United Nations Development Program
Country: South Africa
PROJECT DOCUMENT

Project Title: Market Transformation Through the Introduction of Energy Efficiency Standards and the Labelling of Appliances in South Africa

UNDAF Outcome(s): Strengthened Government capacity to implement selected First Economy interventions

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: Mainstreaming environment and energy

UNDP Strategic Plan Secondary Outcome:

1. Enhanced national implementation capacities.
2. Environmental policies becoming aligned to global conventions.

Expected CP Outcome(s): To influence consumption patterns by raising the awareness of policy makers, manufacturers, distributors and consumers, via the introduction of energy efficiency standards and labels into the market.

Expected CPAP Output(s):

To influence consumption patterns by raising the awareness of policy makers, manufacturers, distributors and consumers, via the introduction of energy efficiency standards and labels into the market.

Executing Entity/Implementing Partner:

Implementing Entity/Responsible Partners:

Department of Energy (DoE)

Brief Description:

South Africa’s historically low cost of electricity (which tacitly promoted inefficient use by consumers and underinvestment) coupled with increased electricity demand brought on by rapid economic development and the electrification of previously disadvantaged communities came to a head with widespread rolling electricity blackouts in 2008.

In response to this electricity crisis, among other measures government a revised the National Energy Efficiency Strategy - setting a target of a 10% reduction in energy demand within the residential sector by 2015 - and included a Standard and Labelling (S&L) program for appliances and equipment as a key market transformation strategy for achieving such a reduction.

This project aims to reduce the electricity demand of household appliances by developing and implementing S&L programs for 12 appliances, with an ancillary reduction in greenhouse gas (GHG) emissions. In so doing the project will seek to overcome the barriers impeding the widespread uptake of efficient appliances, and will focus on the following six objectives: 1) To review and implement a policy and regulatory framework needed for a sustainable S&L program; 2) To define energy classes and MEPS thresholds; 3) To strengthen the capacity of institutions involved in the program; 4) To develop an appropriate education, awareness and communication campaign; 5) To develop and implement market surveillance and compliance procedures; and 6) To generate a project evaluation report that identifies a clear set of best practices for future application based on lessons learnt. It is estimated that the project will save up to 388 GWh per year, which will lead to 4.6 Mt of direct CO2 emissions reductions (over the life time of the appliances covered) and indirect CO2 emissions reductions of 11.5 Mt CO2.

<table>
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<td>00077334</td>
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<td>PIMS #</td>
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</tr>
<tr>
<td>End Date</td>
<td>September 2016</td>
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<td>NEX</td>
</tr>
<tr>
<td>PAC Meeting Date</td>
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Total resources required: $13,125,000

Total allocated resources: $13,125,000

- Regular
  - GEF: $4,375,000
  - Government (cash): $3,435,000
- Other:
  - In-kind: $1,315,000
  - Donor (SECO): $4,000,000

Agreed by (Department of Energy):

Date/Month/Year

Agreed by (Department of Trade and Industry):

Date/Month/Year

Agreed by (UNDP):

Date/Month/Year
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<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>APR</td>
<td>Annual Project Review</td>
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<tr>
<td>AWP</td>
<td>Annual Work Plan</td>
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<tr>
<td>ARR</td>
<td>Annual Review Report</td>
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<tr>
<td>BUSA</td>
<td>Business Unity South Africa</td>
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<tr>
<td>CFL</td>
<td>Compact Fluorescent Lamp</td>
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<tr>
<td>CGCSA</td>
<td>Consumer Goods Council of SA</td>
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<tr>
<td>CO</td>
<td>Country Office (UNDP)</td>
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<td>CTF</td>
<td>Clean Technology Fund</td>
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<tr>
<td>DPE</td>
<td>Department of Public Enterprise</td>
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<td>DoE</td>
<td>Department of Energy</td>
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<td>DME</td>
<td>Department of Minerals and Energy</td>
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<td>DSM</td>
<td>Demand Side Management</td>
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<td>DST</td>
<td>Department of Science and Technology</td>
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<td>DTI</td>
<td>Department of Trade and Industry</td>
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<tr>
<td>EE</td>
<td>Energy Efficiency</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GEF</td>
<td>Global Environment Fund</td>
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<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
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<tr>
<td>IEC</td>
<td>International Electro-technical Commission</td>
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<tr>
<td>IPAP</td>
<td>Industrial Policy Action Plan</td>
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<tr>
<td>LTMS</td>
<td>Long Term Mitigation Scenario</td>
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<tr>
<td>MEPS</td>
<td>Minimum Energy Performance Standards</td>
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<tr>
<td>NBI</td>
<td>National Business Initiative</td>
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<tr>
<td>NEEA</td>
<td>National Energy Efficiency Agency</td>
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<tr>
<td>NERSA</td>
<td>National Energy Regulator of South Africa</td>
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<tr>
<td>NIPF</td>
<td>National Industrial Policy Framework</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organisation</td>
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<tr>
<td>NRCS</td>
<td>National Regulator for Compulsory Specifications</td>
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<tr>
<td>PIR</td>
<td>Project Implementation Review</td>
</tr>
<tr>
<td>OPR</td>
<td>Quarterly Progress Reports</td>
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<tr>
<td>RCU</td>
<td>Regional Coordinating Unit</td>
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<tr>
<td>REFIT</td>
<td>Renewable Energy Feed-In Tariff</td>
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<tr>
<td>S&amp;L</td>
<td>Standards and Labelling</td>
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<tr>
<td>SA</td>
<td>South Africa</td>
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<tr>
<td>SAA</td>
<td>South African Airways</td>
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<tr>
<td>SABS</td>
<td>South African Bureau of Standards</td>
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<tr>
<td>SANAS</td>
<td>South African National Accreditation System</td>
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<td>SANEDI</td>
<td>South African National Energy Development Institute</td>
</tr>
<tr>
<td>SANERI</td>
<td>South African National Energy Research Institute</td>
</tr>
<tr>
<td>SANS</td>
<td>South African National Standard</td>
</tr>
<tr>
<td>SDC</td>
<td>Swiss Agency for Development and Cooperation</td>
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</table>
SEAD       Super Efficient Appliance Labelling Design
SECO       Swiss Economic Development Cooperation
SOE        State Owned Enterprise
SWH        Solar Water Heater
UNDP       United Nations Development Program
UNFCCC     United Nations Framework Convention on Climate Change
VAT        Value Added Tax

Exchange rate: 1 US $ = ~7 Rand (January 2011)

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I. SITUATION ANALYSIS

a. Context and global significance

1. By mid 2010 the South African population was estimated to be 49.9 million with more than 70% living in formal houses. The nominal GDP for the second quarter was R657 billion ($94 billion); and the unemployment rate was at 25.5% (4,391,000 people).

2. At 50 billion tons, SA’s coal reserves are the sixth largest on Earth, making it the world’s fifth largest coal producer\(^1\). These abundant coal deposits, compared with only small deposits of natural gas and oil, also mean that the country relies heavily on coal for most of its energy and electricity needs. Figures 1 & 2 shows the total primary energy supply and electricity sources in SA. This leads to a grid emission factor of 1.03 tons CO\(_2\)/MWh\(^2\).

3. SA’s historically inefficient and often wasteful use of energy was acknowledged in the National Energy Efficiency Strategy\(^5\), where it is reported that the ‘South African economy uses a lot of energy for every Rand of value added. In 2006, the country had the 42\(^{nd}\) biggest GDP in the world but was the world’s 21\(^{st}\) largest consumer of energy’. This analysis provides two explanations of the current South African energy situation, the first being the high energy intensity of the economy and the second focused on wasteful use of energy.

4. A breakdown of the energy use by sector, Figure 3, shows that the residential sector is the third largest energy consumer in SA.

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1. The coal resource: a comprehensive overview of coal, London 2005
2. Eskom’s 2010 annual report
4. ESKOM’s 2010 annual report
5. The 1\(^{st}\) review (2008) of the National Energy Efficiency Strategy has been published in Government Gazette #32342 dated on June 2009
5. In 2009 over 90% of all households in SA had access to electricity, with 2012 marked as the government’s target for universal access while the Community Survey undertaken by Statistics SA in 2007\(^7\) reported that electricity is the primary energy source in households for lighting (80%), cooking (67%) and heating (59%).

6. A metering campaign of electricity consumption per appliance, conducted by Eskom\(^8\) in 2007, showed that water heaters, domestic refrigeration, lighting and cooking appliances were the largest household electricity consumers.

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\(^6\) In Government Gazette #32342 dated on June 2009


\(^8\) ESKOM is the national public electricity utility. It generates more than 95% of the total electricity
7. In 2008, ESKOM introduced a rebate program for solar water heaters to reduce electricity consumption and CO₂ emissions due to water heaters. The target was to install 925,000 units over five years, but the initial uptake was poor with fewer than 1,000 units per month being installed through the subsidy scheme. However this number has increased to above 6,000 units per month since June 2010.

8. To reduce electricity consumption from domestic refrigeration, a voluntary labelling program for refrigerators was introduced in 2005. The initiative was voluntary because:

- Necessary legislation was not in place for a mandatory program at the time;
- It was seen as a first step in realising the ultimate intention of introducing a mandatory program;
- It was felt that the market (industry and consumers) needed a signal to start preparing themselves for the impending mandatory regulations.

9. The voluntary labelling program was not successful. Consultations held with the DoE and NEEA to determine the reasons for this failure yielded the following:

- The initiative was launched while electricity tariffs increases were still in line with inflation (refer to paragraphs 10 and 11). During this period the price of electricity was at a level where the running costs of appliances were not considered.
- Electricity security was assumed by households. No blackouts or outages had occurred.
- National standards for efficiency were only available for refrigerators and therefore the initiative could not be extended to other appliances.
- The South African Bureau of Standards (SABS) had limited test facilities and expertise to support the program.
- There was limited or low participation by manufacturers and suppliers, especially in the entry to mid level range.
- The initiative did not have sufficient funds for a communication and awareness campaign and the limited exposure the program did receive was disjointed and random. As a result the campaign was poorly communicated to the general public and generated little interest.
- The training (education and awareness) and motivation (incentives) of sales staff at retail stores was not done due to a lack of funds and resources.

10. Eskom has also implemented a nationwide residential lighting program from 2004 to the present; and over 43.5 million incandescent bulbs have been removed from households by swapping them for energy efficient compact fluorescent light bulbs (CFL) during this period. To date 1,800 MW of electricity savings can be attributed to this programme

11. The price of electricity in SA decreased in real terms from 1987 to 2003 due to the initial surplus supply available and the Government’s decision to minimise increases for social reasons. (The average increases in electricity prices and the inflation rate can be seen in Figure 5. This policy resulted in an underinvestment in new supply and maintenance, which was one of the primary reasons for the reserve margins falling below the international norm of 15% from 2004 onwards.)

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9 Fish Where the Big Fish Are, Liberty H, Internal Eskom Report, 2003 (updated 2007)
10 http://www.sundaytribune.co.za/1800-mw-saved-in-six-years-eskom-1.1012925
12. The long period of below inflation electricity price increases (1987–2003) and the cost of building new plants has resulted in an extraordinarily high tariff increases which started in 2007 (with further large tariff increases being legislated up until 2012). The annual increases between 2007-2012 are 14.2%, 27.5%, 34.1%, 24.8%, 25.8% and 25.9%\(^\text{12}\).

13. Even with the steep tariff increases (2007-2010), the price of electricity in SA still remains amongst the lowest in the world as shown in Figure 6. This situation will change significantly by 2012, when the three legislated annual tariff increases come into effect and the country’s electricity tariff will have essentially doubled.

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\(^{12}\) National Energy Regulator of South Africa, Media Statement 24 February 2010 (http://www.eskom.co.za/content/MediaStatementMYPD2~1.pdf)

14. The electricity tariff structure in the residential sector differs depending on the final distributor, which in most instances is one of 284 municipalities. Households can opt for a residential account (which is charged in arrears and included in their monthly rates and taxes bill), or pay upfront via a prepaid service. And while prepaid users pay an ‘all in fee’, account users pay a rate per kWh, as well as a service charge, network charge, DSM levy and Value Added Tax (VAT). Table 1 gives a comparison of the electricity tariffs in Gauteng14, SA.

<table>
<thead>
<tr>
<th>Area</th>
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<td>Prepaid - Ekurhuleni</td>
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<td>Prepaid – Eskom15 Gauteng</td>
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<tr>
<td>Residential Account - City of Johannesburg</td>
<td>0.08</td>
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</table>

Table 1: Electricity tariffs in the most populous and industrious province16

15. In January 2008, SA experienced widespread rolling electricity blackouts when electricity demand overtook supply. As a consequence two new coal generation plants, MEDUPI and KUSILE, with a combined generation capacity of 9,560MW17, were commissioned; and construction has commenced on MEDUPI. A Renewable Energy Feed-in-Tariff (REFIT) has also been introduced to encourage renewable power producers to supplement conventional power generation.

16. In 2005, SA developed a National Energy Efficiency Strategy, which at its 1st revision set an overall target of 12% energy demand reduction by 2015 and a 10% target for the residential sector18. A second revision of the Strategy is scheduled for 2011 and this may result in the electricity targets being adjusted. It is however very unlikely those targets will decrease, and initial indications point to a probable increase.

17. The Department of Energy (DoE) has a mandate to introduce EE programs through the EE Strategy and the Energy Act (2008), which specifically lists appliance labelling and standards as a promoted intervention.

18. The Department of Trade and Industry, (DTI), through its Industrial Policy Action Plan 2 or IPAP2, (2010) (whose objectives, amongst others, are to save energy for industries) developed a joint work plan with DoE to phase out energy inefficient appliances, lighting and equipment in South Africa.

19. The South African Bureau of Standards, (SABS), formed the working group 941, whose mandate was the development of technical specifications for appliances and equipment.

20. Products with high electricity consumption identified by the WG 941 are: air conditioners (up to 5 kW), consumer electronics, dishwashers, laundry machines, domestic refrigeration, lighting (electric lamps, street and industrial lighting), ovens, tumble dryers and water heaters.

21. Based on the market penetration and the annual energy demand of each appliance identified by the WG 941, it has been decided to implement a mandatory S&L program, initially for the following:

14 Gauteng is the smallest province in SA but it is most populous (10.4 million in 2007) and it is the economic hub of SA
15 ESKOM: the national public electricity utility which generates more than 95% of total electricity.
16 Tariffs used are based on actual accounts sourced October, 2010
18 In Government Gazette #32342 dated on June 2009
domestic refrigerators (fridges, freezers and their combination), washing machines (top and front loaders), tumble driers and their combination, room air conditioners, dishwashers, ovens and hot plates, electric heaters and electric water heaters.

22. Lamps have been excluded from the S&L program because a separate strategy to increase lighting energy efficiency has been developed by ESKOM (paragraph 10).

23. The WG 941 decided to consider a 1 W standby requirement, as well as a power factor requirement for the appliances to be regulated under the S&L program.

24. A draft energy efficiency action plan developed by DoE & DTI, with support from the UNDP, was distributed to all stakeholders at a UNDP/GEF sponsored workshop held on 5th October 2010, stipulating the development and the implementation by 2013 of a mandatory combination of two regulatory tools: Labelling and MEPS programs for the appliances selected by the WG 941.

25. The WG 941 has adopted the EU or International Electrotechnical Commission (IEC) test standards\(^{19}\) for the selected appliances; however the ‘copy and paste’ approach of this adoption didn’t take into account local climatic and usage conditions.

