Policy Options to Promote Investments in Renewable Energy Services and Sources

The Southern African Development Community (SADC) has put in place an ambitious plan for potential funders to invest in its energy sector. One of the areas that is attractive for investment is Renewable Energy (RE) and Energy Efficiency (EE). This is because RE services and sources are generally affordable, secure and reliable, as well as less polluting to the environment compared to fossil energy. This policy brief, therefore, outlines some of the major policy considerations that SADC could consider to attract private investment in the energy sector, with special focus on RE.

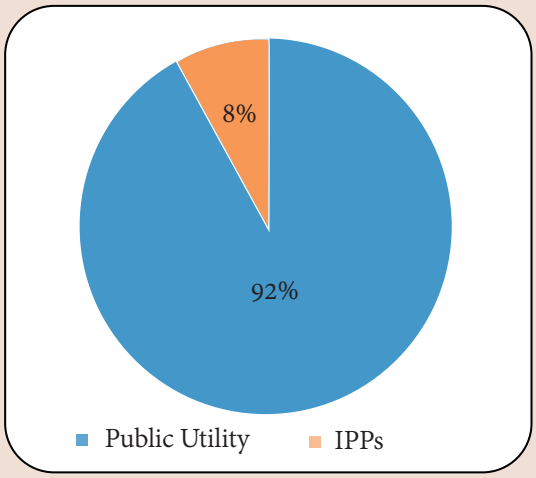
A Case for Public-Private Partnership

While investment in energy within southern Africa is growing, the current levels are inadequate to meet future demand. According to the region's Renewable Energy and Energy Efficiency Strategy and Action Plan (REEESAP), the demand for electricity in the region is growing at an average of three percent per year. Furthermore, the region's economy has grown at an average five percent, while the rate of urbanisation has averaged six percent since 2016. This growth has increased demand for energy and put pressure on SADC Member States to invest in its energy sector.

In this regard, there is need for SADC to take critical steps to strengthen its capacity to attain energy security by involving other stakeholders such as the private sector in boosting energy generation and supply. For example, private sector participation in the power sector has largely been through Independent Power Producers (IPPs), which are institutions that own or operate facilities for the generation of electricity for use primarily by the public. However, as noted in Figure 1, the SADC region is still overwhelmingly dependent on government-owned state utilities for power generation.

It is recognised that private sector investment in the SADC energy sector will be more attractive when there are reasonable returns on investment. The emergence of policy concepts such as cost-reflective tariffs, Feed-in Tariffs (FIT), net metering and auctioning of power supply from IPPs as well as Power Purchase Agreements (PPAs), has led to an increase in energy investments in other regions, and have the capacity to have the same effect if implemented in SADC.

Public-Private Sector Power Generation



Source: RERA Publication on Electricity Tariffs 2014

Cost-reflective Tariffs

Cost reflective tariffs depict the true costs of producing energy or electricity generation at the time of use. Given that the investor expects a viable return on energy projects, then cost-reflective tariffs will attract private capital. In addition, since consumers pay the true cost of energy, it also means that this tariff option encourages the adoption of energy efficient practices.

Many utilities in the SADC region charge consumers less for a unit of electricity than what it costs to produce despite agreements to adopt cost effective tariffs since 2004. In July 2015, the

SADC Energy Ministers reaffirmed their commitment to ensure that the region reaches full cost-reflective tariffs by 2019. A 2014 survey conducted by the Regional Electricity Regulators Association (RERA) showed that the region's energy sector is largely not self-sustaining due to subsidies. The following Table shows the status of cost-reflective tariffs in SADC.

