

1.0 Introduction

CROSS-BORDER cooperation in the Southern African Development Community (SADC) power sector is not a new phenomenon. Cooperation among Member States began as early as 1958, with the construction of a line between Nseke in the Democratic Republic of Congo (DRC) and Kitwe in Zambia to supply electricity to the Zambian copper mines.

This laid the foundation for bilateral cooperative projects in the power sector and coincided with the construction of Kariba Dam in the late 1950s with its associated hydroelectric power stations (one each in Zambia and Zimbabwe).

Regional cooperation in the power sector has expanded over the past 50 years, especially during the last 15 years as southern Africa moved to restore energy self-sufficiency. The SADC region has experienced unprecedented economic growth during the last decade but investment in electricity infrastructure has sadly lagged far behind regional demand, necessitating greater regional cooperation to share the available power.

Cross-border power trading in SADC is facilitated by the Southern African Power Pool (SAPP) formed in 1995. The trading allows countries to buy and sell electricity through an existing network of transmission lines and relay substations. This enables the exchange of power from those countries that are energy resource-rich to those that suffer energy vulnerability.

Power trading will always be a priority among SADC Member States because of the uneven distribution of electricity resources within the region. There is a large reserve of low-cost hydroelectricity in the north of the region, especially the Inga reservoir in the DRC, the Cahora Bassa reservoir in Mozambique and Kariba Dam on the border between Zambia and Zimbabwe. The region also possesses cheap hydropower from other sites on the Congo and Zambezi rivers and large reserves of cheap coal in South Africa and Mozambique.

2.0 The present situation

SADC power trading platforms have evolved since SAPP's formation. During the pool's early years, trading was confined to bilateral contracts among member utilities. The bulk of cross-border trading in electricity is governed by fixed co-operative bilateral contracts, which account for between 90 and 95 percent of total regional energy trade.

The contracts generally cover a period from one to five years although they could be longer. They provide for assurance of security of supply but are not flexible to accommodate varying demand profiles and prices. The pricing of electricity depends on the consumption period – peak, standard or off-peak.

Recognising the importance of regional electricity trading, the SAPP then operated the Short Term Energy Market (STEM) from 2001 until 2007 when the region ran out of surplus capacity. The STEM market currently caters for about five percent of SADC energy trade. It comprises of daily and hourly contracts, mainly covering off-peak periods.

STEM was a precursor to the full competitive electricity market that was successfully developed for the region in the form of the Day Ahead Market (DAM). With support from Norway, the development of the DAM started in 2003 and the trading platform was delivered towards the end of 2006. From February 2007, the SAPP has been running market trials that enabled the SAPP members to gain much-needed experience to operate such a market. This market went live in December 2009.

The auction-type market allows for sellers and buyers to input their requirements for trade in the power pool a day ahead and trade or bid for excess capacity on a real-time basis.

It is hoped that the creation of a competitive market will help to optimise the use of regional electricity resources, assisting in determining the correct electricity price in the pool and sending signals for investments and real time utilization of existing assets.

It is also worth noting that the SAPP membership is no longer a preserve of national power utilities following the amendments to the



Transboundary energy security

Legal and Institutional Framework for E

Inter-Governmental Memorandum of Understanding (IGMOU) and the Inter-Utility Memorandum of Understanding (IUMOU) that allow Independent Power Producers (IPPs) to become members of SAPP. IPPs have taken advantage of this positive development to become members of the SAPP.

3.0 Institutional Arrangement

A unique feature of SADC's power trading architecture is that SAPP is based on agreements rather than on law. The pool was formed after the signing of the IGMOU by a majority of the SADC members. The IGMOU and its subsidiary agreements – the IUMOU, the Agreement between Operating Members and the Operating Guidelines – have now been signed by all the SADC members and their national power utilities.

The SAPP agreements incorporate the SADC Treaty, the SADC Tribunal, the SADC Energy Ministers and the Technical and Administrative Unit. The IGMOU establishes that the SAPP agreements must be interpreted in a manner consistent with the SADC Treaty and that the final and binding dispute resolution forum is the SADC Tribunal.

The SAPP is organized under an executive committee, which acts as the board of directors of the pool while a management committee oversees the administration of the pool.

Three subcommittees serve under the direction of the management committee: the planning subcommittee (which focuses on reviewing wheeling rates annually and developing an indicative SAPP expansion plan every two years), the operation subcommittee and its associated coordination centre as well as the environmental subcommittee.

The coordination centre is based in Harare, Zimbabwe, and is responsible for administering pool monitoring activities, carrying out operating and planning studies, determining transfer limits on tie-lines, administering a regional database, disseminating maintenance schedules, and providing technical advice.

The SADC Energy Ministers are responsible for resolving major policy issues in the SAPP and for admitting new members to the pool. The SADC Secretariat's Technical and Administrative Unit provides secretarial and other services to the SAPP executive committee, acting as liaison to SADC and seeking funding according to the recommendations of the executive committee.