26. The DoE is currently involved in other energy efficiency partnerships with international agencies and although these projects have a different focus area and are independent of the S&L initiative, there is potential of some overlap and opportunities for knowledge sharing and cooperation certainly exists. The projects are:

- Industrial Energy Efficiency Improvement – 2009 to 2013 (jointly funded by UNIDO, GoSA and Swiss Economic Development Cooperation - SECO) with a total budget of $13.5m.
- Energy Efficiency Monitoring and Verification in the building sector – 2010 to 2013 (Swiss Agency for Development and Cooperation - SDC). The program, which has a budget of $17 million over a four year period, has three levels of intervention, namely policy framework, capacity building and project implementation.
  - The policy component of the building sector program specifically targets the National Energy Efficiency targets set out by the DoE, any synergies between the two will be identified to ensure that at best they are not replicated and at worst divergent.
  - Capacity building aims to reduce energy consumption in the building sector.
  - SDC are also funding a new brick manufacturing firing kiln which aims to reduce CO\(_2\) emissions by 40-60%.

Both energy efficiency projects are of specific interest as it may be possible to incorporate the national database (project component 5) as part of this initiative. This will ensure that the S&L program forms part of the national objective to develop a standardised and centrally located database (with the possibility of reducing costs and effort).

27. The SECO activities in SA have the following objectives\(^{20}\):

- Promotion of a competitive and sustainable economy by improving the underlying regulatory, institutional and infrastructural conditions.
- Other countries in the region are also expected to benefit from the promotion of South Africa as a regional centre for economic development, especially in the areas of regional trade, economic policy, biodiversity, tourism and fiscal policy
- Support in the areas of energy efficiency and climate change in order to promote sustainable energy use that is less dependent on fossil fuels (particularly coal)

\(^{19}\) The complete list of the existing test standards is given on Annex 5

These objectives are in line with the project objectives and as such SECO has expressed a willingness to participate in this project by making a financial contribution and participating as a member of the steering committee. This has been accepted by all stakeholders.

b. Policy context

The following regulations have been adopted by the South African Government:

28. South African Energy and Climate timeline: The South African government is aware of the threat posed by climate change and of its responsibility to act to reduce emissions. The national GHG inventory (2009) showed that energy supply and consumption is responsible for 78.9% of the country’s total GHG emissions, due to the country’s almost exclusive use of fossil fuels to drive an energy intensive economy. This prompted the government to conduct research and take policy action to determine the impact of climate change and how it can reduce its reliance on non-renewable energy - and the Long Term Mitigation Strategy (LTMS) of 2007 provided scenarios and possible climate change mitigation activities for the period to 2050. The table below provides an illustration of the development of the South African energy and climate change policy landscape since 1994.

![Policy Timeline Diagram](image)

Figure 7: South African Energy and Climate Policy Timeline

29. The international agreements signed by South Africa which will have an impact on the project:

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United Nations Framework Convention on Climate Change (UNFCCC), where SA committed in Copenhagen to reduce its CO₂ emissions by 34% till 2020 and 42% by 2025.

Super Efficient Appliance Labeling Development (SEAD), which is a global collaborative effort that will assist national governments to accelerate the establishment, expansion and updating of equipment and appliance efficiency standards and labeling programs.

30. The GoSA recently released a draft National Climate Change Response Green Paper, which also specifically commits to:

- 5.4.13 Set ambitious and mandatory targets for energy efficiency and in other sub-national sectors.
- 5.4.14 Improve energy efficiency knowledge and understanding in the various sectors via awareness campaigns, demonstration programs, audits and education, and publicize corporate commitment programs, and public building sector energy efficiency implementation.
- 5.4.15 Develop and implement mandatory appliance labeling for household appliances.
- 5.4.16 Introduce Minimum Energy Performance Standards (MEPS) for appliances and equipment, as well as proposals for mandatory energy rating labeling.


32. Industrial Policy Action Plan 2 (IPAP): The action plan was tabled before Parliament by the DTI in February 2010 - becoming known as IPAP2 - and covering the period 2010–2013 while building on the National Industrial Policy Framework (NIPF) and 2007–2008 IPAP. Its objective is to promote long term industrialisation and diversification beyond the current reliance on traditional commodities and non-tradable services. IPAP2 states that it will target ‘significant interventions .... in green and energy saving industries’; and it is under this mandate that the DTI has collaborated with the DoE on the energy efficiency work plan stipulating the introduction of a mandatory S&L program.

33. National Energy Efficiency Strategy: This strategy was first published in 2005, was reviewed towards the end of 2008 and the review was signed into law in November 2009, stating that DoE is the ministry in charge of implementing the strategy. Under the residential sector section, the strategy stipulates ‘the introduction of appliance labeling’ as an approach to meet the objectives’ and also states ‘it is an intention of the strategy to enhance decision makers’ awareness of issues such as running costs and environmental costs. This will be achieved by the adoption of appropriate standards, awareness and education and by the use of instruments such as appliance labeling’.

34. Relevant South African National Standards (SANS): The SABS’ Standards Division has adopted the international or EU testing procedures/standards and the complete list of standards published to date is included in Annex 5. In many cases, however, there is a need to adapt the test procedures to South African climatic conditions and usage patterns.

35. The Consumer Protection Act, CPA, No. 68 of 2008 was signed into law on 24 April 2009. The aim of the Act is to make markets work better for consumers by ensuring that consumers:

- Are able to make well informed buying decisions.
- Can engage with a wide range of products and services based on honest and fair marketing and selling practices.

• Have access to efficient and effective redress.
• Are educated about their rights and responsibilities.

The (CPA) falls under the auspices of the DTI, but the implementation of the Act has been delayed to 1 April 2011 because the necessary thresholds had not been made public by the DTI to give industry the required time to prepare. These thresholds determine which companies and products need to comply with the Act; other regulations have also not been made public.

c. Barrier Analysis

36. The resistance towards energy efficiency experienced in SA is not dissimilar to what is experienced in other countries where S&L programs have been implemented. However some resistance issues are of greater relevance or have a greater influence than others, with key barriers to the program listed below:

Awareness barriers

37. **Lack of knowledge and understanding of appliances’ energy efficiency improvement opportunities amongst consumers:** Because of historically low electricity prices, consumers have previously not needed to concern themselves with the cost of energy and the payback period of appliances. Thus, when buying energy efficient appliance the consumer is now being asked to pay an extra-cost for a product that will deliver lower running costs. From this as yet ‘uneducated’ buyer’s perspective, the running cost is ‘virtual’ or hard to measure since it can’t be identified in a monthly electricity bill that only shows total household electricity consumption. This underscores the importance of disseminating information amongst end-users on opportunities to save electricity and money by buying efficient appliances.

38. **Uncertainty about market demand of highly efficient appliances:** The lack of information and awareness amongst consumers of the energy efficiency opportunities of appliances has resulted in a low demand and subsequently low supply of highly efficient products. Testimony to this is the failure of the voluntary S&L program introduced in 2005. Meanwhile from local manufacturers’ perspective the market for efficient appliances in SA is not yet mature and they view labelling as an action that would unfairly advantage energy efficient imports. Local manufacturers also appear to be unaware that increasing the efficiency of some appliances doesn’t automatically necessitate high capital investments for the upgrade of manufacturing equipment.

39. To this end, GEF funding will be used to support targeted awareness activities aimed at educating retailers, manufacturers and end-users of the benefits of introducing highly efficient appliances into the South African market (complemented by efforts of local and global NGOs such as the Environmental Goods and Services Forum, the World Wildlife Fund and the Consumer Goods Council). Without GEF support it is unlikely that local manufacturing capacity will achieve the leap in technology to improve productivity and competitiveness (as opposed to the current popular view that it will lead to job losses and reduced sales).

Information and policy barriers

40. **Lack of market data:** There is currently no requirement for manufacturers to report their sales data to the DTI, thus making market analysis in SA difficult if not impossible to collect. For the purpose of this report, Eskom provided us with 2008 sales data which they collected for their DSM program; however the current average efficiency of appliances included in DoE / DTI work plan is unknown. The only efficiencies available are the ones published in CaBEERE report, while Eskom believes

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23 Climate change: Who’s doing what in SA, Adele Faure (2009)
that the failure of the voluntary program has resulted in no essential progress to improve appliance efficiency. The annual energy demand per appliance considered in our analysis is thus taken from CaBBEERE report, and there is a need to collect market data, (total sales and efficiencies) to conduct an engineering analysis in setting up labelling specifications and MEPS thresholds.

41. **Lack of appropriate regulations**: Although SA has the necessary policies in place for the widespread promotion and adoption of energy efficiency, it has been unable to implement and enforce them to the extent of making a material impact. In fact, since energy efficiency has been considered as part of the overall energy policy in SA, the only action taken was the voluntary labelling program for refrigerators in 2005. Having launched the campaign, little or no effort was put into promoting and monitoring the program; moreover no research has been conducted on any impact to date. Anecdotal evidence suggests that it has failed. An interview undertaken by the UNDP consultants with the country’s largest manufacturer and supplier of fridges, (~40% market share), noted that based on the European scale their refrigerators averaged the previous G European rating.

42. GEF funding will therefore also be used to collect market data and conduct analyses that demonstrate the cost benefits of the S&L program to consumers, retailers, manufacturers and the government, as well as to ensure that a legal framework to implement a mandatory S&L program is formulated, adopted and enforced.

**Capacity barriers**

43. **Insufficient capacity to design and implement S&L program**: The institutions needed for the successful design and implementation of the S&L program exist in SA (kindly refer to stakeholders’ analysis section). There is however an overall lack of specialist skills in these institutions, which can be corrected by employing resources such as skilled international S&L experts to train the current staff. It has also been determined that some testing facilities exist, but that these need to be expanded and their equipment needs met through upgrades and/or new acquisitions. The equipment that is currently available is not suited for appliance energy efficiency testing and it is unclear at this stage what is actually available and operational. An audit of existing public and private testing facilities is therefore required to formulate an accurate assessment of the testing equipment and training needed to implement a successful S&L program. This should also be coupled with adapting EU / IEC test procedures to South African climatic conditions and usage patterns.

44. **Limited institutional capacity and coordination**: Although the DoE is mandated and ultimately accountable for the implementation of the Energy Efficiency Strategy across all the sectors identified, this is not the case in practise. Eskom, for example, falls under the Department of Public Enterprises and not the DoE, but is almost exclusively responsible for implementing and managing all energy saving programs which qualify for a rebate (refer to paragraph 53 and figure 9 for more details). The DTI also has an interest in the S&L program through IPAP2, which is why it developed the energy efficiency action plan in partnership with the DoE (paragraph 61).

The risk of so many differing key players being involved in this project is that they may have differing views and priorities, which could compromise the project. Implementing and monitoring such a program is also complex and the country has little experience in this field. (Please refer to the S&L stakeholders’ diagram (figure 9) which illustrates the roles and interactions between the ministries.)

45. **Lack of procedures for compliance checking**: The National Regulator for Compulsory Specifications (NRCS) has developed and implemented a compliance procedure for health and safety issues, but not as yet for energy requirements. This creates an urgent need to develop S&L market surveillance, compliance and enforcement procedures based on the international best practices and to train staff to conduct this work.

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46. Apart from upgrading public testing facilities, GEF funding will allow for existing institutions to be strengthened via skills training for key personnel. Indeed, with UNDP/GEF support international experts will be able to share lessons learnt from other S&L programs and ensure critical knowledge transfer to their South African counterparts in joining the international S&L community.

47. Ultimately, without GEF intervention it is unlikely that the Government would be able to put into place a comprehensive multi-sectoral policy initiative to integrate the S&L program for appliances into the residential sector. It is also unlikely that local retailers and manufacturers would take the required improvements in marketing and technology that are required.

Cost barriers

48. **Low price of electricity**: As illustrated earlier, even after four very high, consecutive tariff increases (14.2% 2007, 27.5% 2008, 34.1% 2009 and 24.8% 2010) SA’s electricity prices in 2010 still remain amongst the lowest in the world. This makes the luxury of cheap energy prices and abundant supply over an extended period somewhat ingrained in the consumer psyche. Historically, Eskom has had a reserve margin of more than 25% since the 1980’s - only dropping to below 20% in 2003. Indeed, there was such an oversupply that three power stations with a combined generation capacity of 3,645MW\(^{26}\) were decommissioned in the 1990’s, although they have now been brought back into service. But the consequence of earlier abundance and its resultant pricing has been the proliferation of an ‘energy is cheap’ attitude, viewed as a minor input cost relative to raw material and labour. Energy efficiency has therefore never really been seriously considered in personal or business decisions, and to a large degree continues to be absent as a criteria in the decision making process.

49. **Low purchasing power of the majority of South African households**: The monthly income of South African households is still very low, as shown in Figure 7. This has resulted in appliances not being disposed of but passed on to indigent households (sold and/or given); this practise extends the overall lifespan of the appliance. Moreover there is a low public awareness of the need for energy efficiency for reasons explained in the previous paragraph. Thus when purchasing a new appliance, the consumer in most instances lacks the necessary product knowledge to make an informed decision and relies on surrogate indicators of quality, such as price, store name and brand image to make a decision. This use of surrogate indicators of quality does however not necessarily imply informed, responsible buyer behaviour\(^{27}\), and Eskom is currently investigating the feasibility of introducing a point of sale rebate, or cash back scheme, to encourage consumers at the point of sale to buy a more energy efficient appliance. The Eskom initiative is complementary with the S&L program and can accelerate the transformation of the SA market. Regarding the grants / loans for manufacturers, DTI does have some programs and schemes which provide soft loans or grants, which can assist manufacturers who need to apply for the fund, with each application assessed on its individual merits. Carbon credits on the other hand remain an unlikely source of income due to the complexity and duration required in registering a program, with fewer than 20 projects registered in SA\(^{28}\).

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\(^{27}\) Inexperienced consumers’ choices of major household appliances, Erasmus Makgopa Kachale, 2005, Journal of family ecology and consumer services.

\(^{28}\)[http://cdm.unfccc.int/Projects/projsearch.html](http://cdm.unfccc.int/Projects/projsearch.html)
50. GEF funding will also enable the pilot testing of efficient appliance rebates to be implemented. Without such support, full implementation is likely to take more time and to repeat past mistakes; while the South African Government can benefit from the experience gathered in other countries.

d. Stakeholder Analysis

The main stakeholders involved in the S&L program are represented in Figure 9.
51. **Treasury** provides funding to all ministries, based on applications made by them.

52. **The Department of Energy (DoE)** was created in 2009 from the split of the original Department of Minerals and Energy (DME) into two departments that became independent standalone entities, now fully focused on their respective areas - energy and minerals. For its part, the DoE has to ensure that diverse energy resources are available in sustainable quantities and at affordable prices, so as to support economic growth and to deliver universal access to energy by 2012. The DoE is further responsible for ensuring the supply of liquid fuels, nuclear energy, power generation, energy planning, renewable energies and contingency energy supply, as well as being the home of the Designated National Authority which manages applications for all CDM projects.

