RENEWABLE ENERGY AND ENERGY EFFICIENCY PARTNERSHIP

Outcomes Report:

REEEP-SERN Workshop on

"Policy and Regulation for Energy Efficiency in Southern Africa"

9 – 10 July 2009.

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GLOSSARY

CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CFL	Compact Fluorescent Lamp
DSM	Demand-Side Management
ESCOs	Energy Service Companies
IPP	Independent Power Producer
LED	Light Emitting Diode
REEEP	Renewable Energy and Energy Efficiency Partnership
REFIT	Renewable Energy Feed-In-Tariff
RERA	Regional Energy Regulators Association
SABS	South African Bureau of Standards
SAPP	Southern African Power Pool
SERN	Sustainable Energy Regulation Network
SWG	Solar Water Geyser
TPF	Third Party Finance
VER	Voluntary Emission Reduction

PART A: Preamble

This report discusses main trends and practical solutions offered by presentations and discussions at the Energy Efficiency Workshop (the Workshop) on 9 and 10 July 2009, hosted by the Southern Africa Secretariat for the Renewable Energy and Energy Efficiency Partnership (REEEP) in conjunction with the Sustainable Energy Regulation Network (SERN), in Johannesburg, South Africa. While the Workshop presented attendees with many items of interest, only those that are considered as fundamental to this report are discussed here in any great detail. The experiences of countries, other than those in Southern Africa, regarding the implementation of energy efficiency measures, are highlighted with a view to potentially deriving aspects of energy management that could be suitable in the Southern African context. Trends and practical solutions are relatively broad, and it must be remembered that all of the issues discussed in this report can be considered as cross-cutting issues, in varying degrees. Consequently, there may be overlap between certain issues, for example the overlap between the notions of targets, standards and monitoring and verification. The fact that some of the issues discussed herein are intertwined with, and, in some cases, dependent upon other issues, highlights the need for a holistic, integrated and synchronised approach to the implementation of energy efficiency measures and energy management as a whole.

1. Structure of the Workshop and the Report

1.1. Key Objectives

The efficient use of resources, especially energy, is becoming increasingly important in Southern Africa. Energy Ministries in Southern Africa are increasingly tasked with preparing appropriate legislation and regulations for the governance and implementation of energy efficiency measures, against the backdrop of the increasing prominence of the energy efficiency agenda. In this context, the key objectives of the Workshop were to:

- Make recommendations on current funding models for rates and tariffs for energy efficiency.
- Provide practical solutions for the implementation of energy efficiency initiatives.
- Discuss measures to ensure that the structuring of the price of energy reflects the actual associated costs.
- Stimulate an enabling environment aimed at the uptake of energy efficiency and energy management measures in Southern Africa.
- Develop a proactive stance on the means to overcome the perceived lack of a collective effort from the various sectors.
- Identify barriers to the implementation of energy efficiency measures and the development of practical policies to overcome these barriers.
- Identify relevant players and stakeholders in the energy sector and how to engage them.
- Develop a holistic approach to energy efficiency through practical, decisive and positive mechanisms.

The Workshop identified the following barriers to the implementation of energy efficiency measures, including, but not limited to, the need for an enabling environment, the lack of a sound and concise regulatory framework, the need to balance the social, environmental and economic impacts, a standardised approach towards technology and monitoring and verification, and a lack of implementing measures. It was in the context of these barriers that the need for an approach focused on practical, realistic and feasible solutions was identified as critical in driving energy efficiency initiatives in the region.

The following contextual elements were highlighted as central to discussions concerning energy efficiency in Southern Africa:

- the current financial environment;
- the slow pace of implementation of energy efficiency measures and energy management in the Southern African region;
- the important role that energy efficiency can play from a climate change perspective, for example, the perspective of alleviating the impacts of climate change and limiting contributions to climate change; and
- the great potential of energy efficiency in the Southern African region.

1.2. **Structure of the Report**

This report is composed of three parts – Part A, Part B and Part C. Part A outlines the context and structure of the report. Part B comprises the bulk of the report, being the overview of the Workshop proceedings and a focus on the key discussions of the trends identified at the Workshop. Part C provides an analysis and review of the identified trends and recommendations for the way forward. Please note that while the South African perspective is highlighted, this simply reflects the number of South African attendees at the Workshop, who were able to provide details on the South African perspective.

For clarity's sake it is recorded that the general notes taken at the Workshop do not constitute a verbatim account of the proceedings, but rather serve to document the main discussions. Moreover, the focus of this report is on the main trends derived from discussions at the Workshop, and is not strictly limited to the broad objectives as set out above. The reason for focusing on the trends rather than the objectives is due to the fact that the objectives themselves are fairly broad, and a more focused approach is required for the adoption of practical concrete actions.

