of political response is more than likely to further diminish the credibility of the regulator. Again, the communities' social and political attitudes to such behaviour are more effective safeguards than the written law.

## **2.3 Regulatory process**

The regulatory process as a whole should be designed and implemented to achieve the ends of legitimacy, transparency, accountability and predictability.

### **2.3.1 Economic Context**

That said, regulation in the context of developing countries may not be effective if it simply mimics practices found in developed countries. The difference of approach arises from the essential characteristics of poor communities – low levels of sophistication, low awareness of rights and obligations and high amenability to politicisation of pricing decisions. Therefore regulators must engage communities far more intensively in awareness programmes than would be the case in developed countries. The reach and visibility of the regulator is thus of critical importance. At the same time the benefits of opening representative offices in different geographical locations of a country must be carefully weighed against the costs. In many instances, other ways of dealing with the problem may be cheaper and equally effective. These include working with decentralised actors like municipalities and NGOs, especially for education programmes, monitoring of service quality and dealing with customer complaints.

The formal decision-making process of a regulator is often designed to involve suppliers and consumers at various stages. For instance, legal provision for public hearings during price or tariff reviews is generally good practice, but it is desirable to couple such procedures with efforts to raise the ability of the consumers to participate effectively.

### **2.3.2 Transparency**

Good regulation also ensures that service providers are treated with equal transparency, which obliges the regulator to be open with its requirements for information, the decision-making process and the disclosure of the basis of decisions.



In this respect, regulators should be circumspect with the exercise of discretion, for excess can lead to lack of predictability, causing nervousness among industry players and suspicion among potential market entrants. As much as possible the regulator should work according to well understood and publicised rules. It is best if the details of such rules are established with the inputs of the stakeholders, leaving the principal legislation to deal with the fundamental principles only.

### 3. Regulating Regional Markets

Cooperation among countries in the supply of electricity existed long before the idea of competitive markets emerged. For similar purposes as contained in the Energy Protocol of SADC, developed and developing countries have long recognised that cooperation offers the benefits of shared resources, thereby promoting security and reliability of electricity supplies. Among the Member States of SADC the history of collaboration spans more than four decades. What is different about the new developments is the belief that liberalised markets for electricity offer greater opportunities for maximising the benefits to consumers in terms of price and quality of service, by providing incentives for operational efficiency, innovation and good customer relations. At the same time, competitive markets are more attractive to the infusion of new resources in the sector. For these broad reasons, the previous international relationships, governed by agreements and contracts between national utilities are increasingly being transformed into competitive markets, the most developed of which are in Europe and North America. Ultimately these markets seek to offer a choice of supplier to the consumer, thus generating beneficial competition among the suppliers. In practice, customer choice has really only been effective for large industrial and commercial customers.

To establish well-functioning regional electricity markets, participating countries must meet one core requirement: fair access to transmission resources by customers and suppliers. The transmission system is the conduit for customer and supplier interactions. This single requirement brings with it a number of institutional, technical, and economic issues.

#### 3.1 Institutional Issues

Historically, electricity utilities were vertically and horizontally integrated, meaning that they combined the sequential functions of generation, transmission and distribution, and that they managed all the national assets for each activity. It was also considered natural that the utilities were state-owned, since electricity has the character of a public good. Even though many utilities, in industrialised and developing countries still operate in this mode, these arrangements are no longer considered as the norm. Indeed, the widespread reforms of utility sectors that started in the early nineties were spurred by the recognition that competition, or at least the

participation of multiple players, was feasible in some parts of the industry. Thus generation and supply functions have steadily been opened up to private sector participation, while the transmission system, which is impractical to replicate, remains highly regulated to facilitate access by producers and customers.

The implication is that countries in a regional market must organise their electricity industries such that the transmission function, not only stands on its own, but also that it is managed according to regionally accepted rules. In addition, cross-border transactions require a level of harmonisation in the overall management of national electricity industries in order to remove practices that can cause distortions in the market.

The example of practice in the European Union typifies international practice. By a series of directives beginning in the mid-1990s the EU spelled out the essential requirements for participation in the regional market. To align internal energy markets with the regional market, the EU set out a number of priorities and principles including the following:

“It is generally acknowledged that third party access based on published and non-discriminatory tariffs, and a high level of unbundling, are not only conducive but necessary to ensure effective competition. To complete the internal market, it is not sufficient therefore to fully liberalise demand, but effective market structures must also exist. In addition to the need to ensure that the maximum benefits of competition develop to the profit of Community citizens, such measures are necessary to guarantee a level playing field between Member States and to ensure non-discrimination, notably in relation to vertically integrated companies enjoying a dominant position.”

The EU directives further require independent management of transmission even where it is established as a subsidiary company

### ***3.2 Technical Requirements***

Regional integration of electricity markets requires stringent rules for the technical performance of national networks and the interconnected system. Differences in

standards of technical management and operation can lead to loss of overall system integrity manifested by instability and frequent outages which increases costs for consumers and suppliers. The principles and guidelines for technical standards and practices cover critical areas like congestion management, resource planning and adequacy and system failures. Again developments in the European Union are instructive because the EU comprises sovereign states, even if the level of integration is much closer than is the case in SADC. (This contrasts with the federal structure of the United States that enables the Federal Energy Regulatory Commission (FERC) to enforce nation-wide regulations.)

*“It is important to avoid distortion of competition resulting from different safety, operational and planning standards used by transmission system operators in Member States. Moreover, there should be transparency for market participants concerning available transfer capacities and the security, planning and operational standards that affect available transfer capacities”*

### **3.3 Economic Considerations**

The operation of successful markets relies on the existence of transparent rules of tariff setting, which requires a minimum degree of alignment of internal pricing policies to those that underpin regional electricity trade. Just as for national regulatory practice, transparency is a key principle in regional trade, and involves the regulation and publication of non-discriminatory tariffs as well as terms and conditions to all users of transmission systems. Non discrimination means that the conditions of use should apply equally, including the group to which the system operator belongs.

Three key issues that the Florence Process of the European Union has identified are the following:

- 1) *In the context of a regional competitive market, can the tariffs in the different countries be entirely left to subsidiarity or some level of harmonization should be required?*
- 2) *Who is responsible for upgrading the network when needed and who pays for it?*

- 3) *How much should be charged for the use of the network to the diverse market agents who can buy and sell anywhere within the integrated electricity market? Who pays for network losses, and how are these to be apportioned?*

There are no ready answers to these questions, but certain principles would appear to represent an ideal to which regions could aim:

- Internal markets need to adopt similar regulated markets that stimulate competitive behaviour in the approach to pricing.
- Regions should design market rules that diminish the significance of national borders.
- There is need for a degree of regulatory harmonization among the Member States and progression towards the design and implementation of long-term mechanisms for regional electricity trade.

In this section we have tried to outline some key generic principles and practices of regional electricity trading that are of relevance to SADC. While there is much to recommend these ideas, their adoption must be informed by the initial conditions in SADC: the political organisation of the Southern African Development Community, the current status of the electricity industry, the characteristics of national markets and regulatory practice guided by the policies of the Member States.