53. The following organizations fall under the DoE:

- **South African National Energy Development Institute (SANEDI)**, is a research institute promulgated by the Energy Act, but has not yet received the funding from Treasury to commence operations. The funding is however believed to imminent, and the objective is to assimilate the existing SANERI and NEEA as shown in the diagram above.
- The **National Energy Efficiency Agency (NEEA)**, which falls under the auspices of the DoE, also finds itself in the same position as SANEDI with regards to funding. NEEA's role is to promote energy efficiency projects, such as the ones undertaken by Eskom and other entities in SA, but is not responsible for overseeing the DSM program.
- **South African National Energy Research Institute (SANERI)** is the public entity entrusted with the coordination and undertaking of public interest energy research, development and demonstration. The Department of Science and Technology, together with the DoE, are joint...
custodians of SANERI and assist in providing political and strategic focus for the organization. (NEEA is a division of SANERI.)

**Note:** Although these institutions have been set up as legal entities, to date they have not received funding to commence operations. As such they remain under-resourced and have little or no capacity.

54. The **Department of Trade and Industry (DTI)** is one of the biggest government ministries, dealing with a plethora of issues in the sector it oversees. Its primary objectives are to:

- Provide leadership to the South African economy through its understanding of the economy, its knowledge of economic opportunities and potential, and its contribution to ASGISA (Accelerated Shared Growth Initiative for SA);
- Act as a catalyst for the transformation and the development of the economy, and to respond to the challenges and opportunities of the economic citizens, in support of the government's economic goals of growth, employment and equity.
- Respond to the challenges and opportunities in the economy and society as a whole.
- Provide a predictable, competitive, equitable and socially responsible environment for investment, enterprise and trade.

DTI's goal is to phase out energy inefficient equipment from the South African market and it is involved in the energy efficient appliance labeling program through IPAP2 and the Energy Efficiency work plan developed jointly with DoE.

55. The following organizations fall under the DTI:

- **The South African Bureau of Standards (SABS)** is the national standardization organization; and has over sixty years of experience in its core function of developing national standards and maximising the benefits of international standards through adoption. Seen as enhancing the competitiveness of the South African industry and advancing international trade, the SABS falls under the DTI, but is available to all ministries due to the nature of the services they offer. SABS has signed a Memorandum of Understanding with DoE and as such has formed a working relationship with them which can be used for this project. (The public testing facilities fall under the SABS.)

- **National Regulator for Compulsory Specifications (NRCS):** The National Regulator for Compulsory Specifications Act (Act 5 of 2008) was promulgated on the 4th July 2008 and took effect on 1st September 2008. The Act transferred the Regulatory Division of the SABS and all regulatory functions of the SABS to a new statutory DTI institution - the NRCS - whose role is to ensure that all compulsory specifications, as mandated by law, are adhered to. It also administers applicable legislation in an independent, effective and efficient way. As such the MSC (market surveillance, compliance and enforcement) component of the S&L program would fall under the NRCS mandate.

- **South African National Accreditation Agency (SANAS):** SANAS is recognized by the South African Government as the single National Accreditation Body giving formal recognition that Laboratories, Certification Bodies, Inspection Bodies, Proficiency Testing Scheme Providers and Good Laboratory Practice (GLP) test facilities are competent to carry out specific tasks. SANAS is responsible for the accreditation of Certification bodies under ISO 17021 and 17024; Laboratories under ISO 17025; and Inspection Bodies under ISO 17020 standards.

56. The **Department of Science and Technology (DST)** is tasked with maximising the impact of science and technology on growth and sustainable development in SA. In the case of the project, the DST will promote further research into energy efficiency in appliances, because it has a specific program through which academics provide input into programs of national interest. The WG941 for example, is
being co-ordinated by an academic from the Electrical Engineering faculty of the University of the Witwatersrand.

57. The Department of Public Enterprise (DPE) manages state owned enterprises (SOEs) such as Eskom which is the public utility company, generating approximately 95% of the electricity used in SA and approximately 45% of the electricity used in Africa. Eskom generates, transmits and distributes electricity to industrial, mining, commercial, agricultural and residential customers and redistributors, such as municipalities. Eskom has set up a Demand Side Management (DSM) division to make deliberate interventions in the marketplace so as to change the configuration or magnitude of the load shape in the residential, commercial, industrial and agricultural sectors. Some of the residential projects undertaken by Eskom’s DSM division are the CFL rollout and the solar water heaters rebate program.

58. Independent testing facilities: SA has two independent test facilities that are promoting themselves and lobbying to be included in the S&L program. Having multiple test centres must be encouraged because it provides extra capacity and stimulates competition; but the private testing facilities also need to be upgraded and their staff trained. Private testing facilities will also only invest in new equipment if there is certainty that the S&L program will be implemented and they will be allowed to participate in it.

59. Non-Governmental Organizations (NGOs): Environmental and consumer NGO’s will be invited to participate and are viewed by government as important stakeholders.

60. Consumer Goods Council of SA (CGCSA): This is a non-profit organization which represents over 11,000 member companies in the retail, wholesale and manufacturing of consumer goods. The organization’s mission is to promote partnership amongst its stakeholders across the consumer goods industry in resolving shared non-competitive matters in the most efficient manner and to the ultimate benefit of the consumer.

61. The Swiss Economic Development Cooperation (SECO): SECO is responsible for the planning and implementation of economic and trade policy measures with developing countries. SECO has two main objectives: to support the integration of partner countries into the global economy, and to promote their sustainable economic growth, thus contributing to poverty reduction. In order to do this, SECO intervenes principally to promote stable economic framework conditions, to strengthen competitiveness and to support trade diversification, to mobilize Swiss and foreign investment, and to improve the basic infrastructure. Particular attention is paid to questions concerning economic governance, the climate, energy and the environmental issues.

Having reviewed the project documentation SECO have confirmed that it is in line with their climate change mitigation strategy and country strategy for South Africa. Based on this, the agency has committed to support the project with a $4m non-reimbursable cash contribution.

e. Baseline Analysis

62. The baseline analyses for the appliances which are to be included in the program were sourced as follows:

- Sales data: - Euromonitor Report for 2008;
- Energy consumption: - CaBEERE Report (based on SA testing procedures);
- Appliance lifetime: - Based on discussions with industry – no report found;
- Potential for efficiency improvement: - Based on discussions with industry – no report found.

Given that no empirical research was found on the estimated lifetime of each appliance and the potential for energy efficiency savings, the consultants sourced this information from meetings with
manufacturers and suppliers. The consultants consolidated the responses and took the following measures to ensure that it was reasonable and reliable:

- The figures were cross referenced against the figures used in Eskom’s ‘Fish where the big fish are’ (refer to reference 9).
- The figures were discussed at a meeting held with Eskom’s chief engineer for power systems and technologies (reference 21).
- The figures were reviewed by the consulting team currently compiling a report for Eskom on an incentive program for appliances.
- The figures were checked against international figures.

63. Based on the data available during the preparation of this report, our estimate of the direct CO\textsubscript{2} emissions reduction due to the implementation of mandatory S&L programs for the 12 selected appliances will be 4.54 Mt CO\textsubscript{2} over the project time (2011-2016); while the electricity demand will be reduced by 4.41 TWh during the same period.

64. Using the GEF bottom-up methodology, the indirect CO\textsubscript{2} emissions reduction is estimated at 11.4 Mt CO\textsubscript{2}, assuming a replication factor of 2.5

65. The total CO\textsubscript{2} emissions reduction expected from the GEF project is 15.9 Mt CO\textsubscript{2} which leads to 0.27 US$ per tCO\textsubscript{2} reduced.
### Refrigeration appliances

<table>
<thead>
<tr>
<th>Appliances</th>
<th>Sales 2008 (Euromonitor report)</th>
<th>Annual energy consumption per unit (kWh/yr) (CaBEERE report)</th>
<th>Estimated EE improvement (CaBEERE report + stakeholders inputs)</th>
<th>Annual penetration rate of efficient appliances</th>
<th>Annual carbon emissions reduction ( (c=1.03 \text{tCO}_2/\text{Mwh}) )</th>
<th>Life time (years) (CaBEERE report + stakeholders inputs)</th>
</tr>
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<tbody>
<tr>
<td>Fridge freezers</td>
<td>556,000</td>
<td>1,284</td>
<td>5%</td>
<td>10%</td>
<td>36,766</td>
<td>15</td>
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<td>Fridges</td>
<td>306,000</td>
<td>588</td>
<td>5%</td>
<td>10%</td>
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<tr>
<td>Freezers</td>
<td>254,900</td>
<td>540</td>
<td>5%</td>
<td>10%</td>
<td>7,089</td>
<td>15</td>
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</table>

### Home Laundry Appliances

<table>
<thead>
<tr>
<th>Appliances</th>
<th>Sales 2008 (Euromonitor report)</th>
<th>Annual energy consumption per unit (kWh/yr) (CaBEERE report)</th>
<th>Estimated EE improvement (CaBEERE report + stakeholders inputs)</th>
<th>Annual penetration rate of efficient appliances</th>
<th>Annual carbon emissions reduction ( (c=1.03 \text{tCO}_2/\text{Mwh}) )</th>
<th>Life time (years) (CaBEERE report + stakeholders inputs)</th>
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<tbody>
<tr>
<td>Automatic washing machines</td>
<td>400,300</td>
<td>281</td>
<td>5%</td>
<td>5%</td>
<td>5,793</td>
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<tr>
<td>Automatic washer dryers</td>
<td>13,700</td>
<td>397</td>
<td>5%</td>
<td>5%</td>
<td>280</td>
<td>15</td>
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<tr>
<td>Automatic tumble dryers</td>
<td>129,600</td>
<td>864</td>
<td>5%</td>
<td>5%</td>
<td>5767</td>
<td>15</td>
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### Dishwashers

<table>
<thead>
<tr>
<th>Appliances</th>
<th>Sales 2008 (Euromonitor report)</th>
<th>Annual energy consumption per unit (kWh/yr) (CaBEERE report)</th>
<th>Estimated EE improvement (CaBEERE report + stakeholders inputs)</th>
<th>Annual penetration rate of efficient appliances</th>
<th>Annual carbon emissions reduction ( (c=1.03 \text{tCO}_2/\text{Mwh}) )</th>
<th>Life time (years) (CaBEERE report + stakeholders inputs)</th>
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<tbody>
<tr>
<td>Front load</td>
<td>76,500</td>
<td>300</td>
<td>10%</td>
<td>5%</td>
<td>2,364</td>
<td>15</td>
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### Cooking appliances

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<thead>
<tr>
<th>Appliances</th>
<th>Sales 2008 (Euromonitor report)</th>
<th>Annual energy consumption per unit (kWh/yr) (CaBEERE report)</th>
<th>Estimated EE improvement (CaBEERE report + stakeholders inputs)</th>
<th>Annual penetration rate of efficient appliances</th>
<th>Annual carbon emissions reduction ( (c=1.03 \text{tCO}_2/\text{Mwh}) )</th>
<th>Life time (years) (CaBEERE report + stakeholders inputs)</th>
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</thead>
<tbody>
<tr>
<td>Electric hot plates</td>
<td>130,000</td>
<td>301</td>
<td>5%</td>
<td>10%</td>
<td>2,015</td>
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<td>Ovens</td>
<td>110,900</td>
<td>3,353</td>
<td>5%</td>
<td>10%</td>
<td>19,150</td>
<td>15</td>
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### Space heating/cooling

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<tr>
<th>Appliances</th>
<th>Sales 2008 (Euromonitor report)</th>
<th>Annual energy consumption per unit (kWh/yr) (CaBEERE report)</th>
<th>Estimated EE improvement (CaBEERE report + stakeholders inputs)</th>
<th>Annual penetration rate of efficient appliances</th>
<th>Annual carbon emissions reduction ( (c=1.03 \text{tCO}_2/\text{Mwh}) )</th>
<th>Life time (years) (CaBEERE report + stakeholders inputs)</th>
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<tbody>
<tr>
<td>Electric heaters</td>
<td>586,900</td>
<td>450</td>
<td>5%</td>
<td>10%</td>
<td>13601</td>
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<tr>
<td>Room air conditioners</td>
<td>211,600</td>
<td>1,800</td>
<td>5%</td>
<td>5%</td>
<td>19615</td>
<td>15</td>
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<tr>
<td>Water heaters</td>
<td>500,000</td>
<td>5,400</td>
<td>10%</td>
<td>10%</td>
<td>278,100</td>
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Table 2: Assumptions for CO2 emission reduction calculation
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<td>2014</td>
<td>0.046</td>
<td>0.012</td>
<td>0.009</td>
<td>0.007</td>
<td>0.000</td>
<td>0.007</td>
<td>0.000</td>
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<td>0.000</td>
<td>0.003</td>
<td>0.024</td>
<td>0.022</td>
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<td>0.176</td>
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<td>2015</td>
<td>0.184</td>
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<td>0.035</td>
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<td>0.001</td>
<td>0.029</td>
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<td>0.008</td>
<td>0.074</td>
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<td>0.098</td>
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<td>2016</td>
<td>0.413</td>
<td>0.104</td>
<td>0.080</td>
<td>0.045</td>
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<td>0.065</td>
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<td>0.221</td>
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<td>2017</td>
<td>0.734</td>
<td>0.185</td>
<td>0.142</td>
<td>0.077</td>
<td>0.004</td>
<td>0.115</td>
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<td>0.027</td>
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<td>0.181</td>
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<td>0.614</td>
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<td>2019</td>
<td>1.656</td>
<td>0.417</td>
<td>0.319</td>
<td>0.167</td>
<td>0.008</td>
<td>0.261</td>
<td>0.054</td>
<td>0.058</td>
<td>0.558</td>
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<td>2020</td>
<td>2.258</td>
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<td>2021</td>
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<td>0.745</td>
<td>0.570</td>
<td>0.296</td>
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<td>0.465</td>
<td>0.096</td>
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<td>1.580</td>
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<td>2022</td>
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<td>2023</td>
<td>4.636</td>
<td>1.168</td>
<td>0.894</td>
<td>0.467</td>
<td>0.023</td>
<td>0.729</td>
<td>0.150</td>
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<td>1.556</td>
<td>1.428</td>
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<td>2024</td>
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<td>0.568</td>
<td>0.028</td>
<td>0.884</td>
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<td>0.197</td>
<td>1.894</td>
<td>1.738</td>
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<td>2025</td>
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<td>1.685</td>
<td>1.290</td>
<td>0.681</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>MtCO2</th>
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<th>MtCO2</th>
<th>MtCO2</th>
<th>MtCO2</th>
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<tr>
<td>2014</td>
<td>0.048</td>
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<td>0.009</td>
<td>0.008</td>
<td>0.000</td>
<td>0.008</td>
<td>0.002</td>
<td>0.003</td>
<td>0.025</td>
<td>0.023</td>
<td>0.026</td>
<td>0.181</td>
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<td>2015</td>
<td>0.189</td>
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<td>0.001</td>
<td>0.030</td>
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<td>0.077</td>
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<td>2016</td>
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<td>0.107</td>
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<td>0.047</td>
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<td>0.067</td>
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<td>0.119</td>
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<td>0.264</td>
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<td>2018</td>
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<td>0.038</td>
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<td>2019</td>
<td>1.706</td>
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<td>0.329</td>
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<td>0.268</td>
<td>0.055</td>
<td>0.060</td>
<td>0.574</td>
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<td>2020</td>
<td>2.326</td>
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<td>0.449</td>
<td>0.234</td>
<td>0.012</td>
<td>0.366</td>
<td>0.075</td>
<td>0.081</td>
<td>0.778</td>
<td>0.714</td>
<td>1.243</td>
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<td>2021</td>
<td>3.044</td>
<td>0.767</td>
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<td>0.305</td>
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<td>0.099</td>
<td>0.106</td>
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<td>11.514</td>
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<td>2022</td>
<td>3.861</td>
<td>0.973</td>
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<td>0.388</td>
<td>0.019</td>
<td>0.607</td>
<td>0.125</td>
<td>0.135</td>
<td>1.292</td>
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<tr>
<td>2023</td>
<td>4.775</td>
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<td>0.751</td>
<td>0.155</td>
<td>0.167</td>
<td>1.603</td>
<td>1.470</td>
<td>2.552</td>
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<tr>
<td>2024</td>
<td>5.784</td>
<td>1.458</td>
<td>1.116</td>
<td>0.585</td>
<td>0.029</td>
<td>0.910</td>
<td>0.187</td>
<td>0.203</td>
<td>1.951</td>
<td>1.790</td>
<td>3.092</td>
<td>21.877</td>
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<tr>
<td>2025</td>
<td>6.887</td>
<td>1.736</td>
<td>1.328</td>
<td>0.701</td>
<td>0.035</td>
<td>1.084</td>
<td>0.223</td>
<td>0.244</td>
<td>2.337</td>
<td>2.144</td>
<td>3.682</td>
<td>26.049</td>
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</tr>
</tbody>
</table>

Table 2: Energy savings and direct CO2 emissions reduction
II. PROJECT STRATEGY

a. Project Rationale and Policy Conformity

66. The energy efficiency action plan developed by DoE & DTI outlines the development and the implementation by 2013 of a mandatory S&L program. The appliances included in the plan are refrigerators, freezers and their combinations, water heaters, air conditioners and heaters, washing machines, driers and their combinations, dishwashers, hot plates and ovens. This action plan is one of several initiatives that will be taken in order to reach the South African Energy Efficiency Strategy’s target of 10% reduction of energy demand in the residential sector by 2015.