Progress Towards Cost-Reflective Tariffs in SADC

Member State	Are current tariffs sustainable and sufficient to provide incentives for new investment?	Are current tariffs able to provide incentives for efficient use of electricity?	Has a target date been set for achieving cost reflectivity?	Is there an approved plan to achieve cost-reflective tariffs target?
Angola	×	×	√	√
Lesotho	√	×	×	×
Malawi	×	×	√	√
Mozambique	×	×	×	×
Namibia	√	√	√	√
South Africa	√	√	√	×
Swaziland	×	×	×	×
Tanzania	√	√	×	×
Zambia	×	×	√	√
Zimbabwe	×	×	×	×
Total	4	3	5	4

Source: RERA Publication on electricity tariffs 2014

As shown in the Table, regulators from only four member states are certain that their tariff structures are sufficient and sustainable enough to provide incentives for new investment. These are Lesotho, Namibia, South Africa, and the United Republic of Tanzania. The challenge for most SADC Member States is the need to strike a balance between the viability of energy projects and the affordability of products for consumers, particularly vulnerable households. An option is to adopt a gradual approach until cost-effective tariffs are attained.

Multi-year Tariff Frameworks

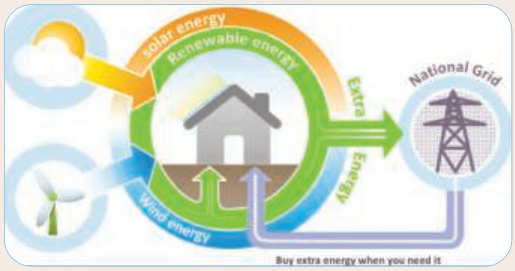
A multi-year tariff framework is defined as a framework for regulating the licensees over a period of time wherein the principles of regulating the returns of licensees and the trajectory of individual cost and revenue elements of the utility are pre-determined. It provides clarity on the rules to be applied over a pre-defined future time period while seeking to eliminate the control aspects of regulation and replacing them with a system of incentives and penalties. In this way, all stakeholders are made aware of the outcome of various actions or events for the pre-defined future time period, and are able to plan accordingly.

In relation to the SADC region, the adoption of multi-year tariffs could help to provide important price signals and tariff transparency to investors and developers. The majority of countries in SADC do not have a multi-year tariff regime in place. Malawi, South Africa, Swaziland, and Tanzania are the only countries that have instituted a multi-year tariff methodology in some format. Of these, South Africa has the longest duration of application, currently set at a five-year determination horizon. Malawi operates with a four-year methodology, Tanzania with three years, and Swaziland with two years.

Feed-in Tariffs

A Feed In Tariff (FIT) is a policy mechanism designed to accelerate investment in renewable energy technologies. It achieves this by offering long-term contracts to renewable energy producers, based on the cost of generation of each technology. Rather than pay an equal amount for energy, lower cost technologies such as wind power, for instance, are awarded a lower price per-kWh price than technologies that cost higher, such as solar PV. The illustration shows how FIT-based energy projects can help to provide additional energy into the national grid.

How Feed in Tariffs Work



Source: The Providence Environment, 2012

Experiences from other countries in the world suggest that a well-designed Feed In Tariff can generate rapid growth for targeted renewable energy projects, by creating conditions that attract capital to those particular sectors. In 2015, Namibia started the Renewable Energy Feed In Tariff

programme for solar PV, wind projects and biomass. The programme targets investments in energy projects with a generating capacity of between 500 kW to five MW on completion.

Feed-in tariff support is awarded for periods of up to 20 years and energy prices are paid for in Namibian dollars, with the price indexed to the US dollar at the prevailing exchange rate. Under this FIT programme, Namibia is set to deploy 30 MW of biomass, 60 MW of solar PV and 60 MW of wind. Tanzania is also running FIT initiatives, for small hydropower stations with less than 10 MW generating capacity. Work is currently in progress to introduce FIT programmes in Botswana, Mozambique and Zimbabwe.

Net Metering

This policy is designed to attract private investment in RE by allowing a two-way flow of electricity between the electricity distribution grid and customers that have their own generation systems. The concept has worked well to promote investments in solar PV solutions in households where net metering has been introduced. The customer pays only for the net electricity delivered from the utility (total consumption minus self-production). Distributed generation combined with net metering can be an important factor in addressing affordability, reducing electricity costs and, increasing the availability of supply.