## 4. The Southern African Power Pool

The following objectives guide the operations of the Southern African Power Pool:

- Provide a forum for the development of a world class robust, safe, efficient, reliable and stable interconnected electrical system in the southern African region.
- Coordinate and enforce common regional standards of Quality of Supply; measurement and monitoring of system performance.
- Harmonise relationships between member utilities.
- Facilitate the development of regional expertise through training programmes and research;
- Increase power accessibility in rural communities.
- Implement strategies in support of sustainable development priorities.

The Southern African Power Pool consists of national utilities of all twelve on-shore members of SADC. Members are classed as Operating or Non-Operating depending on whether they are connected to the regional transmission grid. Thus there are three Non-Operating of SAPP, namely, Electricity Supply Corporation of Malawi, Empresa Nacional de Electricidade of Angola and Tanzania Electricity Supply Corporation. The table below shows the membership.

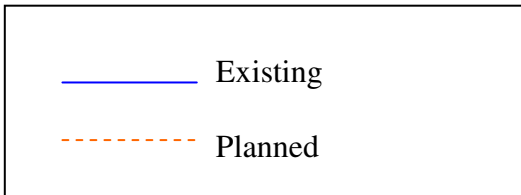
### 4.1 SAPP Membership

<u>Utility</u>	<u>Status</u>	<u>Abbreviation</u>
Botswana Power Corporation	OP	BPC
Electricidade de Mocambique	OP	EDM
Electricity Supply Corporation of Malawi	NP	ESCOM
Empresa Nacional de Electricidade (Angola)	NP	ENE
ESKOM (South Africa)	OP	Eskom
Lesotho Electricity Corporation	OP	LEC
NAMPOWER (Namibia)	OP	NamPower
Societe National d'Electricite (DRC)	OP	SNEL
Swaziland Electricity Board	OP	SEB
Tanzania Electricity Supply Corporation	NP	TANESCO
ZESCO Limited	OP	ZESCO
Zimbabwe Electricity Supply Authority	OP	ZESA

OP: Operating Member

NP: Non-Operating Member

### 4.2 SAPP Interconnected System



### 4.3 Energy Trading

SAPP administers a short-term energy market (STEM) through an office located in Harare, Zimbabwe. It began operations in 2001, enabling participants to trade energy a day ahead on an hourly basis. Essentially SAPP's Coordinating Centre matches buyers and sellers at any given time using a bidding process. The amount of energy traded on STEM is less than 5%; the remainder is governed by fixed, long-term bilateral agreements and contracts.

SAPP recognizes the challenge of growing beyond the short-term energy market and has begun preparations for a competitive market starting in 2007. The 2004 Annual Report says:

*"SAPP believes that the creation of a spot market in the region would optimize the use of regional resources, enable the determination of the correct price of electricity in the pool and will send signals for investments and real time utilization of assets. The market will also enable the demand side to respond to the supply side price signals."*

The 2004 Annual Report summarizing progress made towards restructuring of the utilities shows there has been:

- (a) no reform towards third party access to transmission networks.
- (b) little or no participation of the private sector
- (c) no tariff reform (towards economic pricing)

### 4.4 Generation and Transmission

SAPP projections of electricity demand show that if no new generation capacity is brought on stream the region will face a supply deficit by 2007/2008. To keep pace with demand growth, supply capacity needs to grow from the 46,000 MW in 2005 to more than 60,000 MW in ten years, an increase of about 14,000 MW. Towards meeting this shortfall, South Africa between 2005 and 2010 will commission mothballed thermal plants with a total capacity of 3,500 MW. In the same period other countries have identified resources that can be tapped, consisting of new hydro and gas plants and totaling about 5,000 MW. Thus, even in the most optimistic scenario where the short-term projects are implemented, the region still faces a shortage of generation capacity. However, the total potential of the region far



exceeds its requirements, especially considering the hydro potential at the Inga Falls in the Democratic Republic of Congo.

Currently, the region also exhibits significant transmission bottlenecks, quite apart from the absence of interconnections to some member countries. This is a serious barrier to market development. SAPP has therefore identified a number of transmission line projects and has lobbied international financing. The projects include the following:

1. An HVDC link in DRC from Inga to Kolwezi that would add another 1000 MW to the existing link
2. A Zambia – Tanzania inter-connector that opens access to the East African market.
3. A reinforcement of the Zimbabwe – Botswana – South Africa links to enable an additional 500 MW transfer capacity.
4. A new inter-connector between Botswana and Zimbabwe for 650 MW.
5. A new 100 MW inter-connector between Mozambique and Malawi.

Probably the most ambitious of the new transmission projects is the Westcor Project, which seeks to transport, via HVDC lines, 3,500 MW from the Inga Falls in the DRC through Angola, Namibia and Botswana to South Africa.

#### ***4.5 The Challenge***

The migration of SAPP operations from the limited scope of the STEM to a full-fledged regional market requires that differences in national regulatory practice be minimized. A 1998 report on SAPP by O’Leary and others, commissioned by the World Bank, commented as follows

“Experience in other countries shows that although a pool can operate where regulatory regimes differ, as they do among SAPP countries, possibilities for gaming or unfair advantage created by differences in regulatory systems can undermine members’ willingness to participate ... In addition, the need for a consistent approach to transmission access is becoming apparent as more independent power producers (IPPs) and independent transmission projects (ITPs) express interest in investing in the region.”

It is a telling fact that so far the private sector has practically kept away from participation in generation and transmission projects and in the last twenty years or more, generation capacity has stagnated. With demand rising in the region, the looming crunch of a power deficit is, in retrospect, hardly a surprise.

## 5. Electricity Regulation in SADC

This section seeks to identify the key features of regulatory practice in SADC Member States and to discern aspects that may require review in the light of principles and international practice discussed in Sections 1 and 2.

The Regional Electricity Regulators Association comprises regulatory bodies in Member States where independent regulatory bodies have been established. At the time of this report, RERA had five members representing almost half of the number of Member States that participate in the Southern African Power Pool:

- The Electricity Control Board of Namibia (ECB),
- The Lesotho Electricity Authority (LEA),
- The Energy Regulation Board of Zambia (ERB),
- The National Electricity Regulator of South Africa (NER) (Later changed to the National Energy Regulator of South Africa (NERSA),
- The National Electricity Council of Malawi (NECO) and

Members of RERA were requested to complete a questionnaire consisting of 10 sections as follows:

1. General information on the Regulator
2. Industry governance
3. Establishment of the Regulator
4. Regulator's Role
5. Predictability
6. Transparency
7. Accountability
8. Participation
9. Information
10. Additional Questions

What follows is a summary of the responses. A running theme throughout these observations is that among member states of SADC, there are differences of approach to the management of the electricity industry, and where governments have embarked upon reforms, the pace and direction vary from country to country. These differences occur because of several factors, among them policy priorities, political will and the

peculiarities of the electricity industry in each country. The detailed submissions are in Appendix ( )

## **5.1 General**

### **5.1.1 Independent Regulation**

The first point to note is that in half of the Member States that participate in SAPP government departments are responsible for regulation; in the other half, independent regulators have been established and these make up the RERA membership. This basic difference of approach to regulation imposes some limits on the growth and development of an integrated electricity market. When utilities operate in such fundamentally different regulatory frameworks, the rules for their interaction are not easily harmonised with national regulations. Member States should be encouraged to establish independent regulation as part of the overall energy reform process.