67. From the objectives and timelines perspective, the GEF project is aligned with the Energy Efficiency action plan developed by DoE & DTI; all the products included in the GEF project are the ones in the EE action plan. The barriers that the GEF project will tackle are the ones identified by the stakeholders during the inception workshop held on October 5, 2010 in Johannesburg.

68. GEF funding will help to strengthen the South African Ministries and Agencies involved in the S&L project, by providing best practices/lessons learnt, skills transfer and training, and the building of local technical capacities. This project is also consistent with the objectives of the two United Nation's Country Programs for SA - Common Country Program Action Plan (CCPAP) 2007 – 2010 and the United Nations Development Assistance Framework for SA (UNDAF) 2007 – 2010, which have set the following goals and outcomes:

- CCPAP: The UNDP under the sustainable development component commits to ‘providing technical support to DEAT through initiatives geared to the conservation of the natural ecosystem for providing sustainable livelihoods, economic growth, poverty alleviation and climate change / energy’.
- CCPAP: UNIDO is committed to assisting the South African Government in achieving its national objectives, one of which is energy and environment. This is defined as ‘developing energy efficiency, renewable energy sources and encouraging cleaner production’. (UNIDO’s commitment to support industrial energy efficiency has progressed to the project phase as detailed in paragraph 26.).
- UNDAF: Outcome 4 of the Economic, Investment and Employment cluster is to strengthen Government capacity to implement selected first economy interventions; and one of the priority sectors identified is renewable energy.

69. The GEF S&L project is articulated around the following components:

- Use and strengthen the existing framework to implement the S&L program.
- Develop the labeling specifications and MEPS thresholds for the selected products.
- Develop the necessary capacity, upgrade skill levels and create awareness.
- Implement the necessary market surveillance, compliance and enforcement procedures.
- Ensure a holistic evaluation process is implemented to disseminate key findings.

70. The GEF intervention strategy is to address the policy, information, technology and financial barriers which are preventing the widespread introduction and uptake of efficient appliances. Through the responsible ministries, GEF funds will be used to provide assistance to the Government, national agencies and the private sector to introduce and implement the mandatory S&L program successfully. At the same time relevant capacity building activities will be implemented through training and technical assistance. GEF-funded activities will particularly target importers and retailers (actors who play an important role in influencing the purchase decision of consumers) by setting up a comprehensive awareness and information dissemination campaigns.

71. The requirements for a comprehensive capacity building and outreach program - along with strengthening the necessary legal, regulatory and institutional frameworks - are in line with GEF 4
b. Project Goals, objectives, outputs and activities

Project goals and objectives

72. The goal of the project is to reduce GHG emissions caused by household appliances’ electricity consumption by facilitating a comprehensive market transformation of the South African market towards the use of energy efficient electrical appliances. This will be achieved through the introduction of a combination of two regulatory tools - Minimum Energy Performance Standards and Information Labels (S&L).

73. The main objective of the GEF project is to remove the most significant barriers impeding the widespread uptake of energy efficient residential appliances. Each outcome identified in this document has been selected to address a particular barrier. The project will thus look to establish and implement a mandatory energy labelling and standards program, and will further attempt to push efficiency levels beyond the mandatory standard through an educational and awareness program.

74. The second objective of the project is to assist households in making a contribution towards meeting the 10% electricity demand reduction target by 2015. This will contribute towards the South African Government reaching its overall target of 12% demand reduction by 2015 and improving energy security. Other benefits include:

• Cost savings for households from reduced energy bills.
• Keeping the importance and need for energy efficiency at the forefront of the national psyche.
• Sending a clear signal from government that it is taking action at all levels to address the energy crisis and climate change. If implemented successfully, this project will reduce the annual energy demand by as much as 388 GWh and contribute towards a substantial reduction in GHG emissions.

c. Project outputs and activities

75. The outcomes of this project are inter-dependent and inter-related; all have to be addressed to remove barriers and ensure a successful implementation of the S&L program.

76. The project task and activities have been sequenced in a manner which, as much as is practically possible, aims for an equal distribution of the funding and deliverables over the five year duration of the project. The objective is to minimize excessively busy and quiet periods. This will result in a stable working environment and reduce the need to hire consultants or additional resources on a short term contract basis. As stated earlier, the bulk of the DTI co-financing is made up of the mandatory levy that will be charged on products which must comply with compulsory specifications. This levy can only be collected once the necessary regulations for minimum efficiency standards on household appliances have been enacted; this is expected to take place in 2013. A further consideration is that the revenue from the levies can only be used to finance NRCS related activities, which are compliance and product testing. GEF, SECO and the ‘in-kind’ contribution from the DoE will be used for all the other tasks listed in the log frame and budget.
77. The sequencing of the activities planned to be undertaken are as follows:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Policy and regulatory framework for the S&amp;L program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Define labeling specifications and MEPS thresholds for the 12 products</td>
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<tr>
<td>3. Strengthen the capacity of institutions and individuals involved in</td>
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<tr>
<td>4. Awareness raising campaign for standards and labels, targeting</td>
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</tr>
<tr>
<td>5. Implementation of a Monitoring, Verification and Enforcement (MSC)</td>
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<td></td>
<td></td>
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<tr>
<td>6. Evaluation and dissemination of the S&amp;L program</td>
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</tbody>
</table>

Table 3: Activity planning

78. **Outcome 1: Policy and regulatory framework for the S&L program**: The outcome will review, and where necessary refine or define, the policy framework and the institutional arrangements needed for the widespread uptake of energy efficient appliances in the market. As SA has already decided to implement a mandatory S&L program for household appliances, rules must be established for all subsequent steps such as stakeholder inputs, analysis, market surveillance, compliance, testing, enforcement, monitoring, dissemination and evaluation.

**Output 1.1: Review of existing policies and regulations – Provision of feedback and advice for any corrective or new action to be taken to reduce project risks.**

**Activities:**
- Review the existing regulations that might impact the S&L program and make recommendations for improvement. The Department of Environmental Affairs, for example, is developing an eco-labeling program which may include appliances and this should to be compared and integrated into the current DoE regulations.
- State the measures to be taken to implement the recommendations.
- Monitor the outputs of the project and distil the necessary information to update and / or revise the policy and the implementation framework.
- Insure stakeholder involvement in the review process.

**Output 1.2: Evaluation of financial incentives**

**Activities:**
- Evaluate the existing and planned financial incentives being considered, to ensure that they form part of the overall program. This is not limited to the Eskom DSM initiative, but will consider all other programs, both financial and non-financial (such as appliance endorsements).
- Identify new financial mechanisms (concessionary and grant funding) which could be accessed by all stakeholders who will need to invest in their operations to comply with the pending mandatory S&L.

79. **Outcome 2: Define labeling specifications and MEPS thresholds for the 12 products considered by the DoE & DTI for S&L regulation.** The outcome will propose energy classes for the information label and MEPS thresholds for the 12 identified appliances, by conducting market and engineering analyses to demonstrate the cost effectiveness of the proposed specifications. Market research and industry studies will be undertaken to guide stakeholders in their decision making process.
Output 2.1: Conduct market and engineering analyses for the 12 products selected for S&L regulation

Activities:
- Collect sales and engineering data for the selected products.
- Conduct the engineering and market analysis.
- Involve stakeholders in the whole process.

Output 2.2: Adopt labelling specifications and MEPS thresholds for the 12 products selected for S&L regulations

Activities
- Propose energy classes and MEPS thresholds to stakeholders.
- Conduct impact assessment analyses on consumers, retailers, manufacturers and energy demand.
- Adopt the energy classes and MEPS thresholds that are technologically feasible and economically / environmentally acceptable in the South African context.

80. Outcome 3: Strengthen the capacity of institutions and individuals involved in the S&L program. This outcome will strengthen the capacities of agencies such as NEEA, NRCS, SABS and testing facilities, by providing training to the current staff and identifying the required skills for successful implementation and monitoring of the S&L program.

Output 3.1: Strengthen institutions.

Activities
- Audit the existing institutions to identify weaknesses in terms of staff, training and equipment;
- Work on the accreditation of testing facilities and enforcement institutions.
- Establish the necessary forums and intergovernmental and public private partnerships, to ensure policy and actions are discussed and communicated.
- Install mechanisms that ensure the DoE and DTI efforts are in alignment and coordinated.
- Assist SABS in their assessment of the gaps between the existing testing facilities and the needed capacities to test products for energy requirements.
- Upgrade testing facilities.

Output 3.2: Strengthen employee skills.

Activities:
- Provide training for standardization experts in the adaptation of EU/ IEC test procedures to South African climatic conditions and usage patterns.
- Provide training to testing experts on how to report on testing results related to energy requirements and how to reconcile tested data with that which is claimed.
- Organize study tours to European laboratories.
- Involve the South African experts in the ongoing international harmonization of test procedures;
- Provide training on market surveillance, compliance and enforcement of energy requirements.
- Provide training to inspectors for trade inspections and compliance checking at distributors and retail outlets.

81. Outcome 4: Awareness raising campaign for standards and labels - targeting manufacturers, distributors, retailers and end-users. This outcome includes the provision of information – in cooperation with main importers and the power utility – about the costs and benefits of energy efficient products, together with an explanation of energy labels and MEPS. A training program will be prepared for distributors and retail staff, to help them inform end-users about the benefits of
purchasing efficient products. The program will also help them understand the business opportunities of selling efficient appliances.

**Output 4.1: Test and adopt label design**

**Activities:**
- Significant work has already been done locally on the design and testing of the label, but this was done only on medium to high income groups. It is therefore anticipated that the proposed label design will need to be tested on a sample of low income consumers, to ensure that the label will indeed encourage them to decide on efficient appliances.
- Identify issues, recommend corrective action(s) and make necessary changes.
- Adopt the label design and inform stakeholders.

**Output 4.2: Develop communication campaign towards manufacturers, importers, distributors, retailers and consumers about appliance energy efficiency.**

**Activities:**
- Provide information about appliance energy efficiency principles, and the costs and benefits of more efficient appliances to end-users and retailers.
- Provide information on the impact of any new energy efficiency regulations, the date of entry of these regulations, compliance requirements, the national S&L program, support opportunities and consequences of non-compliance.
- Ensure that the campaign distinguishes between households complying with the requirements of the new law and the financial benefits of voluntarily choosing to purchase an appliance which exceeds MEPS.

**Output 4.3: Develop and deliver a training program for distributors and retailers staff.**

**Activities:**
- Develop a training program for distributor and retailer sales staff, focusing on the sales of efficient appliances.
- Undertake a trial run with a major retailer.
- Deliver regular training programs to the sales staff of at least for the top 5 distributors and retailers.

82. **Outcome 5: Implementation of a Market Surveillance and Compliance (MSC) regime to ensure energy performance standards are met:** This outcome addresses the need to introduce the necessary verification procedures for energy requirements, including the addition of energy performance compliance checking with pre-export inspections, sub-standard or second-hand products, and the improvement of trade inspections with importers and distributors.

**Output 5.1: Development of Market Surveillance and Compliance procedures**

**Activities:**
- Propose MSC procedures based on international experience on MSC activities and the South African experience on safety and health compliance.
- Involve stakeholders in the process.
- Collect recommendations and improve the MSC proposal.
- Disseminate and train stakeholders and inspectors on MSC procedures.

**Output 5.2: Integration of product energy performance compliance checking with local manufacturers and country pre-export inspections.**
Activities:
- Implement the MSC procedures, starting from year 1 of the implementation of the program.
- Develop a nationwide database, with the required level of detail, which records the sales and efficiencies of all households’ appliances regulated under the S&L program.
- Publish and disseminate the results of MSC activities to all stakeholders.

83. **Outcome 6: Evaluation and dissemination of S&L program:** This outcome focuses on evaluating the S&L program and the lessons learnt from its implementation, with the objective of replicating similar programs for new appliances and equipment. Another objective is to improve the understanding (i.e. learning) of energy efficient product market transformation i.e. disseminating lessons learnt, for rapid implementation of the next set of household appliances.

**Output 6.1: Prepare a program for replication of activities implemented under outcomes 1 to 5.**

Activities:
- Closely follow the implementation of the activities under outcomes 1 to 5 and distil the necessary elements.
- Design a roll-out program for the similar market transformation activities of other household appliances and equipment.

**Output 6.2: Implementation of Monitoring & Evaluation (M&E) methodology for S&L programs**

Activities:
- Implement M&E process to evaluate the entire S&L program.
- Train professionals to execute the process.
- Develop a database which will serve as the national database and store all relevant information.
- Consult with Eskom to assist with the metering program, given their extensive experience and expertise in this area, to conduct metering campaigns and consumer questionnaire surveys.
- Record outcomes and use relevant information as feedback for the next revision of S&L requirements.
- Make sure the project complies with all GEF reporting requirements, guidelines and evaluations.

d. **Project Indicators, Risks and Assumptions**

84. Key indicators of the project’s success will include:

- Implementing of global S&L best practices such as enforcement, transparency and involvement of all stakeholders.
- Quantifying the amount of CO₂ emissions reduction achieved.
- Upgrading local manufacturing facilities and producing highly efficient appliances locally.
- Increasing households’ awareness about the benefits of energy efficiency and the climate change risks of excessive energy use.
- Increasing market share of efficient appliances.
- Contributing to the overall objective of a 10% energy demand reduction in the residential sector by 2015.
- Increasing local S&L skills and capacity through a skills transfer process (the key skills being testing, compliance and research).

85. Assumptions:

- The South African Government is committed to introducing a mandatory S&L program for household appliances, which implies that the necessary financial contributions will be made.
- Proactive involvement by all government agencies participating in the program.
- SECO co-funding materializes as expected.
- NRCS will be vigorous in compliance and enforcement, with the market place monitored and appropriate steps taken against transgressors.
- No conflicting programs in this area will be introduced by the Government.