Part B: Outcomes Report

Introduction

The Workshop was well attended by 68 delegates, amongst others, representatives of the South African Department of Energy, the European Commission, the Development Bank of Southern Africa, Ecofys, representatives of the Energy sector from various Southern African countries, South African municipalities, ESKOM, the National Business Initiative, the National Energy efficiency Agency, organised business, civil society, professional associations and independent consultants. As noted above in paragraph 1.2 of Part A, the South African perspective and experience tended to be the focus of the presentations and discussions at the Workshop. The broad purpose of the Workshop was to review the current energy efficiency and energy management policy and regulation environment in Southern Africa, with a view to determining the hurdles to energy efficiency savings and energy management, as well as ascertaining the appropriate mechanisms and tools that could potentially be utilised in Southern Africa to achieve energy savings in the region.

In order to achieve this broad purpose, the Workshop focused on discussing the status of energy efficiency in Southern Africa, the various financing and marketing mechanisms for energy efficiency and energy savings, Demand-Side Management (DSM) in South Africa, mechanisms regarding energy management as well as the presentation of various, local case studies regarding energy efficiency. A vital component of the Workshop was the presentation of the experiences and mechanisms established by various European countries regarding energy efficiency and energy management. This provided a comparative backdrop against which the Southern African experience could be debated, with a view to determining whether the various implementation mechanisms would be suitable in the Southern African context.

Key Note Addresses

The Workshop was opened with key note addresses from Mr. Elijah Sichone of the Regional Energy Regulators Association (RERA), Dr. Xavier Lemaire of SERN and Mr. Robin Carter of REEEP International. Throughout the key note addresses, several themes were evident:

- The increasing need for energy savings and energy management, due to *inter alia* the current global recession, through energy efficiency initiatives, the fact that energy can be a limiting factor for growth and development, and the use of non-renewable energy sources.
- The positive role that energy efficiency can play in meeting the climate change challenge, providing economic stimulation and its potential for job creation.
- The need for more integrated and productive dialogue between the various stakeholders and role players in the energy sector, and the need for education initiatives regarding energy efficiency.
- The vital role a robust policy and regulatory framework can play in stimulating more energy savings and improving energy management. The framework should be current and yet take a long-term view, and should provide for an associated *suite* of mechanisms to implement the framework.

Overarching Theme and Subsidiary Themes

Introduction

Upon consideration of the general notes taken throughout discussions at the Workshops, the overarching theme of the need for an enabling environment and the following subsidiary themes were identified:

- The role of a regulatory framework;
- The need to structure electricity pricing correctly;
- The role of standards generally;
- The establishment of realistic and feasible sector targets;
- The role of financial instruments and marketing mechanisms generally;
- The role of technology in driving energy efficiency;
- The need for standardised methods of monitoring and verification; and
- The development of Energy Service Companies (ESCOs) as a potential vehicle to drive energy efficiency in Southern Africa.

Overarching Theme: The Need for an Enabling Environment:

Despite the widespread recognition of the importance of energy efficiency by governments and relevant stakeholders, an "energy efficiency conducive" environment was recognised as being currently lacking in the Southern African region.

Integration and cohesion are considered to be the most important elements in creating a conducive environment for the adoption and appropriate implementation of energy efficiency measures. Integration and cohesion is required between the various stakeholders, including government, and between the policy framework, standards and the various mechanisms employed to drive the energy efficiency initiative, resulting in a synergistic and collective effort.

In order to create a stimulating environment, the following elements are identified as essential:

- Changing mindsets;
- Education, raising awareness, training and promotion of energy efficiency measures;
- Dialogue and cohesion between governments, stakeholders, role players and the public; and
- Skills development, adequate resources and job development.

There were no discussions specifically aimed at determining what constitutes an enabling environment and how such an environment should be created. What could extracted and determined from the general discussions is discussed more fully in Part C as the conclusion to this report.