### **5.1.2 Regulatory Experience**

The second point is that the members of RERA have all been existence for ten years or less, and two of the five that responded to the questionnaire are less than five years old. There is a long and difficult road of learning the technical skills of regulation and of building confidence and acceptance among industry players, consumers and the political leadership. Therefore regulators must place a high priority on education and training for staff and commissioners. Much can be learned from formal courses and training programmes, but the sharing of information and experiences among the regulators offers important opportunity for capacity growth.

### **5.1.3 Size of Electricity Industries**

Third, the region is characterised by vast differences in size of electricity industry, notably the considerably greater size of the South African industry in relation to all the other countries in the region. The maximum demand (latest available figures at the time of the survey) varied from 95.2 MW in Lesotho to 33 906 MW in South Africa. After South Africa is Zimbabwe whose maximum demand for 2004, as reported by SAPP, is 2,007 MW. Such inequalities in the sizes of interconnected systems have specific technical challenges for system stability. Regulatory attention needs to focus

on developing, monitoring and enforcing national standards that promote operational stability of the whole system.

#### **5.1.4 Diversity of Generation Sources**

Fourth, as a region, generation is of two main types: hydro and thermal. The coal-fired plants in South Africa are the largest source, but the region's hydro-potential in, for instance, the Democratic Republic of Congo and Zambia is considerable and offers increased possibilities for diversity in the regional sources of electrical energy. Greater diversity would enhance competition and ultimately reduce costs to the consumer. A regional approach to the exploitation of these resources, especially one that seeks to tap international and local private capital, needs to be underpinned by a harmonised regulatory framework. The reason is that such projects will target the larger regional market rather than the small markets in the specific locations of the generation sites. In the regional context, the most significant hydro potential is the expansion of the Inga complex in the Democratic Republic of Congo.

### **5.2 Industry Governance**

#### **5.2.1 Industry Structure/Reforms**

Electricity industries in the region share many characteristics. The utilities are state-owned and, in the main, vertically integrated. In all the countries the utilities are established as commercial corporate entities. Their operations are defined in legislative instruments and controlled through licences issued by the regulators.

Comment: In terms of the regional market, ownership is a secondary issue. Primarily the question is whether markets can develop in the absence of a minimum level of unbundling of the utility functions. In particular, the management of transmission lines and related plant in integrated structures that include generation and distribution raises doubts about access to markets by potential entrants. This would tend to reduce investment appetite in generation capacity. Independent operation of transmission assets with strong regulation has many advantages, and the region would do well to prioritise gradual movement towards transparent transmission management of the kind described in Section 1.

An additional point is that regulation of state-owned, vertically integrated utilities is uniquely challenging when one considers that a primary purpose of independent regulation in infrastructure services is to mitigate the profit motive by ensuring that this does not lead to unfair treatment of consumers. On the other hand, through supervising ministries and other channels, state-owned utilities tend to have a close relationship with government, a relationship that is justified on the basis of ownership. If this is unchecked the benefits of corporatisation will be hard to realise and the regulator may be sidelined, especially as a source of advice in new developments. If the utility is resistant to change, as is often the case, its closeness to government may slow down or distort the reform process. The mandate of the regulators - protecting the interest of the consumer, ensuring a fair return to the utility and promoting growth of the sector – should place them at the centre of the reform debate. This would also argue for the establishment of independent regulators as early as possible in the reform process.

### ***5.3 Establishment of the Regulator***

#### **5.3.1 Tenure of Commissioners or Directors**

In nearly all countries ministers of energy appoint members of regulatory bodies (or commissioners) and in two countries Ministers also have the power to revoke the appointments. In three countries, regulators approve their own budgets, while in the others, Ministers have the final say.

Comment: The appointment and tenure of members or commissioners, and the budgetary process are important measures for the autonomy of the regulators. At the same time, government may have good reason to limit the degree of autonomy granted to the regulator. Partly this may have to do with existing practice for such institutions, partly it may reflect caution in view of the novelty of such institutions, but it may also be due to a self-interested desire to retain control of the regulator in the political leadership.

Nevertheless, where the country has decided to grant 'unfettered autonomy' to the regulator, the direct powers of the minister in the appointment and dismissal of commissioners should be limited. The inclusion of a parliamentary ratification process, as reported from Malawi, helps to minimise possible cronyism. Regulators

are also more likely to act objectively and independently when the tenure of the commissioners is secure. In this vein the source of funding for the regulators should also be secure and predictable, and the regulators should approve their own budgets. The direct application of licence fees and other industry levies to financing of regulator costs is common practice in the region and has much to commend it, provided that the regulators are empowered to collect such money directly and not channelled through central treasuries. Generally the involvement of the general treasury causes funding uncertainties due to possible reallocation of levies and fees; there is also the temptation to use the treasury as a tool for reining in a recalcitrant regulator.

## 5.4 Regulators' Role

### 5.4.1 Appeal Procedure

In all the countries, the functions of the regulators are set out in primary legislation of the laws of the country. However, appeal procedures differ. In two countries the minister of energy considers such appeals before they can be taken to courts of law; in two other countries, appeals are subjected to a judicial process directly. In one country an *ad hoc* independent arbitrator is appointed to hear the appeal. Malawi, Namibia and South Africa reported the existence of informal appeal procedures.

Comment: The mandate of the regulator is another reflection on the degree to which governments are willing to cede traditional responsibilities. The mandate to the regulator should aim to engender the confidence of stakeholders. In this regard the involvement of political leaders in appeals may send the wrong signals and should be avoided. But regulators should also provide room for informal procedures to review decisions before matters escalate to the courts of law. Regulators should provide opportunity to review their own decisions and should not insist only on redress through courts of law. The biggest disadvantage of litigation is the long time it usually takes to resolve issues, especially as many such issues may be highly technical.

### 5.4.2 Scope of Functions

Regulators were asked to indicate their involvement in a number of possible regulatory functions:

- a) Gather information

- b) Monitor existing rules are implemented
- c) Determine rules
- d) Enforce Decisions

Price Regulation: Regulators reported that they performed all functions, except NECO in Malawi which reported that it did not monitor the implementation of the prices.

Service Quality: Lesotho, Zambia and South Africa undertake all the functions, while Malawi does not monitor service quality and Namibia is in the process of implementing quality of supply and service standards.