86. The project presents some risks which are discussed in the following table:
### Table 4: Risks of the S&L Project

<table>
<thead>
<tr>
<th>Risk</th>
<th>Assessment</th>
<th>Reason for ranking and mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legislative risk</td>
<td>Low-Med</td>
<td>The South African parliament has passed and adopted the Energy Act (2008) and the Energy Efficiency Strategy was adopted in 2005 (reviewed 2008). It stipulates the mandatory implementation of a labeling and standards program for household appliances to reach the target of 10% of energy demand reduction in the residential sector. The DoE and DTI have also developed a mutual energy efficiency action plan. The document has been made public and is out for stakeholder comments. Delays may occur during the process due to individual industrial interests but the regulatory framework is unlikely to experience delays that will affect the project. The project must be observant of the processes and provide the necessary support as required. No mitigation is necessary.</td>
</tr>
<tr>
<td>Institutional risk</td>
<td>Low - Med</td>
<td>To have a measurable impact of S&amp;L program, experience has demonstrated that a multi-sectoral approach is required. The risk remains that institutional rivalries, or lack of communication, will slow down cooperation among ministries. A further concern is the capacity issues being experienced at the DoE. This is being addressed within the department and they have committed to rectifying the situation. Some of the steps taken to date include the appointment of director for energy efficiency and a chief technical advisor for building sector energy efficiency. Further resources and project prioritization within the department has been pledged. The project will mitigate this risk with frequent stakeholder consultations, which will facilitate ongoing policy dialogue between public and private sector stakeholders and provide a forum to harmonize the programs of participating ministries. The PSC will be chaired by the Director for Energy Efficiency at the DoE or a someone at a similar of higher level.</td>
</tr>
<tr>
<td>Technical risk</td>
<td>Low - Med</td>
<td>The successful implementation of this project requires an increase in the technical capacity of DoE, SABS and NRCS employees, as well as public and private sector testing capacity. The DoE will also be required to have the necessary skills and will coordinate stakeholders and ensure that the information campaign is neutral and communicates the objectives of the project accurately. This risk is being mitigated by having project outcomes that will assist these institutions to develop the necessary in-house technical skills through appropriate capacity-building measures. The project also provides monitoring and evaluation tools which will disseminate the institutional knowledge for replication of S&amp;L programs to other appliances.</td>
</tr>
<tr>
<td>Funding risk</td>
<td>Med</td>
<td>The S&amp;L project has strong backing from the government, but much of the funding pledged is either in-kind, for specific studies or available via levies introduced after the regulations come into effect in year 3. The SECO funding this becomes extremely important to pay for project management costs and activities during the first two years of the project. SECO is not able to provide a definitive commitment at this stage but all indications are that the pledged funding for the project will be formally approved by the project start date. The private sector has also indicated that it will pay for studies to assist the sector in adaptation (see business risk). The ministries involved have also committed to submit an application to Treasury for funds in their next budget cycle (2013 onward).</td>
</tr>
<tr>
<td>Business risk</td>
<td>Low - Med</td>
<td>Some private sector actors, especially local manufacturers, have shown significant resistance to the implementation of the program, citing job losses as a potential outcome. Business Unity South Africa (BUSA), which is responsible for representing and lobbying business to labor and government, recognizes the national need for energy efficiency and has indicated it is prepared to fund studies (cost benefit analyses) and to further assist in finding ways to overcome these challenges. While being sensitive to industry concerns, government is resolved to implement the S&amp;L program and made clear that businesses will have to adapt to the S&amp;L program if continued operation in SA is desired.</td>
</tr>
<tr>
<td>Consumer risk</td>
<td>Low</td>
<td>While it is true that consumers have a poor understanding of energy efficiency in general, this is starting to change because of the electricity crisis and high tariff increases. A sustained communications campaign and financial incentives to purchase efficient appliances, as well as the decision to make the program mandatory, will mitigate this risk.</td>
</tr>
<tr>
<td>Market maturity</td>
<td>Low</td>
<td>A marketing engineering analysis will be conducted to ensure that the appropriate minimum standards and energy classes are introduced, thus striking a balance between ensuring the program delivers sufficient energy savings and not being so aggressive as to implement regulations which face resistance and non-compliance.</td>
</tr>
</tbody>
</table>
e. Expected Global, National and Local Benefits

87. The direct CO₂ emissions reductions are those produced during the implementation phase (when the MEPS regulations become effective) from mid 2013 to mid 2016; these impacts will be relevant as long as these appliances remain in stock until 2028.

88. Indirect impacts include the energy savings and associated GHG reduction resulting from the sales of more efficient appliances after completion of the project. It is assumed that the impact of the program on sales on appliances will be maintained for 10 years after its completion (2016-2026), before other factors make these redundant. The energy and GHG impacts will be relevant as long as these appliances remain in stock until 2050.

89. Using the GEF bottom-up calculation methodology, the direct impact of the project is estimated to be 4.59 MtCO₂, while the indirect impact is estimated to be 11.47 MtCO₂.

90. In the absence of GEF funding, these energy needs would be satisfied by energy provided by coal generation power plants with a grid emission factor of 1.03 tCO₂/MWh.

f. Country Ownership: Country Eligibility and Country Buy-in

91. SA ratified the UNFCCC on 31 July, 2002.

92. DoE and DTI have developed a common energy efficiency action plan for household appliances, which stipulates the implementation of a mandatory S&L program by 2013 for the 12 appliances considered in the GEF project.

93. The action plan has been presented to the relevant stakeholders during the GEF-UNDP workshop held on October 5, 2010, where all relevant ministries and the UNDP were present, and which illustrated to all stakeholders that the implementation is a joint and coordinated effort.

94. The GEF project fits within the Government’s overall plan to reduce by 10% the energy demand of the residential sector by 2015, as well as its Copenhagen commitments and the recent draft National Climate Change Green paper.

95. The project also provides indirect support to the National Business Initiative’s (NBI) Energy Efficiency Accord that is facilitated by the NBI and is a voluntary agreement between the DoE and large business. By signing the accord, companies acknowledge the objectives of the energy efficiency strategy and commit to a 15% reduction of their total energy demand by 2015, which is the overall target set by the strategy for the industrial and mining sectors.

96. The project fits with the mandate of UNDP, through its strong emphasis on capacity development and technical training in the public and private sector; appropriate training will allow the national agencies to implement the S&L project successfully. A secondary, but no less important consideration, is the project’s alignment with the UNDP mandate to help improve the capabilities of local enforcement agencies. One of the objectives of the CCPAP is the commitment to provide technical assistance in strengthening delivery capacity to implement policy frameworks; the steps taken in the project will lead to better governance through sustained technical and institutional support.

97. GEF support will primarily consist of grants for technical assistance, which will support and strengthen South African agencies involved in the S&L program. Other sources of co- and parallel financing of the project include: i) Public sector contribution (in kind and cash); ii) International agency (SECO) cash contribution; iii) Limited private sector contribution which will be used to fund
industry studies; iv) ESKOM will provide information / technical data and will offer supplementary support through its program which promotes high efficiency appliances (refer to paragraph 103 - 106); and v) Levies to be charged by the NRCS for regulating energy requirements of household appliances.

98. For further details about the project budget and related co-operation arrangements, see section “Total Budget and Workplan” and the attached co-financing letters.

99. The proposed measures – seeking to strengthen the role and credibility of both minimum energy performance standards (pushing the market) and informative energy performance labels (pulling the market) – are in line with the international experiences and lessons learnt about the most cost-effective measures to improve the energy efficiency of different building appliances and limiting the increase of electricity consumption.

100. Assuming GEF funding of US$ 4.375 million, (approximately 33% of the overall project), and considering the total 16.06 MtCO₂ emissions avoided by the implementation of the GEF project (direct and indirect), the resulting cost for GEF per avoided ton of CO₂ is US$ 0.27 over the lifetime of appliances impacted by the project.

h. Sustainability

101. Market transformation should be achieved by introducing the program through a formalized (mandatory) process, and supporting it with the appropriate infrastructure and necessary skills. The key risks and barriers have been identified, and proposals have been put forward on how they best should be addressed and mitigated.

102. The success and ultimate sustainability of the project will depend on a variety of factors. Among key factors for sustainability is the ability of the awareness campaigns to get consumers to switch their purchase decision to energy efficient appliances. This will be dependent on many supporting activities, which if not in place will likely result in the failure of the project. The key supporting activities are:

- Communicating clearly - through the campaign and the energy label - about the economic and environmental benefits of purchasing an energy efficient appliance;
- Providing technical assistance and capacity building programs for the retailers’ staff to understand and support the message;
- Strengthening the organization in charge of the implementation of the project;
- Providing the SABS and NRCS with the necessary skills and procedures to write standards, test products and ensure compliance by suppliers and manufacturers;
- Providing the necessary assistance to manufacturers and suppliers to participate in the project;
- Updating the legal and institutional framework governing energy efficiency when necessary; and
- Implementing best practices at a ministry level to ensure project improvement and transparency, such as a national database of products sold in SA and regular reviews of efficiency trends.

103. If the above activities are implemented, this should stimulate sufficient demand for energy efficient appliances, which will lead to an increase of their market share.

104. The project’s financial sustainability is also assured via the industry-funded mandatory compliance model being used by the NRCS. This model obligates all manufacturers or distributors of products, which are required by law to comply with certain specifications and to pay fees to the National Regulator (NRCS). The fee is levied on each item manufactured or imported, and initial indications are that the charge for appliances under this program will be US$ 0.35 - with an annual escalation of 7%. Based on current sales volumes of the appliances included in this program, the revenue is estimated at US$ 4.7 million per year. Please refer to Annex 2 for more details.
i. **Replicability**

105. International experience has shown that the proposed model is highly replicable, if:

- Energy efficiency is better understood by retailers and household decision makers responsible for the purchase of appliances;
- The sale and use of energy efficient appliances becomes standard practice in household and commercial sectors - using key tools such as MEPS, S&L and by providing irrefutable case studies showing the financial benefits.

106. A number of specific activities are proposed under this project that can ensure its replicability:

- A strong partnership built between DoE, the DTI and the CGCSA;
- A strong partnership built between the CGCSA and the private sector – specifically key appliance retailers and manufacturers;
- National energy efficiency events, (sponsored by DoE and its implementation agency), which will help send a strong message to the private sector and to the general public through the media about the benefits of energy efficient appliances;
- Regular training programs to appliances technicians and retailers; and
- Regular communication campaigns aimed at end-users.
III. PROJECT RESULTS FRAMEWORK

a. Strategic results framework

Table 5: Strategic Results Framework

This project will contribute to achieving the following Country Program Outcome as defined in CPAP or CPD: Strength national capacities to achieve the goal of 10% reduction of energy demand in the residential sector as stated in the National Energy Efficiency Strategy.

Country Program Outcome Indicators: Progress reports on energy demand and CO2 emissions reduction.

Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy OR 2. Catalyzing environmental finance OR 3. Promote climate change adaptation OR 4. Expanding access to environmental and energy services for the poor.

Applicable GEF Strategic Objective and Program: To reduce South African’s energy-related CO2

Applicable GEF Expected Outcomes: A strategic Market Transformation. 4.59 MtCO2 abated over the lifetime of the appliances

Applicable GEF Outcome Indicators: Cumulative amount of GHG reduced in kilotons of CO2

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Indicators</th>
</tr>
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<tr>
<td>Project Objective</td>
<td>Reduce greenhouse gas (GHG) emissions caused by the electricity consumption of household appliances in South Africa by facilitating a comprehensive transformation of the home appliance market through the introduction of a combination of two regulatory tools – Minimum Energy Performance Standards and Information Labels (S&amp;L) – and a series of associated awareness-building and monitoring activities.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Baseline (Year 0)</th>
<th>Target</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>The average efficiency of most appliances sold in SA is lower than the previous European class G.</td>
</tr>
<tr>
<td></td>
<td>Increase awareness of energy efficiency</td>
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<tr>
<td></td>
<td>Increase market share of high efficient appliances</td>
</tr>
<tr>
<td></td>
<td>Reduce electricity demand by 4.41 TWh over the project time.</td>
</tr>
<tr>
<td></td>
<td>Reduce CO2 emissions by 4.54 MtCO2 over the project time and by</td>
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<table>
<thead>
<tr>
<th>Sources of Verification</th>
<th>Assumptions</th>
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</thead>
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<tr>
<td></td>
<td>Strong involvement of national agencies in the project</td>
</tr>
<tr>
<td></td>
<td>The objectives of the project remain in line with the South African Government objectives</td>
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<tr>
<td></td>
<td>In case these assumptions do not hold appropriate RBM approaches will be used to modify project activities as needed</td>
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OUTCOME 1:
Policy and regulatory framework for the S&L program: Strengthen structures and mechanisms for appliance energy efficiency standards and labels (S&L)

<table>
<thead>
<tr>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of applicable S&amp;L implementing regulations gazetted and enacted</td>
</tr>
<tr>
<td>Evidence that relevant regulations are disseminated to key industry stakeholders</td>
</tr>
<tr>
<td>Insufficient policy/regulatory framework to implement S&amp;L program</td>
</tr>
<tr>
<td>Policy/ institutional/regulatory framework on energy efficient appliances is gazetted and enacted into law under the National Energy Act by end of 2013</td>
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<tr>
<td>Survey of major stakeholders</td>
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<td>S&amp;L regulations to be circulated for public comment and then gazetted</td>
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</table>

<table>
<thead>
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<th>Assumptions</th>
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</thead>
<tbody>
<tr>
<td>Major stakeholders (public and private) support the project objectives and adhere to the timeline for enactment of the regulations</td>
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<td>This assumption will be ensured through formation of the stakeholder committee and regular consultations.</td>
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</table>
### Output 1.1: Review of existing policies and regulations. Provide feedback and advice for any corrective or new action to be taken to reduce project risks.

- Number of stakeholders engaged in consultations
- Ensure any other program (energy or environmental) is identified to avoid confusion amongst consumers
- S&L Action plan developed by DoE & DTI
- DoE to introduce law to allow for MEPS
- S&L program extended to new set of products
- Majority of stakeholders review S&L implementation regulations & approve final proposal of energy classes and MEPS thresholds.
- Stakeholder consultation reports
- The new action plan that includes next set of products to be regulated under S&L programs
- Stakeholders actively participate in the review of S&L implementation regulations
- Appropriate consultative mechanisms will be put in place if this not hold

#### Number of stakeholders engaged in consultations
- Ensure any other program (energy or environmental) is identified to avoid confusion amongst consumers
- S&L Action plan developed by DoE & DTI
- DoE to introduce law to allow for MEPS
- S&L program extended to new set of products
- Majority of stakeholders review S&L implementation regulations & approve final proposal of energy classes and MEPS thresholds.
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- The new action plan that includes next set of products to be regulated under S&L programs
- Stakeholders actively participate in the review of S&L implementation regulations
- Appropriate consultative mechanisms will be put in place if this not hold

### Output 1.2: Evaluation of financial incentives such as the rebate program operated by the Eskom DSM for purchasing efficient appliances. Development of new financial incentives if needed.

- Number of existing rebate programs
- Current Eskom rebate program
- Increase market share of efficient appliances
- Number of efficient appliances sold due to the rebate program
- Incentive programs are approved and effective
- If these are not approved the MEPS will still be in place.