2.3 The Role of a Regulatory Framework

Discussions regarding this subsidiary theme provided as follows:

- There is a need for a robust policy and regulatory framework regarding energy efficiency. A strong and clear regulatory framework will assist in creating an attractive market for investment in energy efficiency.
- A robust policy and regulatory framework is one that is based on the most relevant and up-to-date information and the comparative experiences of other countries. It also takes a long-term view regarding energy management. This framework must also provide for an associated *suite* of mechanisms to implement the framework, including sector targets, financial incentives and pricing mechanisms. It must be clear, concise, reasonable, transparent and practically feasible to implement. It should be sufficiently flexible to permit amendment as and when is deemed necessary, and yet it must also provide a strong measure of certainty.
- The framework must also create a balance between energy management, energy security and energy supply, while taking cognisance of, and mitigating where necessary, the economic, environmental and social impacts regarding energy.
- In order to achieve such a framework, in-depth participation and collaboration between all stakeholders is required.
- Currently, in Southern Africa, there is no regional policy or regulatory framework focusing specifically on energy efficiency, and energy efficiency initiatives are instead instituted at a national level, by national governments. The role of the Southern African Power Pool (SAPP) and the RERA must therefore be strengthened to ensure that a collective effort is made at the regional level.
- South Africa has high level policy and legislation in place regarding energy efficiency, however the implementation mechanisms are lacking.
- The South African National Energy Efficiency Strategy of 2005 was reviewed in 2008, although the sectoral targets set by the original Strategy have not been changed. In South Africa, draft regulations in terms of the National Energy Act 34 of 2008 aimed at implementing the Strategy and the sectoral targets are due to be released during the course of 2009.
- Policy and regulation can assist in overcoming the identified barriers, such as the proposed amendments to the South African Income Tax Act by the Taxation Laws Amendment Bill of 2009. This amendment, if promulgated, will provide for income tax deductions for energy efficiency savings from certified baselines, based on energy efficiency certificates issued by the National Energy Efficiency Agency. Draft regulations in terms of the Energy Regulation Act of 2006 have also been published, providing for *inter alia* the development of the national integrated resource plan and the requirement for energy efficiency to be implemented by licensees in their area of supply.
- As stated above, the policy and regulatory framework must also provide for other mechanisms to drive energy efficiency, including standards, energy pricing and sector targets. The creation of financial incentives through legislation was also highlighted as necessary. All of these mechanisms are discussed more fully below. It was also indicated that the framework should provide for the recovery of costs by the utilities.

- The regulatory framework should provide punitive measures for non-compliance. These punitive measures should be structured so that it is more desirable for industries, the public and private sectors, local and national government structures, and individuals to comply with the regulatory framework. Conversely, the regulatory framework must also include measures to reward compliance and initiatives that result in energy savings. Tax incentives, rebates and public recognition for compliance were all highlighted.
- However, the extent to which energy efficiency measures should be regulated is very difficult to determine. In South Africa, where the enforcement of legislation tends to be hampered by a lack of capacity, voluntary initiatives, such as the National Business Initiative, tend to be more common and, in some instances, preferred. A balance, therefore, between voluntary initiatives and regulatory initiatives must be struck. To determine this balance, more dialogue and stakeholder participation is required, and more capacity and skilled personnel within government to enforce the framework is vital.
- In the international arena, several very successful voluntary initiatives were highlighted, including the Hybrid Market in the United States of America and the Top 1000 Programme in China.
- The extent to which the regulatory framework should focus on suppliers of energy more than producers in the Southern African context must be determined. In Europe, focusing on suppliers has resulted in shifts in energy pricing and has had an impact in the energy efficient appliances and products, by making them more cost effective.
- The outcomes of the 2009 International Climate Change negotiations in Copenhagen are of vital importance in shaping the regulatory framework, particularly post 2012.

2.4 The Need to Structure Electricity Pricing Correctly

Discussions regarding this subsidiary theme provided as follows:

- Fluctuating energy prices can be as damaging to economic growth as very high prices, as the uncertainty affects investor confidence. Alternatively, the correct pricing of energy can drive renewable energy and energy efficiency initiatives.
- The Workshop identified the need for the pricing of energy to promote energy efficiency and energy security, while still being attractive enough for investment.
- It is of paramount importance that the pricing of energy reflect the actual costs related to the generation of the energy.
- In South Africa specifically, there have been several large increases in the electricity tariff, which previously had been very low due to the abundant coal resources and the fact that supply outstripped demand.
- Due to the cheap and abundant electricity, South Africa attracted many energy-intensive industries. However, there is now a crisis due to the increased demand outstripping supply.
- The South African historical context of Apartheid has resulted in the need to provide cheap electricity *en masse*. Free Basic Electricity is provided to those members of the public who qualify, and the pricing structure takes into consideration rural versus urban users, further complicating the South African pricing structure.
- In the Southern African context, economic growth is a key goal for developing countries, and abundant energy is required. Energy security is therefore of paramount importance in the region.