Competition regulation: All the regulators gather information about competition and for most of them the responsibility ends there. However, Zambia reported that it performed all the functions while Malawi monitors the implementation of the existing rules. The LEA of Lesotho was not fully operational at the time of the survey, but it expected to determine and enforce competition rules.

Consumer Protection: Regulators reported that they all gathered information and enforced decisions to protect consumers. In addition all except Malawi monitored the implementation of existing rules. But with regard to regulations for the protection of consumers, only Malawi and South Africa carried such responsibilities while the others did not. When the Lesotho Electricity Authority is fully operational, it will determine and enforce regulations for the protection of consumers.

Design and administration of arrangements with private sector providers: Currently regulators are not involved in determining the terms of engagement of private sector providers in the region nor in the enforcement of agreed terms. Most confine their work to collecting information and monitoring activities. In the case of Zambia the Energy Regulation Board does not participate at all in private sector arrangements.

International Trade: Similarly, regulators are confined to gathering information and monitoring activities concerned with international trade. Malawi is exceptional in that its mandate includes the design and enforcement of regulations for international trade in electricity.

System expansion: The pattern is similar for system expansion. Regulators have a marginal role. Malawi is again the exception because the NECO has the power to enforce regulatory decisions on system expansion.

Comment: The results of this section fall into two categories: the first category consists of areas where the regulators are more or less fully empowered. These are: (i) price regulation, (ii) service quality, and (iii) consumer protection. These are core regulatory



functions that balance the interests of all parties: consumers, providers and government. Probably the only area that may need attention is the formulation of regulations for the protection of consumers since only two countries, Malawi and South Africa, appeared to have developed specific provisions.

The second category is of areas where regulators have marginal involvement: These are (i) competition regulation, (ii) Design and administration of arrangements with private providers, (iii) International Trade and (v) System expansion. The first of these would often be a responsibility shared with a separate body concerned with economy-wide competition. Provided that this is so, the concern would be whether the coordination between the regulator and such a body is close and effective. But the absence of regulation in other areas is a definite indication that regulatory frameworks are inward looking and concerned mainly with overseeing structures developed and expanding without the input of regulators. This constitutes a barrier to regional trade if this is to be the basis for new investment. As we have seen earlier, there is need for alignment of national regulatory practice to regional trading requirements. If regulators are strictly circumscribed by national imperatives without regard to regional interests there will be little growth of the regional market.

### 5.4.3 Discretion

The last question on in this section dealt with the general scope of discretion allowed to regulators. Three said they had considerable discretion, while two said they had 'some'; none said they had absolute discretion in making decisions.

Comment: The degree of discretion should be a matter of careful judgement; too little can result in detailed legislation and rules that are difficult to enforce. Too little discretion may also be a demonstration of a lack of confidence in the ability of the regulator to produce the right outcomes. But excessive discretion can lead to inconsistencies and can create space for corruption. This may have an impact on the predictability of the regulatory framework, the subject of the next area of the questionnaire.

## 5.5 Predictability

### 5.5.1 Legislation and Licences

A number of questions dealt with the predictability of regulatory frameworks. The formal establishment of the regulators is well grounded in laws that define their functions. In all cases any change would be subject to parliamentary processes. Regulators also rely on formal regulatory decisions and agreement between parties to regulatory instruments as means for changing them. The exception is Namibia where the Minister, using prescribed procedures, has power to change licence conditions.

Comment: The general practice in the region provides the right framework. Unilateral decisions to vary licence conditions should be avoided as they tend to increase the level of perceived investment risk.

### 5.5.2 Tariff Setting

Procedures: In all the countries except Zambia, regulatory instruments set out procedures for tariff reviews.

Timetable: In three of the countries, timetables are also specified, the exceptions being South African and Lesotho

Methodology: Except for Lesotho and Zambia regulatory instruments specify the methodology to be applied during tariff reviews. Until this year (2005) two countries – ECB in Namibia and NECO in Malawi required public hearings to be held for tariff reviews. South Africa will be the third country when it implements amended laws in 2005. In addition, even though not legally required, Zambia has voluntarily established a practice for public hearings. In all countries the definition of the rate base is set out in regulatory instruments, but only Namibia is specific about the permissible rate of return.

Comment: As mentioned in earlier sections, tariff setting is a core regulatory responsibility. The retail tariff fundamentally influences decisions on investments, technical standards and service quality. For the consumer the main concerns are reliability and the cost of service. Even as tariff setting methodology becomes increasingly sophisticated, this is one area where stakeholders must have a real say. The regulator is called upon to search for an optimum line balancing interests that, superficially at least, appear diametrically opposed. In fact there is a good amount of

convergence because the consumer is interested in continuity of service, just as the supplier needs the revenues to recoup investments. The legitimacy of the tariff setting process influences the response of stakeholders to the regulators decisions. Will the consumers pay, and will the utility abide by the obligations embedded in the approval? Stakeholder participation confers legitimacy on the process, and whether voluntary or not, should be standard practice in the region. In general such practices are absent where regulation resides in a government department.

### ***5.6. Transparency***

On the whole, members of RERA have adopted formal transparent procedures that expose their work to public scrutiny. All reported that their major regulatory documents were publicly available. Furthermore, decisions are published and the regulated entities are informed of the reasons for the decisions. This is in spite of the fact in some of the countries, such openness is not prescribed by law. South Africa and Malawi publish the full model, while in Namibia and Zambia a cut down model is made publicly available. (Lesotho is yet to establish its practice).

Comment: This finding is consistent with public involvement in tariff setting processes as reported and commented on above.

### ***5.7 Accountability***

All the regulators reported that their decisions were subject to further redress through formal and informal channels. It follows that regulators' decisions can be reviewed or overturned. The second aspect that promotes accountability is the publication of comprehensive annual reports. It would appear, in any case, that a part of this kind of reporting is a legal requirement.

Comment: The established procedures generally conform to what would be considered as good practice. Nevertheless, appeal procedures that involve political leaders should be discouraged to entrench the rule of law, that is, resolution of disputes through transparent and legally established procedures.

Regulators should consider expanding the annual reports to include other useful, and even essential, information to the general public. This includes information on tariffs and mandatory levels of service.

## **5.8 Participation**

Respondents were asked to comment on the involvement of various classes of stakeholders in the regulatory process. The regulators' responses imply generally high levels of involvement using methods that range from face-to-face meetings to radio and television pronouncements. Regulators involve stakeholders in major decisions like tariff setting, including the approach to be adopted in taking such decisions. One area of concern to regulators is that the communities are generally ill-equipped to participate effectively. In this regard the question of information provision was of interest.

## **5.9. Information**

### **5.9.1 Media**

Other than the recently established LEA of Lesotho, all regulators provide a wide range of information using a variety of channels. Newsletters are published monthly or weekly and three of the four regulators have websites with varying degrees of sophistication and detail. On the other hand, Malawi does not publish a newsletter nor does it have a website. In addition, of the three websites, those of the ECB in Namibia and the ERB in Zambia need to be developed further to cover information like legislation, licences, regulatory decisions, consultation papers and results of consultations.

