

SAPP – Needs Assessment Study on Energy Efficiency

Background

The Southern African Power Pool (SAPP) was created in August 1995 by the Southern African Development Community (SADC) with the objective of ensuring reliable and affordable electricity supply for the consumers of each of the SAPP Members.

In recent years there has been a power supply deficit in southern Africa, in part due to increasing demand caused by economic growth and increased electrification in the region. The additional generation infrastructure required needs significant capital investment, have long lead times and are prone to delays. Implementing energy efficiency measures is quicker and more cost effective than capacity expansion.

In light of this, the SAPP requested the European Union Energy Initiative Partnership Dialogue Facility (EUEI PDF) to support and conduct a Need Assessment Study on Energy Efficiency in the region.

Strategic Targets

- ▶ Strategic goal: evaluate energy efficiency and load-shifting measures in terms of their suitability for regional implementation and co-ordination by SAPP. Propose projects for regional implementation.
- ▶ Operational goal: the development of a competitive electricity market in the SADC region. This has been complemented by the study on the scope for energy efficiency improvements in terms of defining relevant energy efficiency projects.

Region	Southern African Development Community (SADC)
Project Partner	SAPP Coordination Centre
Project Manager	Ingmar Stelter, Alejandro García
Term	January 2012 – August 2012

Strategy Actions

A four-country visit (Namibia, Tanzania, Zambia and Zimbabwe) was conducted to obtain information on current and planned energy efficiency projects in SAPP member countries. The following energy efficiency and load-shifting measures were indicated to have the most important potential impact:

- ▶ distribution system – non-technical loss reduction program
- ▶ energy efficient lighting regulation
- ▶ distribution system – technical loss reduction program
- ▶ energy saving obligations – an obligation on suppliers to promote and stimulate investment in energy efficiency measures by their customers.
- ▶ review tariff structures to be cost reflective and to incentivize efficient use
- ▶ national energy efficiency programs with quantitative targets
- ▶ time of day tariffs and smart metering
- ▶ capacity building in implementing, monitoring and evaluating energy efficiency projects

The key observations from the review of current and proposed projects are:

- ▶ The initiatives are driven by regional capacity shortages, which commenced in 2007.
- ▶ The countries visited are at different stages of implementing energy efficiency projects.
- ▶ The focus of activities thus far has been on demand side measures; typical energy efficiency and Demand Side Management (DSM) initiatives include Compact Fluorescent Light (CFL) exchange programs,





the introduction of Time of Use tariffs, ripple control and the installation of prepaid meters.

- ▶ Some activities in energy efficiency have been seen on the supply side. This is mainly the improvement of generation efficiency by rehabilitating plants (e.g. in Zambia and Zimbabwe).
- ▶ It is encouraging that numerous initiatives are underway. A key concern is that the impact of individual projects is not known, making it impossible to evaluate their effectiveness. Measurement and Verification (M&V) of individual initiatives has been difficult due to the many initiatives undertaken simultaneously.
- ▶ It is important to note that there is a role for all stakeholders in developing and implementing sustainable energy efficiency projects, not just utilities.

The project evaluation resulted in the following prioritization:

- ▶ High priority: distribution losses, measurement and verification, awareness campaign (library) and tariff setting principles
- ▶ Medium priority: generation dispatch, energy trading in SAPP, hydro & coal rehabilitation and regional negawatts

The Way Forward

The following measures have been identified for regional implementation by SAPP:

Project name	Description
Distribution losses	Coordinate distribution loss reduction surveys in SAPP countries with the highest levels of distribution losses.
Measurement and Verification (M&V)	Train staff from SAPP member utilities in Measurement and Verification, in order to assess the effectiveness of energy efficiency projects; for planning of future projects.
Awareness campaign (library)	Act as a central body to gather campaign material from, and share campaign material with, SAPP members, to be used in marketing campaigns to raise awareness on energy efficiency.
Tariff setting principles	Develop tariff setting principles to help raise awareness of tariff approval at the country level, as well as giving guidelines on setting cost-reflective tariffs.
Generation dispatch	Optimize hydro and thermal power plant dispatch in the SAPP interconnected system.
Energy trading in SAPP	Operate trading platforms to encourage vibrant market interaction between the member utilities and other trading members.
Hydro rehabilitation	Coordinate a study to identify potential efficiency improvements for interconnected SAPP hydro generation.
Coal rehabilitation	Coordinate a study to identify least-cost short-term generation efficiency improvements that could be made to interconnected SAPP coal-fired generation ("quick wins").
Energy Efficiency Obligation (EEO)	Develop an energy efficiency obligation for each SAPP member; an obligation placed on electricity suppliers / retailers or Distribution Network Operators to meet an energy saving target.
Regional negawatts	Co-ordinate a regional aggregated demand response platform, which runs alongside other regional SAPP markets.

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