### Outcome 2: Define labeling specifications and MEPS thresholds for the 12 products considered by the DoE & DTI for S&L regulation

- Energy classes and MEPS thresholds for the 12 products included in DoE & DTI action plan
- Labeling specifications and MEPS are unknown
- By 2012, reach an agreement with stakeholders on energy classes and MEPS requirements for the 12 products included in DoE & DTI action plan
- Stakeholders consultation reports
- Stakeholders actively participate in providing market data and the review of the engineering/cost benefits analysis
- Appropriate management responses will be devised if this assumption does not hold.

#### Cost benefits analysis conducted for the 12 products selected for S&L regulation
- Number of Market research and industry studies conducted
- Market transformation benefits demonstrated to stakeholders
- Propose energy classes and MEPS thresholds applicable for the South African market
- Engineering analysis reports
- Stakeholders consultation reports
- High quality of market data
- International expertise available to train local experts on the analysis
- Appropriate management responses will be devised if this assumption does not hold.

### Output 2.1: Conduct market and engineering analysis for the products selected for S&L regulation

- Labeling energy classes and MEPS adopted
- None
- Implementation of energy classes and MEPS thresholds
- Agreement with stakeholders on schedule to phase out inefficient appliances
- Stakeholders consultation reports
- Label affixed on products sold in SA
- Impact assessment analysis
- Key stakeholders involved in the process
- Necessary legislation is drafted and enacted
- In case these assumptions do not hold appropriate RBM approaches will be used to modify project

### Output 2.2: Adopt labeling specifications and MEPS thresholds for the 12 products selected for S&L regulations

- Labeling energy classes and MEPS adopted
- None
- Implementation of energy classes and MEPS thresholds
- Agreement with stakeholders on schedule to phase out inefficient appliances
- Stakeholders consultation reports
- Label affixed on products sold in SA
- Impact assessment analysis
- Key stakeholders involved in the process
- Necessary legislation is drafted and enacted
- In case these assumptions do not hold appropriate RBM approaches will be used to modify project
### OUTCOME 3:
Strengthen the capacity of institutions and individuals involved in the S&L program.

- Number of institutions audited and capacities upgraded
- Number of staff trained
- Accreditation of testing facilities (public & private) and enforcement institution
- Adaptation of international/EU test procedures to the South African climatic and usage conditions when needed
- Audit reports
- Trainings & workshops organized
- Validation of the conversion factors proposed for the adaptation of test procedures
- Public sector funding to is made available to upgrade test facilities
- If not, private sector test lab engagement will be sought

#### Output 3.1: Strengthen institutions (testing facilities, enforcement institution...)
- Number of testing facilities audited
- Number of testing facilities upgraded
- Number of testing facilities accredited
- Accreditation of enforcement institution
- None
- Upgrade the existing facilities
- Ensure test facilities are operational, sufficient & available for compliance checking.
- National testing and enforcement institutions accredited.
- Key stakeholders involved in testing, compliance and enforcement procedures cooperate in the project

#### Output 3.2: Strengthen employee skills
- Necessary intergovernmental forums established to ensure coordinate effort
- Number of employees trained
- Train the required number of people based on sales & number of units to be tested per year.
- Train all staff involved on testing and enforcement on accreditation requirements & constraints
- Adoption of conversion factors for testing considering the South African conditions
- Train the required number of inspectors for trade inspections and compliance checking
- Number of staff trained on testing
- Number of staff trained on accreditation requirements
- South African test procedures updated with the conversion factors
- Stakeholders consultation reports
- Number of inspectors trained on MSC procedures
- Strong cooperation between private and public institution on trainings and sharing experiences and lessons learnt
- Involvement of stakeholders on test procedures adaptation

### OUTCOME 4:
Awareness raising campaign for standards and labels, targeting manufacturers, distributors, retailers and end-users.

- Consumers and retailers become more aware of appliance energy efficiency standards and labels and retailers via sampling and surveys
- None
- At least 50% of consumers and retailers contacted (within the sample group) become more aware of appliance energy efficiency standards and labels and retailers provide evidence of marketing efforts to support the scheme
- Consumers and retailers survey
- Project implementation reports
- Retailers and consumers of appliances support the project objectives

activities as needed
### Output 4.1. Test and adopt Label design

- Number of dissemination activities offered to consumers and retailers:
  - None
- Number of consumers (particularly low incomes) and retailers covered by dissemination activities:
  - None
- At least 50% of consumers and retailers contacted (within the sample group) are able to understand the meaning of the label and its benefits:
  - None
- Number of consumers and retailers covered by dissemination activities:
  - None
- Consumers survey results:
  - None
- Number of consumers responding to the questionnaire:
  - None
- Consumer NGOs, retailers and research institutes involved in the program:
  - None
- Retail staff understand label & can explain it to consumers:
  - None
- Communication materials developed are of high-quality and appropriate for the given audiences targeted:
  - None

### Output 4.2. Develop communication campaign towards manufacturers, importers, distributors, retailers and consumers about appliances’ energy efficiency

- Number of dissemination activities offered to each category:
  - None
- Number of people covered by dissemination activities:
  - None
- A statistically relevant sample of households will be drawn on to determine the market penetration & effectiveness of the project:
  - None
- Ensure consumers distinguish between MEPS & extra financial benefits of exceeding MEPS voluntarily:
  - None
- At minimum the staff of top 10 manufacturers, distributors are aware about S&L programs:
  - None
- Consumer, manufacturers, distributors and retailers surveys:
  - None
- Communication materials developed are of high-quality and appropriate for the given audiences targeted:
  - None

### Output 4.3. Develop and deliver training programs for distributors and retailers staff.

- Number of trainings delivered:
  - None
- Numbers of trainers involved:
  - None
- Retailers and distributors able to deliver S&L message to end-users:
  - None
- Impact assessment studies:
  - None
- Strong involvement of retailers and distributors:
  - None

### OUTCOME 5: Implementation of S&L Market Surveillance & Compliance (MSC) regime to ensure energy performance standards is met

- MSC procedures adopted and implemented:
  - None
- Minimum number of products sold in the market (ratio TBD for each appliance type) which don’t comply with the S&L requirements:
  - None
- Compliance rate:
  - None
- The cost of MSC activities will be covered by levies to be charged by NRCS on regulated products:
  - None

### Output 5.1. Development of MSC procedures for regulated products

- MSC procedures adopted:
  - None
- Dissemination of MSC procedures:
  - None
- Stakeholders consultation reports:
  - None
- Commitment from manufacturers side:
  - None

### Output 5.2. Integration of product energy performance compliance checking with local manufacturers and country pre-import inspections.

- MSC procedures implemented:
  - None
- Develop database of S&L products:
  - None
- Number of models/products excluded from the S&L program / year:
  - None
- Manufacturer / retailer contributions to database:
  - None
- Ensure database has integrity and that fields collected are relevant:
  - None

### OUTCOME 6: Development of Monitoring and Evaluation (M&E) capacity

- Skilled South African professionals trained on M&E of energy projects:
  - Limited
- All those skilled South African professionals trained demonstrate appropriate level of knowledge via:
  - Limited
- Project implementation reports:
  - Limited
- Commitment of resources:
  - Limited

Consumer NGOs, retailers and research institutes involved in the program:
- Retail staff understand label & can explain it to consumers:
- Communication materials developed are of high-quality and appropriate for the given audiences targeted:
- Strong involvement of retailers and distributors:
- Manufacturer / retailer contributions to database:
- Ensure database has integrity and that fields collected are relevant:
- Commitment of resources:
Output 6.1. Replication of S&L program for new set of products

- Work plan to replicate the S&L for new set of products
- None.
- Extend S&L program for other appliances and equipment
- Project implementation reports
- Experts adequately review the implementation of the program for the 1st set of products and suggest improvements

Output 6.2: Implementation of Monitoring and Evaluation methodology for S&L programs

- Number of staff trained on M&E of S&L programs
- Launching of metering campaigns and data collection studies
- Eskom has developed expertise on metering campaigns
- Make M&E activities part of the whole process
- Record lessons learnt
- Report on end-use sales and energy use of appliances published
- Consumers and retailers are willing to cooperate in data collection and questionnaire surveys
b. Total budget and work plan

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<th>Project ID(s): 00077334</th>
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Table 6: Total budget and work plan

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<td>14,400</td>
<td>14,400</td>
<td>14,400</td>
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<tr>
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</tr>
<tr>
<td>72100</td>
<td>Contractual services – companies</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>500,000</td>
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<td></td>
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<tr>
<td>71600</td>
<td>Travel</td>
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<td>10,000</td>
<td>10,000</td>
<td>50,000</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>72200</td>
<td>Equipment and Furniture</td>
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<td>1,088,300</td>
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<td></td>
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<td>75700</td>
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</tr>
<tr>
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<td>4,000</td>
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<td>4,000</td>
<td>4,000</td>
<td>20,000</td>
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</tr>
<tr>
<td>74500</td>
<td>Miscellaneous</td>
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<td>10,000</td>
<td>10,000</td>
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<td>10,000</td>
<td>50,000</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Outcome 4: Awareness raising campaign for S&amp;L targeting manufacturers, distributors.</td>
<td>DoE</td>
<td>62000</td>
<td>GEF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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<tr>
<td>72100</td>
<td>Contractual services – companies</td>
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<td>10,000</td>
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<td>10,000</td>
<td>10,000</td>
<td>50,000</td>
<td>4.1</td>
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<td></td>
</tr>
<tr>
<td>Outcome 5: Implementation of S&amp;L Market Surveillance &amp; Compliance (MSC) regime to ensure energy performance standards are met</td>
<td>DoE</td>
<td>GEF</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>retailers and end-users</td>
<td>71200</td>
<td>62000</td>
<td>71300</td>
<td>71600</td>
<td>71700</td>
<td>71800</td>
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<tr>
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<tr>
<td></td>
<td>Local Consultants</td>
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<td>Travel</td>
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<td>Training Workshops &amp; Conference</td>
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</tr>
<tr>
<td></td>
<td>Communication &amp; Audio-visual Equip.</td>
<td>71800</td>
<td>4,000</td>
<td>4,000</td>
<td>4,000</td>
<td>4,000</td>
<td>4,000</td>
<td>20,000</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>Audio-visual &amp; Print Prod. Costs</td>
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<td>50,000</td>
<td>50,000</td>
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<td>40,000</td>
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<tr>
<th>Outcome 5: Implementation of S&amp;L Market Surveillance &amp; Compliance (MSC) regime to ensure energy performance standards are met</th>
<th>DoE</th>
<th>GEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>retailers and end-users</td>
<td>71200</td>
<td>62000</td>
</tr>
<tr>
<td></td>
<td>International Consultants</td>
<td>71200</td>
</tr>
<tr>
<td></td>
<td>Local Consultants</td>
<td>71300</td>
</tr>
<tr>
<td></td>
<td>Contractual services – companies</td>
<td>71700</td>
</tr>
<tr>
<td></td>
<td>Travel</td>
<td>71800</td>
</tr>
<tr>
<td>Sub-Total Outcome 5</td>
<td>41,000</td>
<td>39,000</td>
</tr>
<tr>
<td>Outcome 6: Develop M&amp;E capacities</td>
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<td>62000</td>
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<td>-----------------------------------</td>
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<td>-------</td>
</tr>
<tr>
<td>75700 Training Workshops &amp; Conference</td>
<td>10,000</td>
<td>8,000</td>
</tr>
<tr>
<td>72400 Communication &amp; Audio-visual Equip.</td>
<td>4,000</td>
<td>4,000</td>
</tr>
<tr>
<td>74500 Miscellaneous</td>
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<td>2,500</td>
</tr>
<tr>
<td><strong>Sub-Total Outcome 6</strong></td>
<td>54,500</td>
<td>241,500</td>
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| Project Management | PMU | 62000 | GEF | 71300 | International Consultants | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 50,000 | 7.1 |
|--------------------|-----|-------|-----|-------|-------------------------|------|--------|-------|------|--------|-------|
| 71400 Contractual services – individual | 43,000 | 43,000 | 43,000 | 43,000 | 42,000 | 214,000 | 7.2 |
| 71600 Travel | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 25,000 |
| 72200 Equipment and Furniture | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 5,000 |
| 75700 Training Workshops & Conference | 1,500 | 1,000 | 1,000 | 1,000 | 1,000 | **5,500** |
| 72400 Communication & Audio Visual Equipment | 500 | 500 | 500 | 500 | 500 | 2,500 |
| 74500 Miscellaneous software | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 25,000 |
| **Sub-Total GEF** | 66,000 | 65,500 | 65,500 | 65,500 | 64,500 | **327,000** |

| Total GEF | 66,000 | 65,500 | 65,500 | 65,500 | 64,500 | **327,000** | 4,375,000 |
c. **Summary of funds**

<table>
<thead>
<tr>
<th>Source</th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
<th>Outcome 4</th>
<th>Outcome 5</th>
<th>Outcome 6</th>
<th>Project Management</th>
<th>Total</th>
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<tr>
<td>GEF (US$)</td>
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<td></td>
</tr>
<tr>
<td>Amount</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
<td>Amount</td>
<td>Amount</td>
</tr>
<tr>
<td>Year 1</td>
<td>1,250,400</td>
<td>1,048,900</td>
<td>784,300</td>
<td>764,200</td>
<td>527,200</td>
<td>4,375,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEF (US$)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government, Donor Agency &amp; Private Sector (US$)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Amount</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
<td>Amount</td>
<td>Amount</td>
</tr>
<tr>
<td>Year 1</td>
<td>1,973,997</td>
<td>1,995,446</td>
<td>1,742,719</td>
<td>1,580,855</td>
<td>1,456,982</td>
<td>8,750,000</td>
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<tr>
<td>Total (US$)</td>
<td>3,224,397</td>
<td>3,044,346</td>
<td>2,527,019</td>
<td>2,345,055</td>
<td>1,984,182</td>
<td>13,125,000</td>
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</table>

Table 7: Summary of funds per year and donor

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<th>Source</th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
<th>Outcome 4</th>
<th>Outcome 5</th>
<th>Outcome 6</th>
<th>Project Management</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEF</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Cash $</td>
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<td>200,000</td>
<td>500,000</td>
<td>327,000</td>
<td>4,375,000</td>
</tr>
<tr>
<td>Project Management</td>
<td></td>
<td></td>
<td></td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>511,400</td>
<td>1,504,000</td>
<td>6,112,107</td>
<td>2,236,500</td>
<td>499,953</td>
<td>1,199,953</td>
<td>1,061,087</td>
<td>13,125,000</td>
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</table>

Table 8: Summary of funds per outcome and donor
<table>
<thead>
<tr>
<th>Budget Note No</th>
<th>Description of services and / or expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>This task is a one-off occurrence which will take place mainly at the start of the project and little or no further work is envisaged once the regulation is in place.</td>
</tr>
<tr>
<td>1.2</td>
<td>There will be a requirement for a legal firm to provide assistance to with regards local laws and practise.</td>
</tr>
<tr>
<td>1.3</td>
<td>Public notification (newspaper advertisements) as required by law and to ensure all stakeholders are reached</td>
</tr>
<tr>
<td>2.1</td>
<td>International expert will assist with identifying the requirements and the review of engineering analysis and data processing of the data. It is expected that two years will be required to define MEPS and energy labels for the 12 products chosen.</td>
</tr>
<tr>
<td>2.2</td>
<td>Local consultants will conduct the engineering analysis.</td>
</tr>
<tr>
<td>2.3</td>
<td>Local firm will be contracted for market data collection.</td>
</tr>
<tr>
<td>3.5</td>
<td>GEF contribution towards testing laboratories for the purchase of equipment or the upgrade of infrastructure.</td>
</tr>
<tr>
<td>4.2</td>
<td>A local firm will be hired to conduct communication campaign towards consumer, retailer and manufacturer</td>
</tr>
<tr>
<td>6.1</td>
<td>A local firm will be hired to IT development of the database required for successful MSC. An ongoing budget has been allocated for maintenance and enhancements.</td>
</tr>
<tr>
<td>7.1</td>
<td>The international consultant’s fees will be paid jointly by GEF and SECO. Rates are based on 2011 UNDP rates based on experience and include an annual 5% pay increase.</td>
</tr>
</tbody>
</table>
| 7.2           | The project manager’s fees will be paid jointly by GEF and SECO. Rates are based on 2011 UNDP rates based on experience and include an annual 5% pay increase.  
**Note:** Project enforcement and test coordinator fees have not been included in the Project Management section but have been allocated to outcomes 3 and 4 where they will be deployed. Their fees will be paid by SECO.  