- In the South African context, the role of Demand-Side Management (DSM) within ESKOM with regards to energy management and energy efficiency has shown a very strong business case. The perception of DSM both within ESKOM and in the public view must be changed in order for DSM to be more attractive. The funding of DSM within ESKOM is also problematic, and this needs to be resolved so that DSM is not considered as operational expenditure. The view of government that DSM should be funded by the tariff is further compounding the pricing dilemma.
- The pricing between electricity generated by ESKOM and electricity generated by IPPs must be standardised. The current environment is not attractive to IPPs. More IPPs will create more competition for ESKOM, and competition can be a driver for the pricing of electricity. However, the difficulty still remains around the *de facto* monopoly that ESKOM has in the electricity generation, distribution and transmission sectors.
- A strong policy or legislative framework can help in formulating the correct the pricing structure.
- Internationally, the concept of DSM has moved from being utility-based to, essentially, a business principle. In Europe, the pricing of energy is considered as a more effective driver for energy efficiency measures than tax incentives.
- In Europe, the electricity market is de-regulated and thus competition based. This means that utilities can opt to be competitive, either, through pricing or by utilising alternative sources of energy. It is short-sighted, however, to consider selling as much electricity as possible. The sustainability of a system is a key consideration.
- Throughout the Workshop, the de-coupling of sales from revenue was touted as the preferred option, not only for driving energy efficiency but as a pricing mechanism, as has been done in California.
- Therefore, it was resolved that the principles of the "California option"[1] be considered in drawing up ESKOM's new funding model.

2.5 The Role of Standards

Discussions regarding this subsidiary theme provided as follows:

- Standards regarding technology quality and energy management are highlighted as crucial drivers for energy efficiency.
- The use and development of energy standards is encouraged so as to further promote energy efficiency and energy management. Governments must lead the way in developing such standards.
- The South African Bureau of Standards presented on the implementation of energy management standards for industry. The Workshop was advised that the ISO 5001 Standard regarding Energy Management is currently out for comment, and is based on the "plan-do-check-act" approach of both ISO 9001 and 14001.
- Standards should not only be limited to industry, but should be applicable to individuals and corporate entities, including government.

[1] The "California option" essentially creates a tariff formula which would be made up of half the revenue from electricity sales and half from electricity savings. De-coupling of revenue from sales is an integral part of this system. This option allows utilities to make a profit from its energy savings, hence promoting energy efficiency.

- As standards are voluntary in nature (unless they are provided for in the regulatory framework), implementation can be difficult due to a lack of willingness or commitment at a high level, and a lack of knowledge, skills, and an unharmonised approach.
- Other barriers include a lack of readily available and easily understood information regarding the standards, a lack of key performance indicators and the mindset that the cheapest form of energy is beneficial to a company rather than taking a long-term view incorporating energy management.
- In South Africa, having voluntary standards appeared to be preferred, *inter alia* due to the difficulties that government faces in implementing regulations and enforcing compliance therewith due to capacity constraints.
- In South Africa, there are standards in place regarding the labelling of appliances, green buildings and heavy industry processes, and the SABS will be creating a committee which will focus specifically on the gaps in energy management and energy efficiency standards.
- In the foreign context, standards have been very successful and are considered as a vital component in the energy efficiency initiative. It was noted that standards are applied at the EU level, while tax incentives were utilised at the national level. Standards also play a very important role in the monitoring and verification of savings.

2.6 The Establishment of Realistic and Feasible Sector Targets

Discussions regarding this subsidiary theme provided as follows:

- The setting of realistic and feasible sector targets is especially affected by a lack of dialogue between role players and information that can assist in the setting of targets. In order to achieve feasible targets, there must a flow of information horizontally between players within the sectors and vertically between the sector representatives and government and the regulatory authorities.
- Establishing feasible targets has proven to be difficult, both in the South African and international context. In some instances, the targets have easily been reached and exceeded, while in other cases the targets have been too high.
- Therefore, before mandatory targets are set a great deal of research and participation is required.
- Targets can play a positive role and generate great savings, if they are feasible, and provided that the relevant monitoring and verification systems are adequate.
- If targets are mandatory, the regulatory framework should be sufficiently flexible so that the targets can be amended as and when such amendment is deemed necessary.
- Monitoring and verification aspects are very important components of targets, specifically regarding the determination of the type of target and the establishment of a baseline. Standards regarding technology are also important components regarding targets.
- Skilled personnel will be required in order for the monitoring and verification of the sector targets, which, given the current capacity issues facing the region, is a potential barrier to the implementation of sector targets.