Another important institution in the SADC energy sector is the Regional Electricity Regulators Association of Southern Africa (RERA). Formed in 2002 by the Ministers of Energy, the association's mandate is to harmonise the regulatory framework as well as provide an enabling environment for investment in the region's power sector.

4.0 Regulatory Environment

Although a regional energy market is operational through the SAPP, power trading within SADC presently takes place between utility members only.



Electricity Trading in SADC

Nine SADC Member States so far have national regulators which oversee energy issues in the respective countries and are members of RERA. These are Angola, Lesotho, Namibia, Malawi, Mozambique, South Africa, Tanzania, Zambia and Zimbabwe.

However, as the national regulatory agencies develop and begin to assert their authority there is a risk that they have not been sufficiently attuned to the needs of the regional market. 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.

RERA has responded to regulatory impediments to cross-border power trading by developing "regulatory guidelines" that were approved by the SADC Energy Ministers in April 2010 to ensure that efficient cross-border deals are not constrained by unclear or complicated processes for making regulatory decisions. More specifically, the "regulatory guidelines" seek to:

- Clarify how regulators will carry out their powers and duties in regulating cross-border electricity transactions in order to minimise regulatory risks for power investors and electricity consumers;
- Promote efficient and sustainable cross-border electricity transactions that are fair to selling and buying entities, are consistent with least-cost sector development and help to ensure security of supply; and
- Promote transparency, consistency and predictability in regulatory decision making.

The regulatory guidelines represent a first concrete step towards harmonisation of national regulatory systems to encourage large crossborder transactions by ensuring that regulatory arrangements in the region are compatible.

The regulatory guidelines will only apply to long-term cross-border transactions. However, it is expected that regulatory review of small crossborder transactions (for example, those involving less than 20 megawatts (MW) of power and having agreements providing for trading for less than one year) would be more streamlined and less extensive than provided for in the guidelines. The rationale for focusing on larger and longer term transactions is that such transactions are likely to have a more direct impact on decisions to invest in new generation and transmission facilities.

Similarly, given their focus on major, long term crossborder transactions, the RERA guidelines do not apply to trading on the SAPP DAM.

They are also written in the form of principles, rules and procedures that could be adopted for reviewing major, long term imports and exports of power. However, as a RERA document, they do not have a formal legal status over the decisions of individual national regulators. To give the regulations legal effect, national regulators will need to implement the guidelines in their respective countries.

5.0 Energy Trade Pricing

A key element in the operation of the SADC power pool is the SAPP pricing arrangement, set out in thirteen detailed schedules in the operating agreement. The schedules cover four broad types of transaction: firm power contracts of varying duration; non-firm power contracts of varying duration; mutual support contracts such as the operating reserve, emergency energy and control area services; and scheduled outage energy, energy banking and wheeling.

With support from Sweden, SAPP has developed the Ancillary Services and Transmission Pricing System whose implementation will be phased-in over a 3-year period starting in 2011. Ancillary services are essential to the reliability and security of power system operation in any competitive electricity market environment.

6.0 Emerging Issues

There are moves in some countries, particularly South Africa, to establish independent system operators (ISOs), separate from the national utilities. In most cases, the national utility is the generator of electricity and transmitter and distributor thereof. South Africa has said the procurement of electricity will in future be done by an independent and neutral entity. This is an important step to level the playing field for private producers of electricity because Eskom's "single buyer" position has up to now been a major deterrent to new investment in the generation market.

The lengthy negotiations for power purchase agreements (PPAs) have also been seriously affecting the speedy implementation of some of the important projects, thus affecting electricity trading in the region.

Reconciling regional versus national plans or interests is a challenge as some countries are placing more emphasis on policies of self-sufficiency rather than regional pooling.

7.0 Conclusions and Recommendations

7.1 Conclusions

Power trading in the SADC region has come a long way since the early days of regional cooperation in the electricity sector. A lot more, however, still needs to be done to improve the legal and regulatory environment.

In addition, the need for a consistent approach to transmission access is becoming apparent as more IPPs express interest in investing in the region.

7.2 Recommendations

- There needs to be periodic reviews of regulatory compatibility as the SAPP evolves.
- National-level regulatory statutes should be carefully drafted so that the agency jurisdictions are properly defined, directed and restrained in order to avoid regulatory obstacles to trade.
- The monopolistic and anti-market role of most national utilities will need to be reviewed if the SADC power trading market is to deliver energy security to the region. r

This policy brief is published by the Southern African Research and Documentation Centre (SARDC) with support from the Norwegian Ministry of Foreign Affairs through the Embassy in Maputo, Mozambique, as part of the project Communicating Energy in Southern Africa. The policy brief and related information on energy are available in the Virtual Library for Southern Africa at www.sardc.net Knowledge for Development.