### **5.9.2 Frequency of Communications**

NER of South Africa and NECO of Malawi make media pronouncements two or three times a year, while ECB of Namibia does so when reviewing tariffs and at other times according to perceived need. At the other end, the ERB of Zambia makes weekly and monthly pronouncements, although one notes that the ERB regulates the whole energy sector, including petroleum products. Each month the ERB announces ruling wholesale prices of finished petroleum products.

Comment: In general, it is good practice to maintain public visibility outside the context of the tariff-setting process, which is often contentious. Regulators need to publicise important issues, like the development of new regulations, to demonstrate the continuity of their concern for public welfare. This will earn them legitimacy and support, both essential for their effectiveness.

Just as important is the continuous sharing of information between regulators and regulated entities. This assists to breakdown suspicion in areas like autonomy of the regulator on one hand and the authenticity of information provided by the utility on the other hand. Additionally, in the context of the novelty of independent regulation in SADC, this interaction enables both sides to learn more about the regulatory process and especially how utilities that are state-owned should adjust to the existence of regulators.

Good regulatory practice requires effective dissemination of information. In particular a regular flow of information to the general public, stakeholders and the political leadership underpins transparency and accountability. Such requirements go beyond the legal stipulations for annual reports. Regulators need to demonstrate that the cost of their existence, borne by stakeholders, is justified, that they are, or can become, a source of knowledge and expertise for the political leadership, and that they have a professional approach to issues of the industry.

### ***5.10 Common Features of Regulation in RERA***

The following are areas where the approach is substantially common, that is, in at least four of the five countries the practice is similar.

- a. Ministers of energy, and in one case the President, appoint the members of regulatory bodies, i.e. commissioners or directors.
- b. The utilities are all vertically integrated, state-owned and established as corporate (or commercial) entities. There is little private-sector participation.
- c. Regulators derive their mandate from primary legislation, and, in nearly all the countries, any alteration to the functions would need parliamentary assent.
- d. The regulators have responsibility for determining prices and protecting the interests of consumers
- e. Changes to regulatory instruments are effected through formal regulatory decisions and mutual agreements.

- f. In three areas, regulators have little or no jurisdiction: (i) arrangements with private sector providers, (ii) International trade and (iii) System expansion.
- g. Transparency is a common principle: regulators publicise major regulatory documents and regulated entities are furnished with reasons for regulators decisions and these are also publicly available.
- h. Regulators do not have absolute discretion over regulatory matters.
- i. Regulatory decisions can ultimately be appealed in courts of law, even if the path varies among the countries.
- j. All regulators publish annual reports.
- k. There are high levels of engagement of the stakeholders in decision making processes.
- l. Regulators provide a varied range of information through a wide variety of channels. The publication of regular newsletters is also a common feature.

There is clearly much that binds members of RERA, but not all of the common features are consistent with good practice, nor are they all supportive of regional trading in electricity.

### ***5.11 Features of difference among members of RERA***

- a. Ministers of energy may remove commissioners or directors of regulatory bodies. In other countries ministers do not wield such power.
- b. In some countries, regulators approve their own budgets, while in others Ministers have the final say.
- c. Appeal procedures vary. In some countries appeals are initially to the Minister, while in others, appeals go directly to courts of law. Some countries have also adopted informal appeal procedures, while others have not.
- d. The regulation of service quality is not common practice. Some regulators do not define or monitor service quality, while others do.
- e. Regulatory instruments for some countries specify procedures for tariff review while others do not. Thus, there is no discernible common approach as regards intent or methodology. The regulatory instruments may or may not specify timetables for reviews.

## 6. Harmonising Regulatory Frameworks.

The African Forum for Utility Regulators has adopted a set of common principles that are of general application. In summary the principles are set out below:

- ❑ Minimum regulation necessary to achieve policy and sector objectives;
- ❑ Adherence to transparent decision-making and due process requirements;
- ❑ Independent or autonomous regulation where possible;
- ❑ Accountability towards government, investors and end-users
- ❑ Non-discrimination when not in conflict with policy prerogatives of government;
- ❑ Protection of investors against physical and regulatory expropriation; and
- ❑ Promotion of competition by limiting anti-competitive behaviour.

In addition, a paper commissioned by AFUR dealt with investment in African utilities. The following summarises areas that investors perceived as being inimical to their interests.

- ❑ Weak and changing regulatory frameworks requiring ongoing 'negotiation' of key regulatory aspects, e.g. adapting to an ever-changing policy reality.
- ❑ Regulators without necessary minimum skills, capacity and competence
- ❑ The right of the government (either directly or through instruction to the regulator) to override regulatory decisions, e.g. to change tariffs unilaterally;
- ❑ Unilateral decisions by the regulator undermining project and investment returns (e.g. if a regulator is created after an investment was made and the regulator wants to 'reopen' or change certain provisions previously agreed); and
- ❑ Lack of clarity about the powers of the regulator, including a too high degree of discretion allocated to the regulator

The interests of AFUR cover all areas of utility service provision. AFUR has therefore distilled generalised best practice principles that are relevant to services that include, for instance, telecommunications and water. While this is relevant to electricity in SADC, there are important differences of industry characteristics, technology and context. Telecommunications increasingly exhibits high levels of competition due to

advances in technology. Accordingly, the scope of economic regulation must recede to give room for self regulation through competition. Another example is water where a major regulatory concern is the entry of low-cost informal distribution mechanisms while monitoring health and quality. In contrast, the electricity industry in SADC consists of vertically integrated utilities and the investments required for participation are considerably high, with long gestation periods. It is especially important that the regulatory principles take serious account of the growth and further development of the Southern African Power Pool.

## ***6.1 Recommended Principles***

The survey has shown that members of RERA have made a good start to implementing internationally accepted regulatory principles and practices. Especially encouraging are the procedures that regulators have adopted in assuring transparency, accountability, information dissemination and stakeholder participation. Regulators are encouraged to continue to expand the scope and sophistication of methods in these areas. Governments need to pay greater attention to legislative frameworks in order to better guarantee regulatory autonomy and to give investors stronger assurance regarding the stability of regulatory frameworks.

### **6.1.1 Independent Regulation**

International experience shows that independent regulation works better than government regulation. The separation between ownership and regulatory responsibilities enables more effective supervision of utilities and minimises the influence of short-term interests at the expense of longer-term benefits. Governments like those of Botswana and Tanzania that have made considerable progress towards establishing independent regulators should be encouraged to do so as soon as possible. They have the advantage that they can draw upon highly relevant experience built up in the region during the last ten years.

We have used 'independent' mainly to describe bodies outside civil service structures. But in fact there is more work to be done to ensure that such independent regulators have the authority and the means to act freely, autonomously.