- Setting mandatory targets creates the need for incentives to be in place for compliance, including rebates or recognition for compliance. Similarly, the regulatory framework must provide sanctions for non-compliance such that it is more beneficial for a sector or sub-sector to comply with the target than not.
- Again, the ability of government to enforce compliance is dependent upon sufficient numbers of skilled personnel.
- Voluntary targets have been used to great effect internationally, such as the Top Runner programme in Japan and the Top 1000 programme in China. In South Africa, the Voluntary Energy Efficiency Accord has been established, although this Accord fails to set down sectoral targets. It was noted that a new Accord is intended to be developed that includes intermediate targets.
- Targets do not have to be limited to sectors. There is room for targets to be set for individual projects, companies, sub-sectors and even at a multi-sector level.
- Targets can be specific, absolute or economic. It was noted that no one specific type of target is perfect, and that a combination of types is often preferred. The level of ambition regarding savings is often more important than the type of target.
- The determination of targets that differentiate between the short-, medium- and long-term are of vital importance.

2.7 The Role of Financial Instruments and Market Mechanisms Generally

Discussions regarding this subsidiary theme provided as follows:

- There are various financial instruments that can be utilised to promote energy efficiency, including rebates, subsidies and tax incentives.
- As mentioned previously in paragraph 2.3 above, the proposed tax incentives for South Africa were unanimously approved, as taxes are viewed to be more transparent and are universally applicable.
- Performance-based financial incentives can be provided for in a regulatory framework, however funding for these incentives can be a potential barrier, as can the associated administrative burden. In South Africa, the DSM levy has been affected by the current tariff increases.
- The proposed tax incentives regarding technology tend to be problematic in the Southern African context due to the lack of standards and guidelines regarding the implementation of the technology. The proposed incentives regarding energy efficient processes are more suitable, as they are more transparent and objective. There are still difficulties, which must be overcome, regarding the monitoring and verification of these initiatives, for example the determination of the protocol to be used for comparisons.
- In the private sector, financial incentives can be provided by green lines of credit, the use of the Clean Development Mechanism (CDM), Voluntary Emission Reductions (VERs), ESCOs and various donor funds however the sustainability of such funds is a potential barrier.
- The CDM has not been utilised to its full potential in the Southern African region, despite many CDM projects also being energy efficiency or renewable energy projects. The generation of Certified Emission Reductions (CERs) can be an additional revenue stream t o assist project implementation, and have also been proposed as being wholly exempt from income tax in South Africa in the proposed amendments to the Income Tax Act.

- In South Africa, the Renewable Energy Feed-in Tariff (REFIT) also provides financial incentives, however, this is still only a guideline.
- In France, Italy and the United Kingdom, White Certificates have been utilised to create a market and a further revenue source. The Certificate constitutes a verified savings instrument, which can be traded within a White Certificate trading scheme, and is also fungible[2] with a CER. These certified savings also constitute important accounting tools. White Certificates can be utilised in a voluntary or mandatory environment.
- In order for a market for White Certificates to exist (whether this be voluntary or mandatory, and including whether a trading scheme will be implemented), targets must be created and there must be sufficient infrastructure for the scheme. Rules and mechanisms must be in place regarding the sanctions, cost recovery and the instrument and the trading scheme if applicable. In the Southern African context, however, the administrative and institutional barriers could mean that such a scheme is difficult to implement.
- Monitoring and verification and the establishment of a baseline are all very important aspects of the schemes. Considering the Southern African context, where skilled resources are limited, these requirements could present further barriers to the potential implementation of a White Certificate scheme in Southern Africa, and further research and consideration should be made to determine whether this is an appropriate mechanism for South Africa.
- The United States has used the current economic crisis to drive energy efficiency measures and to create green jobs, through strong political will and with funding. Tax incentives have been utilised in the US to encourage the use of more energy efficient products and to reduce its carbon emissions.
- Therefore, in the Southern African context, tax incentives can play a vital role in pushing the energy efficiency initiative. More focused dialogue is required in order to determine the extent of the incentives, and more funding for such incentives must be made available.

2.8 The Role of Technology in Driving Energy efficiency

Discussions regarding this subsidiary theme provided as follows:

- Technology is one of the main drivers for energy efficiency, as energy efficient technology has been proven to create serious energy savings.
- Quality technology is therefore essential for energy efficiency measures. To this end, standards and controls regarding technology and technology quality must be in place to ensure that energy efficient technology remains not only an attractive option, but potentially should be viewed as the best option to industry, municipalities and the general public.
- Compact Fluorescent Lamps (CFLs) have been mainly used in the Southern African context as energy efficiency initiatives, however the mass roll out of CFLs is not sustainable in the long run, and the issue of the disposal of CFLs cannot be ignored. The use of Light Emitting Diodes (LEDs) rather than CFLs, and the use of smart meters, has not been implemented mainly due to the cost of the technology.