Table 9: Budget notes
107. The recently approved AfDB/IFC CTF project South Africa: Energy Efficiency Program provides funds of up to US$13.15 million for investments and US$1 million for Advisory Services to support private sector energy efficiency (energy efficiency) projects through collaboration with Financial Intermediaries (FIs) and Energy Service Companies (ESCOs).

108. Under the Multi Year Price Determination 2 (2009), Eskom has been mandated by the National Energy Regulator of SA (NERSA) to fund energy efficiency programs. This funding, or demand side management (DSM) program, will purchase proved energy savings from Eskom approved projects at a rate of R5.445 million (USD778,000) / MW or part thereof; and will run from April 2010 until March 2013, with a maximum of 1,000 MW that can be purchased.

109. The portion of the above funding that will be utilized by Eskom to encourage and assist customers to access high efficiency appliances and to create energy efficiency awareness in the commercial and residential market for the period 2011 – 2016 is $4.3 million.

110. As already stated in this document Eskom is in the process of undertaking a study to introduce incentives to encourage households to buy appliances which have a higher efficiency rating than the future regulated base level. Funding of this initiative will not be from above mentioned energy efficiency awareness budget.

111. The Eskom funding is not being contributed directly to the project and as such cannot form part of the budget. Eskom is committed to cooperating with all stakeholders to exploit synergies, leverage opportunities and ensure that there are no mixed messages to the consumer from ‘two’ different awareness campaigns. This support is recognized and categorized as supplementary support.

112. Goods which are required by law to comply with the compulsory specifications act are required to pay a mandatory levy per product, which is paid directly to the NRCS and is used to finance the organization. The indicative fee for the S&L program, (refer to Annex 5), is expected to be R1.75 (US$ 0.25c)/product - with the NRCS increasing the levy annually at a rate of 7% - which when using current sales as a baseline for all the appliances participating in the S&L program, with no anticipated increase in sales volumes, will provide a revenue of R33 million (US$ 4.7m) over a five year period. This cash contribution has been allocated to the S&L program by the DTI.

IV. MANAGEMENT ARRANGEMENTS

113. The S&L project will build on the Energy Act, the Energy Efficiency Strategy of the DoE and the IPAP2 objectives of the DTI. It provides a good opportunity for the government to strengthen the institutional, technical and organizational capabilities of its agencies in the area of energy efficiency, as applied to the 12 appliances.

114. As previously stated, the project will also attempt to make every effort to coordinate all national energy and non-energy initiatives aimed at appliances, to avoid competitive behaviour that can cause confusion.

115. The project will be executed by the DoE for the following reasons:

- It has the legal mandate to implement this project (Energy Act, 2008);
- It is the DoE who formulated the Energy Efficiency Strategy (2008);
- It is in control of, or has the necessary legal relationships (Memoranda of Understanding), with the required implementing agencies for a project of this nature, such as SABS and NRCS;
- The DoE and DTI, have jointly developed the energy efficiency action plan, and have a close working relationship and a vested interest in seeing the project succeed. (The SABS and NRCS are under the control of the DTI.)
116. The DoE will be the Ministry responsible for the execution and ultimate delivery of the project. This function will remain within the department and will not be outsourced to any of its agencies. The DoE further commits to giving the project the necessary level of support and priority within the department to ensure a successful implementation. The DoE will need to follow the UNDP guidelines for nationally executed projects.

117. The DoE will sign the grant agreement with the UNDP and will be accountable to UNDP for the achievement of project goals, according to the approved work plan. The DoE will be responsible for the following functions:

- Coordinating activities and building partnerships to ensure the delivery of agreed outcomes.
- Certifying expenditures in line with approved budgets and work-plans.
- Developing Annual Workplans and Quarterly/Annual reports on the project.
- Identify and manage risks and ensure that the project governance systems are functioning properly.
- Facilitating, monitoring and reporting on the procurement of input and delivery of output.
- Approving Terms of Reference for consultants and tender documents for sub-contracted input.
- Reporting to GEF and UNDP on project delivery and impact.

118. The GEF and SECO grant will be administered by the UNDP. The PMU will be responsible for submitting requests to the UNDP for payments of project activities to be made as and when required. The project manager will be accountable for all funds.

119. The DoE will formulate a project structure, which will be headed by a Project Steering Committee (PSC) that will be established and chaired by the DoE, who will appoint a director (or higher) to manage the project. It will have representatives from all the relevant national stakeholders, including DTI, UNDP, SECO, SABS, NRCS, Eskom, a representative from the stakeholder committee and Academia; the PSC will provide management oversight and take decisions on project implementation and will consider input from the Project Management Unit (PMU).

120. A Stakeholders Committee (SC) will be set up to ensure that all interested and relevant parties are kept abreast of the project. A minimum of one representative from the PSC will be required to be a member of the SC and vice versa, to ensure there is no disconnect between the PSC and SC.

121. The PMU will be managed by a properly qualified and experienced person appointed specifically to manage the project. Experience in other S&L projects has shown that the project should be broken up into two key components - implementation and compliance. Ideally, these two functions (units) should not be fulfilled by the same executing agency, since they have very different skills requirements and potential exists for conflicts of interest.

122. UNDP will be the budget holder under the National Execution modality and will provide training to the Project Staff on the execution modality, if needed. UNDP will charge 3% on the management of the Government’s cost share contribution; and financial advances will be transferred to the project on request from the Project Manager. A 7% General Management Support (GMS) fee will be charged from donor fees that will be managed by UNDP for the project. This aims at covering reporting, administration and technical backstopping costs. It is imperative that the project open a separate bank account to receive and disburse the funds transferred from UNDP.

123. SABS, which developed the National Standards, will continue to lead the standards development process and will be responsible for all the testing; while private test labs will also be invited to participate and offer their services to manufacturers and suppliers.

124. NRCS will be tasked with ensuring that compliance of the MEPS and labelling is adhered to in the market place; and will require the necessary procedures and processes to do so.
125. SANAS will be in charge of the accreditation of the Certification bodies, (NRCS), under ISO 17021 and 17024; and Inspection Bodies, (NRCS), under ISO 17020; as well as both SABS and private laboratories under ISO 17025.

126. To achieve what is proposed above, the project will make use of nationally and internationally recruited experts to provide short-term consulting expertise as needed and defined in the project plan.

127. A Project Management Unit (PMU) will be established in the executing agency (DoE) for the day-to-day operation of the project; and the project will recruit individuals for the following positions:

- A full-time Project Manager and coordinator (PM), who will reside in the PMU;
- Project Enforcement Coordinator as a technical person to develop and implement the required MSC procedures. The coordinator will also be responsible for training the NRCS compliance officers on how to enforce and ensure that manufacturers and suppliers comply with the mandatory regulations. This role will be fulfilled by an experienced electrical engineer and will be based at NRCS;
- A Project Test Coordinator will also be required as a technical resource based at SABS, who will provide assistance on the adaptation of testing procedures and accreditation of public and private laboratories. This person will work closely with the project enforcement coordinator;
- An S&L experienced international consultant will be hired on a part time or ad-hoc basis - on a retainer of ~3 days per month - to provide support, input and advice when needed;
- Administrative staff (contract and payments) is needed. It is envisaged that a reasonable number of contractors and specialists will be used during the project and this will result in many bookings, contracts, ad hoc payments and general support. This function cannot be done by the PM, but it is also not a full time position; so it is proposed that the executing agency provide a resource person to do this function;
- An administrative, (project management support function) is also required the executing agency should provide a resource to assist.

---

**Diagram:**

- **Project Steering Committee**
  - Chair: DoE (Director or higher)
  - Members: DTI, UNDP, SECO, SABS, NRCS, Eskom, Stakeholder Committee Representative & Academia

- **Stakeholder Committee:**
  - All interested public and private sector parties

- **Implementing Agency:**
  - DoE
  - Project Management Unit
  - S&L project management expert
  - Financial & administrative support

- **GEF Implementation Agency:**
  - UNDP SA
  - Project Officer

- **Coordinator of testing activities**
  - Testing (SABS & Private laboratories)

- **Coordinator of MV&E activities**
  - Compliance (NRCS)

---

*Figure 10: Proposed project structure*
128. A Project Inception Workshop with all the key stakeholders will kick off the implementation process; and a detailed work plan - with budget, monitoring plan, details on coordination arrangement - will be presented, discussed and agreed upon by all the stakeholders (targets and indicators for subsequent years will be defined annually as part of the internal evaluation and planning processes undertaken by the PMU.)

129. In order to accord proper acknowledgement to UNDP/GEF for the funding provided, the GEF logo should appear on all relevant GEF project publications, including, among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF.

V. MONITORING AND EVALUATION (M&E) PLAN

130. The M&E will be based on the attached Strategic Results Framework, which is integral to the project implementation; and the project will be monitored and evaluated according to standard UNDP rules for nationally executed projects. A monitoring plan will be prepared for each of the six outcomes during the project’s inception phase and appropriate/specific performance benchmarks will be established to effectively monitor project progress. An annual reporting cycle will also be established for this project to provide progress reports.

131. The project’s M&E will be conducted in accordance with established GEF procedures, as well as UNDP procedures in the ATLAS system. The project’s M&E plan, which will be provided by the project team, supported by UNDP Country Office (CO), will include:

- The principle components of the M&E Plan to establish monitoring responsibilities and events;
- Project reporting;
- Independent evaluations.

This M&E Plan will be presented and finalized at the project's inception phase, following a collective agreement of indicators, means of verification, and full definition of the project staff’s M&E responsibilities.

a. Monitoring responsibilities and events

132. The day-to-day monitoring of implementation progress will be the responsibility of the Project Manager, based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP Country Office, (UNDP CO), of any delays, difficulties or risks faced during implementation, so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

133. A schedule of project review meetings will be developed annually by the PMU - in consultation with project implementation partners and stakeholder representatives - and incorporated in the M&E plan developed at the project’s inception phase. This schedule will include: (i) tentative time frames for Steering Committee Meetings and (ii) project related M&E activities.

In accordance with the programming policies and procedures outlined in the UNDP User Guide, the project will be monitored through the following:

Project inception phase

134. A project inception workshop will be conducted with the Project Team within the first two months of project start - involving relevant Government counterparts, co-financing partners, the UNDP CO and representation from the UNDP/GEF Regional Coordinating Unit, as is deemed appropriate. The objective of this inception workshop will be to help the Project Team to understand and take
ownership of the project’s goals and objectives, as well as to finalize the preparation of the project's first annual work plan on the basis of the project's log-frame. This will include reviewing the log-frame, (indicators, means of verification, assumptions), imparting additional details as needed and, on the basis of this exercise, finalizing the Annual Work Plan, (AWP), with precise and measurable performance indicators that are consistent with the expected outcomes.

135. The inception workshop will also

- Introduce the PMU to all the stakeholders;
- Detail the roles, support services and responsibilities of the UNDP CO staff to the PMU;
- Provide a detailed overview of the UNDP CO reporting, monitoring and evaluation (M&E) requirements. Here, particular attention and detail will be given to the project implementation review (PIR), the annual project review (APR), the midterm and final reviews;
- Plan and schedule project board meetings, with the roles and responsibilities of all project organization structures being clarified and meetings planned.

136. The project manager will also finalise the progress and performance / impact indicators of the project in consultation with the project team at the inception workshop - with support from the UNDP-CO program officer. In addition, specific targets, or indicators, for the first year’s implementation progress - together with their means of verification - will be developed at this workshop.

137. The first project board meeting will be held within the first 12 months of the inception workshop. Here, the inception workshop report will be a key reference document, and will be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly

138. Quality assessment: A quality assessment will record progress towards the completion of key results, based on quality criteria and methods captured in the Quality Management table, which will be prepared by the project manager. An issue log will be activated in Atlas and updated by the project manager to facilitate tracking and resolution of potential problems or requests for change.

139. Risk mitigation report: Using the initial risk analysis submitted, a risk log will be created and maintained in Atlas.

140. Quarterly progress report (QPR): Using the information above, the project manager will submit QPR’s to the project board through project assurance, using the standard report format available in the executive snapshot.

141. Lessons learnt report: A project lessons-learned log will be activated and regularly updated to ensure ongoing learning and adaptation within the organization, and to facilitate the preparation of a comprehensive Lessons-Learned Report at the end of the project.

142. Monitoring schedule plan: A monitoring schedule plan will be activated in Atlas to track key management actions and events.

Annually

143. Annual Review Report: This report will be prepared by the project manager and distributed as appropriate by the UNDP CO. As a minimum requirement, the report will be in the standard Atlas format for the QPRs - covering the whole year with updated information for each component of the QPRs mentioned above. A summary of results achieved against pre-defined annual targets at the output level, must be included.
144. **Annual Project Review (APR):** Based on the annual review report, the APR will be conducted during the fourth quarter of the year, or soon thereafter, to assess the performance of the project and appraise the AWP for the following year - with the review taking the form of a final assessment in the last year of the project. Throughout the project lifespan, the review will be driven by the PSC and may involve other stakeholders as required; and will focus on the extent to which progress is being made towards the required output and on whether such output remains aligned with the appropriate outcomes.

145. **Periodic monitoring through site visits:** The UNDP CO will conduct visits to project sites, based on the agreed schedule in the project's AWP, to assess project progress first-hand. A field visit report will then be prepared by the CO and will be circulated no less than one month after the visit to the project team and PSC members.

146. **Mid-term project cycle:** The project will undergo an independent evaluation at the mid-point of project implementation; and this Mid-Term Evaluation will determine progress made toward the achievement of outcomes - identifying courses of correction, if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term; and the organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF; and the management response and the evaluation will be uploaded to UNDP corporate systems, in particular the [UNDP Evaluation Office Evaluation Resource Center (ERC)](https://www.undp.org/erc).

b. **Project reporting: Learning and knowledge sharing**

147. The Project Manager will be responsible for the preparation and submission of the reports that form part of the monitoring process, as well as those related to knowledge sharing.

148. **Work Planning:** From the inception workshop, a plan will be developed based on the outcomes agreed to by all stakeholders - providing detail on the tasks, the budget, the monitoring plan and how to coordinate it. All stakeholders will be required to adopt the work plan; and targets and indicators for subsequent years must be defined annually and approved by the PSC.