### 6.1.2 Autonomy

The appointment and tenure of commissioners need to be protected from possible misuse by political leaders. A process that includes ratification by, for example, parliament, helps to appoint properly qualified commissioners. Ratification would generate confidence in the professionalism and expertise of the regulator. Political leaders should also not have discretionary power to remove commissioners even if the exercise of discretion is prescribed by statute. The very existence of such powers will cause unease about the regulator's ability to act freely.

All regulators derive their income mainly from fees and levies that are ultimately borne by the consumer, which is good practice. For one thing it avoids one form of regulatory capture which might happen if the utilities were made to bear the cost of regulation. The basis for such revenues should be known to those who pay – the consumers and the utilities. In this way, the consumer can hold the regulator accountable for its decisions and general performance.

The approval of budgets should be left to the regulator itself, and not entrusted to the Minister. One recognises that in some settings this may contradict standard practice by which all statutory bodies receive funding through the central treasury. However, the growth of the electricity industry will be hindered if the potential investors perceive governments to be too closely involved with regulators. Ministerial approval of regulators' budgets, especially when coupled with other powers, for instance, approval of conditions of service for staff, will give the impression that the regulator is beholden to the government, or the minister – not always the same thing.

### 6.1.3 Regulatory Scope

A core function of regulation is the determination of prices or tariffs. A regulator must determine and implement tariff adjustment without reference to other authorities. One understands the nervousness of political leaders in this respect. Nevertheless, if there is intervention in this function, then an important benefit of independent regulation will be compromised. This is that an independent regulator would be expected to make a

more balanced decision than the political leadership which is subject to many social and political pressures. This also reinforces the need to appoint regulators who command the confidence of stakeholders including the government. When considering tariff adjustments, a competent regulator would take into account, not just the purely economic factors, but also broader societal implications.

Regulators should approach tariff adjustment with the aim of ensuring that the service is sustainable and there are sufficient incentives for system expansion. One can not be too prescriptive as to detail, but there is a lot to be said for methodologies that combine the benefits of input-based models, emphasizing the utility's revenue requirements, and output-based methods that aim to induce behavioural change towards more efficient operations.

The basic principle, one that SADC ministers of energy have accepted, is that electricity companies need to be financially healthy, charging tariffs to customers that reflect the cost of supply while being held accountable for service quality. At the very least, the average tariff should ensure that the utility is revenue sufficient, which does not exclude cross-subsidies within consumer categories.

#### **6.1.4 Industry reform and growth**

Reform of the electricity industry should include elements of the following:

- unbundling, with, at the very least, separate accounting for the constituent elements of the industry;
- mechanisms to allow competition in generation, where feasible; at the very least, steps should be taken to stimulate and encourage Independent Power Producers;
- a neutral entity should coordinate the matching of generation and demand and should institute the necessary technical rules for access to transmission;
- freedom for buyers and sellers to transact with each other in accordance with established rules; and
- a balanced and independent regulatory regime.

When embarking upon industry reforms, non-members of RERA would do well to establish regulatory bodies as early as possible. The regulator should then be an active participant in reforms, enabling the process at every stage to anticipate regulatory concerns. Where the private sector is involved, such anticipation will minimise the risk of subsequent renegotiation of key aspects of agreements.

Governments should be urged to reconsider the marginal involvement of RERA members in new developments in electricity. The reform package for electricity as listed above must include a matching regulatory framework. For instance, investment decisions by utilities and the entry of IPPs have direct impacts on industry regulation generally, particularly on tariffs. The current practice may destabilise regulatory frameworks because of industry contradictions and inconsistencies with established regulatory practice. One notes, however, that SADC countries have generally taken a measured pace of reforms and regulators can and should seek opportunities to influence the course of change.

The form of regulation adopted needs to match the prevailing conditions and requirements of the industry. In some instances a full-fledged regulator may not be feasible due to small industry size. The provision of the full range of expertise and experience may be difficult to attain, and the costs may not be justified. To varying degrees, SADC Member States face such challenges. RERA would do well to explore possibilities for regulatory formats aimed at assisting members to provide cost-effective regulation.

### **6.1.5 Regional Market**

A key benefit of industry reforms in SADC should be growth in cross-border trade and investment. SAPP has established fundamental trading rules and technical requirements for the short-term energy market which, even if small, has potential for growth. But the utility members of SAPP recognise that regulation has an important role in further growth and development of regional trading currently facing constraints that include:

- Poor performance of some utilities, which compromises their ability to transact normal commercial activities;

- Limited capacity of governments to reinforce national grids that constitute bottlenecks to regional transmission capacity.
- Policies that emphasize national self-sufficiency
- The difficulty of financing cross-border transmission interconnections and reinforcement
- Lack of general harmonization of technical codes, specifications and operational standards.

The region needs to harmonize national electricity policy frameworks so that complementarities in resources are reconciled with self-sufficiency goals. Essentially this requires a redefinition of self-sufficiency that puts reasonable emphasis on cross-border supplies. This would enable projects to be ranked on the basis of size and unit least cost. These are often sensitive matters of political judgment, but it is also true that the more the region becomes practically integrated the greater value that will be placed on sustaining the cohesion of the whole. Forward looking policies would bolster regional trade if:

1. Reforms are undertaken to improve industry performance.
2. Transmission networks are opened to fair access by producers and customers
3. National regulatory frameworks are harmonized to standardize practices in technical and economic requirements.

## ***6.2 Strategies for Harmonization***

One thread runs through the principles that guide RERA's activities: the integration of the electricity market in SADC. The development and adoption of regional principles of regulation is in the service of the overall aim of regional market integration. RERA's strategy for disseminating the principles and fostering market integration must be informed by the environment that prevails in the region.

### **6.2.1 Positive Factors**

- The Southern African Development Community shows signs of moving towards greater integration. For instance, central banks have begun to debate a common currency. Closer integration engenders an environment for harmonization of policies and strategies in all economic sectors.

- RERA is growing in experience and membership. The experience of older members is at the disposal of those newly established and the increasing membership will make it easier to propagate common regulatory principles. The work of the various subcommittees of RERA is of special value.
- The Southern African Power Pool is an operating energy market with growing experience in market operation. The cooperation among regional utilities bodes well for further enhancement of the market.
- The Southern African Power Pool is positively disposed to cooperation with RERA. The recognition among SAPP members that RERA can help to further develop energy market operations eases the introduction of region-wide principles of regulation.

### 6.2.2 Some adverse factors

Although the degree of integration in SADC continues to grow, it is a long way before any form of regional administration can be seriously considered. The formation of a regional regulator with legally enforceable powers is not immediately feasible, but is an end to which RERA should work. Other issues to note when mapping strategies include the following:

- Not all countries have established independent electricity regulators. Communication with regulators inside government departments poses some bureaucratic difficulties.
- Transmission networks are not subject to independent regulation. Isolation of the management of transmission networks would enable regulators to harmonize the access rules in the interest of internal and cross-border trade in electricity.
- With the passage of time, SAPP practices may become so entrenched as to pose a barrier to the later adoption of improved standards of practice.
- RERA only has ministerial recognition in SADC. Its status, and therefore its authority, is below that of SAPP whose authority derives from an inter-governmental agreement entered into by heads of state.
- Many members of RERA were established very recently and some are just coming on board. Therefore regulators are still on a steep development curve for regulatory capacity and are unprepared for the challenges of international trade.