[2] "*Fungibility refers to the possibility that one unit / product, or a unit of currency, can be exchanged for, or replaced by another*" International Petroleum Industry Environmental Conservation Association: *Climate Change: A Glossary of Terms*. 4th Edition, 2007.

- The cost of technology is a barrier to the implementation of energy efficiency, especially in industry and business, where the mindset is to focus on return on investment. Technology replacement and operational practices that result in energy savings must become core decisions. In the residential sector, energy efficient technology is not very attractive due to the cost and the negative connotations associated with the technology.
- Therefore, the changing of mindsets to drive the installation of more energy efficient technology is also crucial, not only among the public and industry but at the government, supplier and distributor level.
- The use of subsidies and tax incentives for the use of energy efficient technology is welcomed, as is recognition of industries that utilise technology resulting in energy savings and carbon emission reductions.
- More legislation regarding the installation of energy efficient technology is welcomed to create a market for the technology.
- Guidelines regarding the installation and usage of energy efficient technology must be in place so that a more holistic approach is taken, which will ultimately result in more energy savings. Holistic in this sense refers to optimising practices and considering the energy efficiency of an entire system, rather than considering components individually.
- More training and education is required, especially regarding life-cycles and methods of optimising systems.
- In the Southern African context, the roll out of more energy efficient technology by the utilities, such as Solar Water Geysers (SWGs) and CLFs has been focused more on crisis management due to the current energy crisis in the region. Energy efficient technology should become the norm, rather than the exception or as crisis management, requiring a shift in mindset by the utilities.
- In the international context, Japan introduced a "Top Runner" programme (similar to appliance labelling), and this showed very promising savings.
- The use of ESCOs has been very successful in Europe with regards to technology replacement and energy management, particularly in countries where strong regulation is lacking. ESCOs are discussed more fully at paragraph 2.10 below.

2.9 The Need for Standardised Methods of Monitoring and Verification

Discussions regarding this subsidiary theme provided as follows:

- As mentioned previously, monitoring and verification is closely linked with targets. In order to set a realistic and feasible target (whether this be voluntary or mandatory), a baseline must be established. The determination of a baseline must be made subject to protocols that are relevant to the sector, project or company in question. A baseline is dependent on a sufficient level of information being made available and adequate research having been done.
- There are various instruments that can be utilised for the monitoring and verification of savings, including voluntary agreements, negotiated instruments, standards, environmental permits and emissions trading schemes.
- Benchmarking can play a very important role, provided that companies are not afraid to disclose information due to competitive issues.

- In the South African context, voluntary targets requiring monitoring and verification appear to be more popular.
- There can be an administrative burden that must be overcome, especially regarding the implementation of guidelines, and the creation of an accreditation agency.
- Further research into best practices and best options for the Southern African region is required. Monitoring and verification must align with national initiatives and objectives.
- There must also be certainty regarding which monitoring and verification system should be utilised per sector, and sanctions and penalties for non-compliance.
- Monitoring and verification measures must therefore be "standardised".

2.10 **The Development of ESCOs**

Discussions regarding this subsidiary theme provided as follows:

- In European countries where the energy sector is not highly regulated, a market has been created for ESCOs, particularly in the public sector and focusing specifically on public buildings, public lighting and co-generation.
- There is a market for ESCOs where the energy sector has been "liberated".
- ESCOs are a means to deliver infrastructure improvements, especially where finance and training is lacking. They guarantee energy savings and can provide on-going maintenance and monitoring and verification of savings.
- The largest barrier regarding ESCOs that would need to be overcome is the issue of financing.
- In order to develop an industry for ESCOs, the following requirements were identified:
    - increase Dissemination of ESCO Services and Projects ;
    - an accreditation system for ESCOs;
    - develop Local Financing Sources;
    - standardise Savings Measurement and Verification;
    - governments take the lead with measures in public buildings; and
    - develop a nation-wide Third Party Finance (TPF) Network
- As to whether the above model of an ESCO would work in the Southern African context, it must be kept in mind that, specifically in South Africa, the energy sector is dominated by ESKOM (i.e. it is a single buyer system), and has not been liberated to the extent that there is sufficient competition for ESKOM.
- It was noted that ESCOs in Europe appear to be more interested in the business of selling energy or equipment than in exploiting the financial opportunities of energy savings. This is the potential angle that should be taken in Southern Africa.
- It was recommended at the Workshop that the European ESCO model be considered for implementation in the Southern African region. A strategy must be in place to develop ESCOs and the market for them, including the need for an accreditation service, standardised monitoring and verification processes, financing sources and the need for government to lead the initiative. Such a model will be entirely dependent upon the creation of an environment conducive to such measures.