In addition, net metering tends to encourage the use of renewable energy sources in more residential activities, thus reducing the burden on the system during peak demand periods. Net metering is an attractive alternative or complement to a FIT for smaller facilities such as household-level solar PV, as it does not require detailed contracts or financial analysis. Only two SADC Member States have instituted net metering – Mauritius and Namibia. Mauritius has established a net metering scheme with an overall cap of five MW and a lower threshold of 50 kW for independent generators. In Namibia, net metering is limited to facilities with a generation capacity of 500 kVA or lower. This will therefore target renewable energy installations from small businesses and households. South Africa and Zimbabwe are planning similar programmes.

Public Competitive Bidding

The public competition bidding or tender system is a procurement mechanism by which public authorities solicit bids for a given amount of renewable energy supply or capacity, generally based on an agreed price. Sellers offer the lowest price that they would be willing to accept, but typically at prices above standard market levels. Power purchase agreements are then concluded once the bidding process is complete.

South Africa has adopted this approach for grid-connected solar and wind projects through the Renewable Energy IPP Procurement Programme (REIPPPP). The country intends to procure energy from IPPs over five tender or competitive bidding rounds. Limits were set on the total capacity to be procurement from each type of energy. For example, 75 MW was for a PV project, 100 MW for a concentrated solar project and 140 MW for a wind project. Such restrictions were meant to encourage competition among the potential bidders and promote as many different types of renewable power generating technologies as possible.

Since its inception in 2011, four bidding rounds have been run with over 5,000 MW having been procured, and at least 1,860 MW are already on line. As the renewable programme has rolled out, the cost of renewable energy, particularly solar PV, has fallen. This price reduction is attributed to increased competition in successive bids coupled with the gradual decline in the international prices of renewable energy equipment. The rising electricity prices for fossil fuels have also led to favourable cost comparisons with renewable energy. The success of the South African competitive bidding process is being hailed as a model that other Member States may consider for adoption.

Power Purchase Agreement

A power purchase agreement (PPA) is a legal contract between an electricity generator and a power purchaser, lasting between five and 20 years. Such agreements play a key role in the financing of independently owned electricity-generating assets. The seller under the PPA is typically an IPP, an entity which generates and supplies power to the state utilities or directly to the end users. The IPP is not a state utility, but can be part of a Public Private Partnership entity, together with a state utility.

World Bank guidelines show that PPAs can be used for power projects where the projected revenues of the project would otherwise be uncertain and so some guarantee as to quantities purchased and price paid are required to make the project viable. In addition, they also work where there is a possibility of competition from cheaper or subsidised domestic or international competition. In such instances, the PPA provides some certainty of being protected from such competition.

Power purchase agreements may also work where a few major customers take the bulk of the output. For example, a government utility may be purchasing the power generated by a power plant. The government will want to understand how much it will be paying for its power and that it has the first call on that power. The project company will want certainty of revenue and the purchaser wishes to secure security of supply.

In Tanzania, the Energy and Water Utilities Regulatory Authority has developed standardised power purchase agreements and process guidelines that have assisted a number of developers to conclude agreements with the national power utility, Tanzania Electricity Supply Company, to supply power using biomass, mini-hydro and solar power plants. PPAs also tend to provide the contractual framework for other energy development initiatives such as feed-in-tariffs, net metering and public competitive bidding.

Conclusion

The SADC region needs to grow its investments in the energy sector in recognition of the important role that energy plays in economic development. As the economies, populations and urbanisation rates of Member States continue to grow, so will the demand for energy. While there has been significant investment in the energy sector to date, the level is inadequate to meet future demand. SADC is therefore encouraging greater private sector participation in energy investments.

The involvement of private capital requires a favourable investment climate which guarantees a fair return on investments. Member States could therefore make use of new policy concepts which include cost-reflective tariffs, power purchase agreements, feed-in-tariffs, net metering and public competitive bidding. The region certainly has a great opportunity to leverage new policy concepts in order to promote additional investments in RE and EE projects.

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THIS POLICY BRIEF is produced by SARDC through the project on Communicating Energy in Southern Africa supported by the Austrian Development Agency (ADA)/ Austrian Development Cooporation (ADC). Responsibility for the content of this brief lies entirely with the authors. The information and analysis do not reflect the official opinion of the ADA/ ADC.

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