- Regulators' experience to date is mainly with the state-owned vertically integrated state utilities found in SADC. Regulators have to anticipate the advent of unbundled structures and the possible entry of the private sector.

### 6.3 Strategies

As can be seen RERA has a dual challenge: to disseminate good and effective regulatory principles and to promote conditions that will enable growth of the regional market. The approach should be to focus attention on areas that constitute barriers to more effective regulation and to an enhanced regional market. Ultimately RERA should work towards a regional regulator whose structure and powers recognise the sovereignty of SADC member states. In this endeavour RERA will need to work with a number of external actors, principally the following:

- National Governments
- National Regulators
- The Infrastructure and Services Directorate of SADC
- The Southern African Power Pool

The issues to be tackled with each of the stakeholders should not ignore that there are inevitable overlaps and the listing is suggested only as a working framework.

#### 6.3.1 National Governments

1. Establishment of independent regulation.
2. Review and adoption of primary legislation that is consistent with accepted regulatory principles focusing on autonomy and accountability of the regulator.
3. Review and adoption of the scope of regulation to include determination of tariffs, a role in new industry developments and oversight of international trade.
4. Reform of the electricity industry focusing on the functional separation of transmission networks and fair access by suppliers and customers.
5. Support for the establishment of a regional regulator.

#### 6.3.2 National Regulators

1. Capacity building for technical staff in economic regulation and regulatory processes, including community outreach and community participation.

2. Orientation of commissioners and directors to areas like the electricity industry, regulators' principal functions, commissioners' roles and the meaning of autonomy.
3. Advocacy for industry reform, review of legislation and formation of a regional regulator.

### **6.3.3 SADC**

1. Protocol on Regional Electricity Regulation
2. Unbundling of Transmission Networks

### **6.3.4 Southern African Power Pool**

1. Unbundling of transmission networks.
2. Support for regional regulation.
3. Alignment of national tariff methodologies to regional market requirements.
4. Harmonisation of technical operating standards among member utilities.

## 7. Summary of Regulatory Principles

Whether it resides in government or outside, regulation exists to advance the objectives of government policies. In the SADC region, the policies centre on increasing access and promoting economic development. Strategic approaches in individual countries vary in emphasis mainly due to differences in political climates and the legacy of institutional and legal frameworks. Nevertheless, there is a growing trend towards the reform of power sectors to improve operational and financial performance and to draw in the participation of the private sector in investment and management. In nearly all cases such reforms entail the establishment of statutory regulatory bodies outside civil service structures. Such independent regulation is intended to create a stable and predictable environment for enduring reforms and especially for stimulating long-term private investment. As industry reforms have progressed, the membership of RERA has grown.

In fulfilment of the SADC protocols, both RERA and SAPP seek to promote the growth of an integrated market in electricity, one in which members can use the diversity of their combined resources to enhance the security of electrical supplies in their respective countries. In time, an integrated market should provide growing opportunities for customer choice, particularly for large customers, which will exert pressure on prices. Clearly the region has some way to go before it can attain a significant level of electricity market integration. However RERA and SAPP constitute a firm foundation for future growth. To build the market, member states need to minimise differences of approach to industry management. In particular, practices relating to tariff setting and access to transmission networks should progressively be harmonised. The increasing number of independent regulators provides a portent instrument for fulfilling these requirements. It is through harmonised regulatory frameworks that the region can achieve a fully functioning electricity market in SADC.

The following are recommended as principles of electricity regulation in SADC.

### 7.1 Institutional Framework

As the regulator exists to carry out government policies in the electricity industry the intent of such policies should be clear. The regulator needs to formulate a framework



that furthers policy objectives. Secondly the establishment of the regulator should be accompanied by a clear, preferably written, outline of the expected role of the regulator as distinct from the civil service structure. It is not sufficient to say government will be responsible for policy and the regulator for implementation. There are many areas of operational detail that, without clarity, are the cause of ambiguity and tension.

7.1.1 The regulator should, wherever feasible, be established as an autonomous body outside civil service structures.

7.1.2 The regulator should be established under principle legislation enacted by Parliament specifying, amongst others, its functions, powers, sources of funding, and appointment procedures

## 7.2 *Autonomy*

A regulator will be credible and legitimate if it is perceived to be neither under the direction or control of government, nor excessively influenced by the utilities through information asymmetry or financial muscle. The Commissioners have to recognise that autonomy cannot be guaranteed by legal provisions alone; it requires their vigilance, maturity, integrity and acumen to gain the legitimacy of all and to keep encroachments at bay. A voluntary publicised code of ethics will be of assistance to commissioners; it will also help the public to appreciate the sensitivity of the regulator's functions.

### *Funding*

7.2.1 The regulator should be funded through licence fees levied on consumers and collected directly from utilities. The practice of turning over such fees to the central treasury and then disbursing them to the regulator diminishes the autonomy of the regulator because it provides government an indirect but effective means to influence the work of the regulator. It also reduces the effectiveness of the regulator by introducing financial uncertainty as the treasury may find reason to divert a part of the collection, and the fees then assume the character of an additional general tax.

7.2.2 The law must provide for strict accountability of funds through annual reporting and regular independent auditing of books of accounts. The law should provide guidelines for over-collection and under-expenditure with the aim of keeping the burden on the consumer to the barest minimum. As far as possible

the regulator should demonstrate value to the government and to the paying consumer.

- 7.2.3 The regulator's annual budget should be approved by its Board or Commissioners, and not by the Minister. The involvement of the Minister and civil servants in the budget approval places the Board or Commissioners in a subservient position. Viewed as a planning document, the budget should be left to the professional jurisdiction of the regulator and not become a negotiated outcome of a broader agenda.
- 7.2.4 The conditions of service for the CEO and other regulatory staff should be determined by the Commission or Board. One important reason for establishing independent regulation is to attract well qualified and experienced staff to provide effective regulation and to provide a safeguard against manipulation by utilities. Their involvement in approving conditions of service for regulators places civil service staff in an invidious position, with the result that an important objective of independent regulation may be jeopardised.