Part C: Analysis of the Trends and Conclusion

Introduction

With regard to the various trends discussed in Part B, there are positive initiatives currently in place or planned to drive energy efficiency in the Southern African region. These initiatives appear to be more voluntary in nature as opposed to regulated, thus highlighting the lack of implementation of energy policy, specifically in the South African context. Therefore, the willingness of the private sector to undertake energy efficiency initiatives must be supported by governments through a clear policy and regulatory framework as well as mechanisms to support energy efficiency initiatives.

A clear policy and regulatory framework will not achieve its aims if there is insufficient capacity in governments to enforce and monitor compliance with framework. Therefore, the establishment of an enabling environment is the most vital stumbling block that must be overcome if energy efficiency initiatives are to succeed. In the discussions regarding an enabling environment, the role of governments was highlighted as being of paramount importance, specifically with regard to education, awareness drives, skills development, creating an attractive investment market and encouraging more dialogue and cohesion between stakeholders and governments. Governments therefore carry the burden in creating an "energy efficiency conducive" environment. Municipalities are key role players in driving energy efficiency and should be targeted as such by national governments.

Strongly linked to this is the role of energy suppliers and distributors. In the South African context, ESKOM is a vertically integrated structure with a monopoly on energy generation and distribution. Although there is great interest from the private sector in engaging with ESKOM as Independent Power Producers (IPPs), the current structuring of the relationship between ESKOM and IPPs is problematic, and has not been as successful as it could be. In situations where the utilities are considered parastatals, care must be taken that the generation of revenue from electricity sales, or the supply of electricity at all costs, does not become the main goal of the utility. Increasing competition within the energy generation, supply and distribution sector is a key driver for energy efficiency.

Increased competition can result in creating more of a market for ESCOs in Southern Africa. ESCOs have shown great potential in foreign countries, and more must be done in Southern African to provide an adequate platform for a more professional and organised structure for ESCOs than is currently in place. ESCOs can also provide the skills that may be lacking within governments, and therefore present a potential collaborative venture between the private sectors and government. This potential venture must be explored more fully.

With more role players in the energy generation field, the pricing of energy can provide a competitive advantage. Despite the fact that in Southern Africa the current competitive environment does not exist, the pricing of energy is still fundamental to energy efficiency initiatives. With regard to adequately determining the funding model for Southern Africa, the Workshop resolved that the "California option" must be considered as a possible funding model, and of particular importance is the practice of de-coupling sales from revenue to potentially drive energy efficiency.

The Creation of an Enabling Environment

As mentioned in paragraph 2.2 of Part B above, an enabling environment requires:

- changing mindsets;
- education, raising awareness, training and promotion of energy efficiency measures;
- dialogue and cohesion between governments, stakeholders, role players and the public; and
- skills development, adequate resources and job development.

There were unfortunately no discussions specifically aimed at determining how to go about implementing or realising the enabling environment. What has been derived and analysed from all of the other discussions is as follows:

Changing Mindsets

An analysis of the discussions regarding this element provides as follows:

- A change in the mindset of the public is required, so that energy efficiency measures are attractive to all members of the public, including the wealthy. This will require more education and raising awareness of the environmental, economic and social benefits of energy efficiency.
- A change in the mindset of industry and business that investment in energy efficiency measures is better in the long run, rather than focusing on profits and returns on investment. Giving recognition to businesses and industries that are complying with legislation, or have voluntarily agreed to be more energy efficient, can be a powerful tool in promoting energy efficiency especially in the Southern African region. The role of training and education in industry to change the mindset that continued growth is the main goal of industry is of paramount importance. Financial service providers and banks can play an important role with regard to green lines of credit.
- A change in the mindset of the energy suppliers and distributors so that energy efficiency and energy management is balanced and integrated with generation capacity building and supply. Currently in the Southern African region, energy demand outstrips supply. The utilities are under pressure to provide for this demand and thus building capacity is currently considered more important than saving energy. It was noted that the perception of DSM in ESKOM needs to be shifted so that DSM is considered as important, if not more, than capacity building. It has been recognised within ESKOM that energy efficiency provides a strong business model and has a greater long term potential, although this has not been sufficient to drive DSM. As to how this shift in perception can occur, government can play a vital role through the development of legislation and regulations. Dialogue between the utilities and government, especially regarding tariffs and targets, is crucial. The de-coupling of sales from revenue was highlighted in the Workshop, as was the "California Option".
- A change in mindset from government, including more political will and championing within the top levels of government to drive the energy efficiency initiative. Government must provide clear and concise legislation, regulations and mechanisms regarding energy efficiency in order to create a market that will attract investment. The correct pricing of electricity is crucial to attracting investors and driving the energy