149. **APR- PIR:** This will be done in accordance with UNDP / GEF requirements.

150. **Baseline and End-Of-Project Reports:** These will be done by independent consultants.

151. **Results from the project should be disseminated within, and beyond, the project intervention zone through existing information sharing networks and forums.** Here, the PMU should attempt to identify and participate in engineering, policy-based and / or any other networks, as is relevant and appropriate - and all information and lessons learnt must be made available to other similar, current and future, projects.

c. **Independent evaluation**

152. **Baseline and End-Of-Project Reports:** The PMU will commission an independent consultant to prepare a report describing the baseline situation. This baseline study will establish a fundamental baseline, which will be used for the quantitative evaluation of the output and impact of the project. And a study will be undertaken at the end of the project to fully capture its impact.

153. **Mid Term Evaluation:** An independent Mid-Term Evaluation would be conducted at the mid-point of the implementation process - focusing on the effectiveness, efficiency and timeliness of project
implementation, highlighting issues and presenting some lessons learnt about project design, implementation and management. This evaluation, amongst other things, will focus on risks, stakeholder participation, governance, sustainability and replication. This report will then recommend the direction, pace and activities of the remaining half of the project implementation.

154. Final Evaluation: An independent Final Evaluation will take place prior to the project’s termination; and the Terms of Reference for this Final Evaluation will be prepared by both the UNDP CO, and the UNDP-GEF RCU, based on prevailing guidelines.

155. Audit Close: The Government will provide the resident representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds - according to the procedures set out in Section 30503 of the UNDP Policies and Procedures Manual (PPM) and Section 10404 of the UNDP Finance Manual. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

### Table 10: Indicative M&E work plan and budget

<table>
<thead>
<tr>
<th>Type of M&amp;E Activity</th>
<th>Responsible Parties</th>
<th>Budget US$</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inception Workshop and Report</td>
<td>§ Project Manager</td>
<td>Part of project activities</td>
<td>Within first two months of project start up</td>
</tr>
<tr>
<td></td>
<td>§ UNDP CO, UNDP GEF &amp; PSC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>§ Stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline and end of year project study of project indicators</td>
<td>§ PMU</td>
<td>40,000</td>
<td>Start and end of project</td>
</tr>
<tr>
<td></td>
<td>§ Hired consultant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement of Means of Verification of project results</td>
<td>§ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.</td>
<td>To be finalized in the Inception Phase and Workshop.</td>
<td>Start, mid and end of project (during evaluation cycle) and annually when required.</td>
</tr>
<tr>
<td>ARR/PIR</td>
<td>§ Project manager and team</td>
<td>Part of project activities</td>
<td>Annually</td>
</tr>
<tr>
<td></td>
<td>§ UNDP CO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>§ UNDP RTA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>§ UNDP EEG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periodic status/ progress reports</td>
<td>§ Project manager and team</td>
<td>Part of project activities</td>
<td>Quarterly</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid-term Evaluation</td>
<td>§ Project manager and team</td>
<td>40,000</td>
<td>At the mid-point of project implementation.</td>
</tr>
<tr>
<td></td>
<td>§ UNDP CO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>§ UNDP RCU</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>§ External Consultants (i.e. evaluation team)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Evaluation</td>
<td>§ Project manager and team</td>
<td>50,000</td>
<td>At least three months before the end of project implementation</td>
</tr>
<tr>
<td></td>
<td>§ UNDP CO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>§ UNDP RCU</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>§ External Consultants (i.e. evaluation team)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Termination Report</td>
<td>§ Project manager and team</td>
<td>Part of project activities</td>
<td>At least three months before the end of the project</td>
</tr>
<tr>
<td></td>
<td>§ UNDP CO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>§ UNDP RCU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audit</td>
<td>§ UNDP CO</td>
<td>30,000</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>§ Project manager and team</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visits to field sites</td>
<td>§ UNDP CO</td>
<td>For GEF supported projects, paid from IA fees and operational budget</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>§ UNDP RCU (as appropriate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>§ Government representatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL indicative COST</td>
<td>Excluding project team staff time and UNDP staff and travel expenses</td>
<td>US$ 160,000</td>
<td></td>
</tr>
</tbody>
</table>

### VI. LEGAL CONTEXT AND OTHER ARRANGEMENTS

156. This document, together with the Country Program Action Plan (CPAP) signed by the Government and UNDP, which is incorporated by reference, constitutes a Project Document as referred to in the Standard Basic Assistance Agreement (SBAA) - and all CPAP provisions apply to this document.
Consistent with the Article III of the SBAA, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP’s property in the implementing agency’s custody, rests with the implementing agency.

The implementing partner shall:

- Put in place an appropriate security plan and maintain the security plan - taking into account the security situation in the country where the project is being carried.
- Assume all risks and liabilities related to the implementing partner’s security, and the full implementation of the security plan.

The UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan where necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed to be in breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm; and this provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

Audit Clause: The Audit will be conducted in accordance with UNDP Financial Regulations and Rules, and applicable audit policies on UNDP projects.
VII. ANNEXES

Annex 1: Co-financing letters (see separate file)
Annex 2: Estimated levies

The estimated levies to be charged by NRCS for regulating the energy efficiency of household electrical appliances (see NRCS letter)

<table>
<thead>
<tr>
<th>APPLIANCE TYPE</th>
<th>UNIT SIZE</th>
<th>Estimated levy per unit for energy efficiency only.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Air conditioners</td>
<td>1 Item</td>
<td>1.75</td>
</tr>
<tr>
<td>Audio equipment, e.g. radios, hi-fi systems, etc.</td>
<td>10 Items</td>
<td>8.00</td>
</tr>
<tr>
<td>Visual equipment, e.g. TV’s, VCR’s, DVD players, etc</td>
<td>1 Item</td>
<td>0.85</td>
</tr>
<tr>
<td>Dishwashers</td>
<td>1 Item</td>
<td>1.75</td>
</tr>
<tr>
<td>Electric ovens</td>
<td>1 Item</td>
<td>1.75</td>
</tr>
<tr>
<td>Refrigerators and freezers</td>
<td>1 Item</td>
<td>1.75</td>
</tr>
<tr>
<td>Tumble dryers</td>
<td>1 Item</td>
<td>1.75</td>
</tr>
<tr>
<td>Washing machines</td>
<td>1 Item</td>
<td>1.75</td>
</tr>
<tr>
<td>Washer dryer combinations</td>
<td>1 Item</td>
<td>1.75</td>
</tr>
</tbody>
</table>

Note: The above estimates of levies are for budgetary purposes only and cover NRCS activities for regulating energy efficiency only; they do not include costs to cover regulating for safety. The charges are based on year 1 being 2010, with a uniform annual inflationary increment of 7%. The actual levies would be negotiated with industry and may significantly differ from the above, depending on the realities prevailing at the actual time of levy consultations.
Annex 3: Term of references

1. **Project Manager (local consultant)**

   Under the direct supervision of the UNDP CO Head of Environment & Energy Unit, and in close cooperation with the Climate Change Program Coordinator and National Project Coordinator (NPC), the Project Coordinator is responsible for the day-to-day management and implementation of the UNDP-GEF project, including all project administrative matters. All work of the Coordinator will be carried out in line with the Country Program Action Plan and in full compliance with the UNDP Rules and Regulations. The management and coordination process will be pursued through undertaking appropriate actions in program formulation, implementation and evaluation; and strong emphasis will be made on ensuring cohesion with other UNDP programs.

   **Job content**
   - Manage the overall coordination, management and supervision of the project implementation in accordance with objectives, schedule and planned budget;
   - Manage all project activity, staff, consultants and etc., for timely implementation of requirements on Monitoring and Evaluation;
   - Coordinate awareness creation on all project activities;
   - Coordinate the project activities with relevant activities and initiatives of the Government;
   - Ensure cooperation between the participating institutions of the project;
   - Ensure timely preparation of annual project reports, working plans and other relevant project documents.

   **Qualifications**
   - At least 10 years work experience in project management. (Previous work in international project management is an asset);
   - University education in Engineering, Energy, Physics, Business Management or relevant field. (A post-graduate degree (MSc, MPhil, PhD etc) is an advantage);
   - Strong interpersonal and communication skills;
   - Ability to take decisions;
   - Strong computer skills (Microsoft Office, Internet, e-mail).

2. **Project Enforcement Coordinator (PEC)**

   The PEC will provide technical support to the PM and will report directly to him/her. The primary role of PEC is to develop the MSC procedures; and will work closely with the test coordinator.

   **Job Content**
   - Work closely with the international consultant responsible for formulating the MSC procedures and strategy; and providing the necessary support and access to information required to complete the task;
   - Analyze the current procedures used by the NRCS for MSC;
   - Provide training to the local NRCS staff members on MSC;
   - Overall responsibility for implementing any processes and procedures at the NRCS and SABS for the testing of appliances;
   - Work on the accreditation of the inspection bodies;
   - Document all procedures.
Qualification

- Qualified electrical engineer with a minimum of ten years experience;
- Minimum of five years experience in project management;
- Ability to write specification document for the development of database and to oversee the installation thereof;
- Strong computer skills;
- Experience in training is an advantage.

3. **Project Test Coordinator**

Reports directly to the PM and work closely with the PEC.

**Job Content**

- Work closely with the international consultant responsible for formulating the test procedures;
- Provide the necessary input as to how current test procedures can be modified for the S&L program;
- Analyze the current procedures used by the SABS for product testing;
- Perform the necessary tasks, by implementing the test procedures required to ensure that the SABS and private laboratories receive the necessary accreditation to test appliances;
- Provide training to the laboratory staff members;
- Work on the accreditation of test laboratories;
- Document all procedures.

**Qualification**

- Qualified electrical engineer with a minimum of five years experience;
- A minimum of two years experience in project management;
- Strong computer skills;
- Experience in training is an advantage.

4. **Project Administrator**

The project will require two administrators. The first one will provide support to the PM and the project as a whole. The second administrator will assist with contracts and payments, because the large number of consultants, (local and international), will generate a significant number of contracts and paperwork. Both these roles are part time positions and it is expected that the DoE will provide existing resources to undertake these roles.

5. **International S&L Technical Advisor**

This is a part time appointment over the duration of the project.

**Job content**

- Provide overall technical guidance, advice and support to local Project Manager and project team;
- Assist the Project Coordinator and project team to prepare a detailed Annual Work Plan of all project activities in line with the programming and approved budget - starting and concluding them accordingly;
- Advise the Project Coordinator and project team on the project strategy and implementation methodology;
• Assist in the recruitment, of local consultants and firms;
• Assist in the establishment of baselines and conducting engineering analysis;
• Train a pool of professionals in rigorous program impact evaluation design and methods;
• Produce presentation and training material based on evaluation, which will be included in other components of capacity building and pilot testing activities.

Qualification
• At least 10 years work experience in project management. (Previous work in international project management is an advantage);
• University education in engineering, energy, physics, business management or relevant field. (A post-graduate degree (MSc, MPhil, PhD etc) is an advantage);
• Proven record of S&L expertise (engineering analysis, MSC and testing)
• Strong interpersonal and communication skills
• Strong computer skills (Microsoft Office, Internet, e-mail)

6. International Monitoring and Evaluation expert

Job content
• Assess training needs relevant to monitoring, evaluation and provide training to professionals in energy efficiency program monitoring and evaluation study design, methods, technologies and procedures;
• Develop the monitoring and evaluation strategy of the project;
• Identify information requirements of project components concerning planning, monitoring and evaluation;
• Implement the monitoring and evaluation strategy of the project;

Qualification
• Minimum 10 years of relevant professional experience in project management, project monitoring and evaluation or relevant connected fields
• University degree in engineering, physics;
• Good communication and social skills;
• Computer skills (Word, Excel, Access) and MIS systems
Annex 4: List of organizations consulted during the preparatory phase

The following organizations were consulted during the project preparatory phase:

<table>
<thead>
<tr>
<th>Sector</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Department of Energy</td>
</tr>
<tr>
<td></td>
<td>Department of Trade and Industry</td>
</tr>
<tr>
<td></td>
<td>Department of local government housing</td>
</tr>
<tr>
<td></td>
<td>Central Energy Fund</td>
</tr>
<tr>
<td></td>
<td>National Energy Efficiency Agency</td>
</tr>
<tr>
<td></td>
<td>National Business Initiative</td>
</tr>
<tr>
<td></td>
<td>Eskom</td>
</tr>
<tr>
<td></td>
<td>City Power</td>
</tr>
<tr>
<td></td>
<td>National Regulator for Compulsory Specifications</td>
</tr>
<tr>
<td></td>
<td>SA Bureau of Standards</td>
</tr>
<tr>
<td>Professional and Trade Associations</td>
<td>Consumer Goods Council of SA</td>
</tr>
<tr>
<td></td>
<td>Electronic Waste Association of SA</td>
</tr>
<tr>
<td>Private</td>
<td>Manufacturers – Bosch, Defy, Whirlpool, Kelvinator, Electrolux, AEG, LG Electronics, KIC, Panasonic, Kwikot, Franke.</td>
</tr>
<tr>
<td></td>
<td>Retailers – Hirsch’s, Massmart, JD Group, Ellerines, Pick n Pay</td>
</tr>
<tr>
<td></td>
<td>Test Houses – TUV Rheinland, Gerotek, Test Africa.</td>
</tr>
<tr>
<td>Bilateral / Multilateral Agencies</td>
<td>UNDP</td>
</tr>
<tr>
<td></td>
<td>Renewable Energy &amp; Energy Efficiency Partnership</td>
</tr>
</tbody>
</table>
Annex 5: List of South African standards (test procedures)

- SANS 54511-3/EN 14511-3, Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling – Part 3: Test methods;
- SANS 50229/EN 50229, Electric clothes washer-dryers for household use – Methods of measuring the performance;
- SANS 50242/EN 50242, Electric dishwashers for household use – Test methods for measuring the performance;
- SANS 50304/EN 50304, Electric ovens for household use – Methods for measuring the energy consumption;
- SANS 60456/IEC 60456, Clothes washing machines for household use – Methods for measuring the performance;
- SANS 61121/IEC 61121, Tumble dryers for household use – Methods for measuring the performance;
- SANS 62301/IEC 62301 Household electrical appliances – Measurement of standby power;
- SANS 62552/IEC 62552, Household refrigerating appliances – Characteristics and test methods.
- Please note the following supporting standards:
  - SANS 151-1, Fixed electric storage water heaters;
List of references
1. The coal resource: a comprehensive overview of coal, London 2005
2. Eskom’s 2010 annual report
4. ESKOM’s 2010 annual report
5. The 1st review (2008) of the National Energy Efficiency Strategy has been published in Government Gazette #32342 dated on June 2009
6. In Government Gazette #32342 dated on June 2009
8. Eskom is the national public electricity utility. It generates more than 95% of the total electricity
14. Gauteng is the smallest province in SA but it is most populous (10.4 million in 2007) and it is the economic hub of SA
15. ESKOM: the national public electricity utility which generates more than 95% of total electricity.
16. Tariffs used are based on actual accounts sourced October, 2010
18. In Government Gazette #32342 dated on June 2009
19. The complete list of the existing test standards is given on Annex 5
29. SA National Solar Water Heating Framework & Implementation Plan. Department of Energy, 2009. This graph has been sourced from the report but no underlying data or dates are available. The consultants are confident that it is credible and recent.