*Appointment of Commissioners or Members*

- 7.2.5 Members of the Commission or Board should be appointed in their individual capacities based on their professional expertise, experience, maturity and integrity. Generally they should be persons who have achieved eminence in their professions and in the community at large. This is an important step to establishing a regulator with the capacity to act autonomously and with authority.
- 7.2.6 The Minister's powers to appoint Commissioners should be subject to ratification by an independent body, usually Parliament. The reason is that such ratification acts as a check on the competence and suitability of the nominees; because of its transparency also gives an important boost to the perception of the regulator as an independent body. Detailed procedures about the identification of the nominees are not that important provided that the membership as a whole covers the essential areas of expertise, generally engineering, law, financial analysis and possibly economics.
- 7.2.7 The tenure of office of Commissioners or Members should be guaranteed, subject only to extraordinary circumstances like death, insanity and criminal conviction. This makes it doubly important to scrutinise appointments carefully. The Minister should not have powers to withdraw members once they have been appointed. The Commissioners or Members should be free of ministerial fetters on the decision making process. To provide for continuity, it is good practice to

stagger the terms of the members, thus avoiding major discontinuities that can lead to regulatory inconsistency

- 7.2.8 In the United States where the political system is essentially bipolar, one often encounters rules about the mix of political affiliation in the Commission's membership and of the Chairman. Such entrenched bipolarity is yet to emerge in most countries of the region. Therefore, the Commission or Board should be left to elect its own chairman. The direct appointment of the Chairman by the Minister or the Head of State may carry the damaging impression that he/she has a political agenda.

### 7.3 Mandate

The mandate of the regulator should be enshrined in primary legislation and should specify a minimum set of functions for the regulator and the extent of its authority.

- 7.3.1 Noting that the retail competition is still some way off, regulators should be responsible for determining tariffs according to publicised methodology and in accordance with prescribed procedures. It helps if such procedures are contained in subsidiary legislation covering such matters as the frequency and timing of reviews and the allowable rate of return. Using subsidiary legislation allows some flexibility to review the details. At the same time it avoids a *carte blanche* for the regulator as this could cause unpredictability.
- 7.3.2 The characteristics of the industry – structure, size, ownership – determine the extent of regulation. For the time being the utilities are mostly vertically integrated and state-owned, and suffer from well-documented ills of such arrangements. The regulator should use output-based regulatory methodologies that provide incentives for good performance especially in the areas of labour productivity, investment efficiency and overall cost containment.
- 7.3.3 The regulator should require utilities to maintain separate accounts and, wherever possible, separate management, for generation, transmission and distribution. In so doing, the regulator can focus attention on the rules of open access to transmission and the transaction costs. This is an important measure for IPPs and especially for the growth of regional trade. In at least two countries, South Africa and Zimbabwe, a degree of unbundling is taking place, a positive trend that will facilitate transparent management of transmission networks.

## 7.4 The Regulatory Process

Five principles have evolved as the foundation of good regulatory practice: transparency, accountability, consistency, proportionality and targeting. To these we should add regulatory impact assessment.

### Transparency

- 7.4.1 The regulator should provide all stakeholders complete information about its establishment, procedures, regulations, decisions and work in progress. The public should also have information about lodging complaints and appeals. The information should be disseminated effectively using all available electronic and print media.
- 7.4.2 The regulator should maintain a constant flow of information to the public on, for instance, licensed entities, regulations, conditions of licences, quality of service, and the obligations of utilities and customers
- 7.4.3 The regulator should use the most appropriate and effective means of communication to engage stakeholders in the development of proposals for regulations. This will ensure that such proposals benefit from the views and expertise of the parties concerned.
- 7.4.4 Regulations should be in clear straightforward language and should provide ample time and opportunity to comply with the changes.
- 7.4.5 The regulated entities should be made aware of their obligations and the consequences of non-compliance.
- 7.4.6 The regulator should adopt participatory procedures for matters concerning tariff design and review. Public meetings on tariff design and formal public hearings for rate reviews are good practice. The regulator should also take measures aimed at the active and meaningful participation of the general public through provision of relevant information, guidance on procedures and by mounting general educational programmes.

### Accountability

- 7.4.7 The regulator should be open to public scrutiny and should at all times justify its decisions. No matter how small the financial burden on individual consumers, the regulator has an obligation to demonstrate value.
- 7.4.8 The regulator should ensure that complaints and appeals procedures are clear, well publicised and are fair, effective and accessible.

- 7.4.9 The regulator should give information about its accountabilities to the government, the legislature and to the public.
- 7.4.10 Mandatory annual reports should provide not only audited accounts, but also a comprehensive report on the year's activities like development of regulations, dispute resolution, rate reviews, and licensing.

### **Predictability**

- 7.4.11 Regulation should avoid excessive discretion in order to provide a stable and predictable environment to those being regulated.
- 7.4.12 Regulations should be applied consistently to all; changes to existing practice must go through a formal process of review and new conditions must affect everyone. The regulator should avoid knee-jerk reaction to unforeseen events in the industry.
- 7.4.13 General regulations on safety must be reconciled with similar provisions that may exist in related areas like general health and safety or environment.

### **Proportionality**

- 7.4.14 Remedial measures should be proportionate to the perceived risk and to the costs of compliance. Avoid the sledgehammer approach.
- 7.4.15 Mandatory regulations should be used only when other approaches have been considered, including educational programmes. The aim should be for the regulator to intervene only when it becomes absolutely essential, thus minimising costs of regulation.

### **Targeting**

- 7.4.16 The force of regulations should focus on the problem and should not impact unrelated activities.
- 7.4.17 Wherever possible, and especially in relation to the design of tariffs, the regulator should focus on outcomes, leaving the utility the flexibility to devise ways of meeting the set targets.
- 7.4.18 Regulatory measures should be regularly reviewed to check their continuing relevance or effectiveness.

## Regulatory Impact Assessment

7.4.19 Regulators should assess and quantify the costs and benefits of proposed new regulation and should endeavour to periodically review existing regulations.

7.4.20 The administrative burden of regulation should be consistent with its perceived importance. This calls for the elimination of unnecessary red tape.

## 7.5 Regional Integration

The harmonisation of the general regulatory principles outlined above will be a major step to the next level of market integration focusing on similar approaches to the internal pricing of electricity and moving towards transparent management of transmission lines that are at the heart of the regional market.

7.5.1 Regardless of the tariff methodologies adopted in individual countries, there should be a regional migration of the electricity price to a cost-reflective level. Regulators should adopt a uniform approach to the determination of the cost of supply.

7.5.2 Regulators should establish basic common rules for the management of transmission networks providing for an open access regime, transparent management and a common approach to transaction costs.

## 7. Conclusion

A fundamental shift needs to occur in the work of the RERA. Thus far RERA has concerned itself primarily with providing a forum for the sharing of information and experience and encouraging the creation of independent regulators in the region. RERA now needs to gear itself for more active participation in the growth of the integrated regional market. The starting point is to adopt similar principles and methodologies of internal regulation. The establishment of formal independent regulatory bodies is desirable but not essential. Alternatives should be considered where the cost of formal regulators may be considered disproportionate to the derived benefits. Nevertheless, however the regulator is established, they should work in harmony with commonly held principles, such as those suggested above.

Increasingly RERA should work towards growing the regional electricity market by encouraging common rules of access to transmission lines. This will encourage private participation and will promote industry efficiency through competition. There is much that is common in the objectives set for electricity industries in member states of SADC and there is much that can be achieved by a harmonized approach to regulatory practice.

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