efficiency initiative. Providing more assistance to municipalities in implementing energy efficiency measures is required, and recognition of municipalities and government departments that are making an effort to employ energy management can assist in promoting the energy efficiency initiative.

Education, raising awareness, training and promotion of energy efficiency measures

An analysis of the discussions regarding this element revealed the following:

- This element is linked to changing mindsets. It was apparent at the Workshop that educating children about energy management can be a very effective method of promoting energy efficiency measures. For example, in Botswana, a competition between schools resulted in one school having an energy saving of approximately 40% through behavioural changes alone.
- Government must lead in creating initiatives that raise awareness and educate the public about the benefits of energy efficiency. There must be constant marketing to keep energy efficiency measures and energy management in the public view. The marketing of energy efficiency must be very carefully considered in order to ensure that the initiative is packaged as a highly attractive option. If regulations and standards are to be put in place, education, marketing and awareness around the regulations must be provided so that resentment toward the increased regulation does not occur.
- Training in industry and business with regards to technology must be promoted, including training and awareness on the impact that an energy efficient system or process can have in terms of energy savings. Training and awareness can ensure that energy management and savings form part of the integral decision-making process. Again, any regulations or targets must be devised in a consultative manner and carefully presented to industry.
- On-going research into the best methods for the implementation of efficiency measures must be in place, particularly regarding targets, standards and monitoring and verification. To do this, adequate and sustainable funding from government or other sources must be in place.

Dialogue and cohesion between governments, stakeholders, role players and the public

The lack of synergy and integration between all sectors was highlighted as a barrier to the implementation of energy efficiency measures. The analysis of the discussions regarding this element reveals the following:

- Government should approach and interact with the various industry and business sectors and the public in order to determine what their concerns are regarding energy efficiency, and to determine reasonable and feasible sector targets, tariffs and incentives.
- A solution must be found regarding the disclosure of information from businesses that may have a potential impact on their competitiveness.
- The collecting of data from all sectors is vitally important to ensure that policies, tariffs, regulations and mechanisms can be reviewed and amended with ease.

- Co-operation at the national and international levels regarding best practices and mechanisms was highlighted, as was the need to learn from foreign experiences. However, care must be taken that the most recent information is at hand in order to shape national initiatives.
- A key phrase that can be used to define the interplay between all sectors and the flow of information is "collaborative partnerships".

Skills development, adequate resources and job development

It must be noted that all of the above elements are fundamentally dependent on a sufficient number of skilled personnel within government and industry with access to resources.

- The lack of capacity, particularly in government, was highlighted as a serious barrier to the implementation of the energy efficiency initiative, especially regarding the enforcement of legislation.
- The development of a skilled work force and increased capacity within government requires great political will, which is currently lacking in the region. This is partly due to the fact that economic development and growth are key goals for developing countries.
- The opportunity for the development of jobs and a skilled workforce will increase as a stimulating environment is created. This is the great paradox that must be overcome, and further dialogue regarding how to do so must take place between all stakeholders and role-players.

3. Conclusion

As mentioned in paragraph 1 of Part A, the objectives of the Workshop were broadly stated. This lack of focus makes it difficult to determine whether the Workshop succeeded in complying with its objectives. It was agreed that the "California option" be considered with regard to the funding model. This is a positive outcome and should be pursued with a view to engaging utilities in potentially adopting the "California option".

Many of the objectives can be considered as sub-issues under the need for an enabling environment. It is recommended that the discussions around, and the analysis of, the elements that are considered the corner stones of an enabling environment for energy efficiency be carefully considered. Potentially, the discussions regarding the enabling environment could be expanded to other role players and stakeholders to clarify further what is required to drive energy efficiency in the region. The lack of representation from countries in the Southern African region made it difficult to determine whether the Workshop reached its goal; being to review the current energy efficiency and energy management policy and regulatory environment in the Southern African region.

It is therefore suggested that REEEP potentially consider conducting Workshops similar to the one under review in this report in other countries in Southern Africa to obtain country specific reviews. These reviews could then be compared and thereafter a region-specific report can be compiled.