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# DOMESTIC USE OF ENERGY CONFERENCE

## Energy Efficiency Standards and Labelling

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March 31, 2015



# Project Goals and Objectives

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## Goals

- To reduce electricity demand and GHG emissions associated with household appliances
- Project aims to transform the SA market towards the use of energy efficient appliances
- Achieved through two regulatory tools:
  - Minimum Energy Performance Standards (MEPS)
  - Comparative information labels (Product Labelling)



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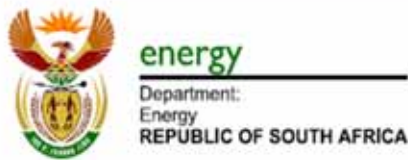
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# Project Goals and Objectives

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## Objectives

- To remove barriers impeding the widespread uptake of energy efficient appliances – Incentives
- To push efficiency levels beyond the mandatory standards by raising awareness on (super) efficient appliances – Communications campaigns
- To contribute towards meeting the 10% electricity demand reduction for residential buildings and the overall 12% national demand reduction – Informed by a recent baseline study and energy saving projections
- Improve energy security



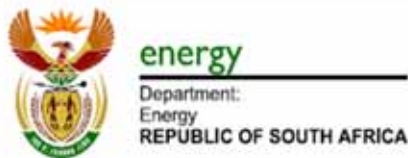
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# Project Goals and Objectives

## Other Benefits

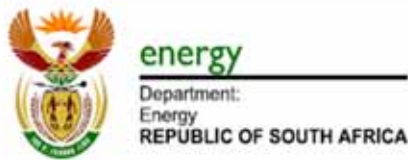
- Cost savings for households from reduced energy bills
- Improved institutional capacity for testing, monitoring and enforcement – Capacity building programme
- Giving a clear indication that government is taking action to address energy demand and consistent supply – Compliance enforcement
- Enhanced innovation in manufacturing of household appliances – Driven by new MEPS: Lifting the EE bar



# Regulatory Framework

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- **National Energy Act: Section 19 – I**
  - The Minister (of Energy) may make regulation regarding (i) product labelling for energy efficiency purposes (ii) energy efficiency standards for specific appliances
- **National Energy Efficiency Strategy:**
  - 10 % reduction in energy demand by 2015
  - The strategy stipulates ‘the introduction of appliance labeling, adoption of appropriate standards, awareness and education as an approach to meet the objectives.
- **Industrial Policy Action Plan 2 (IPAP):**
  - The Action Plan supports initiatives for green and energy saving industries.
  - Relevant Incentives:
    - Manufacturing Competitiveness Enhancement Programme (MCEP)
    - Production incentive (PI)
- **NRCS Act:**
  - Compulsory Specifications for Minimum Energy Performance Standards
- **SABS:**
  - Setting of national standards



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# Products Listed for S&L Project



Audio/Video



Electric Ovens



Electric Lamps



Dishwashers



Room ACs



Geysers



Clothes Washers



Clothes Dryers



Washer-dryer Combo



Refrigerators



Fridge-freezers



Freezers



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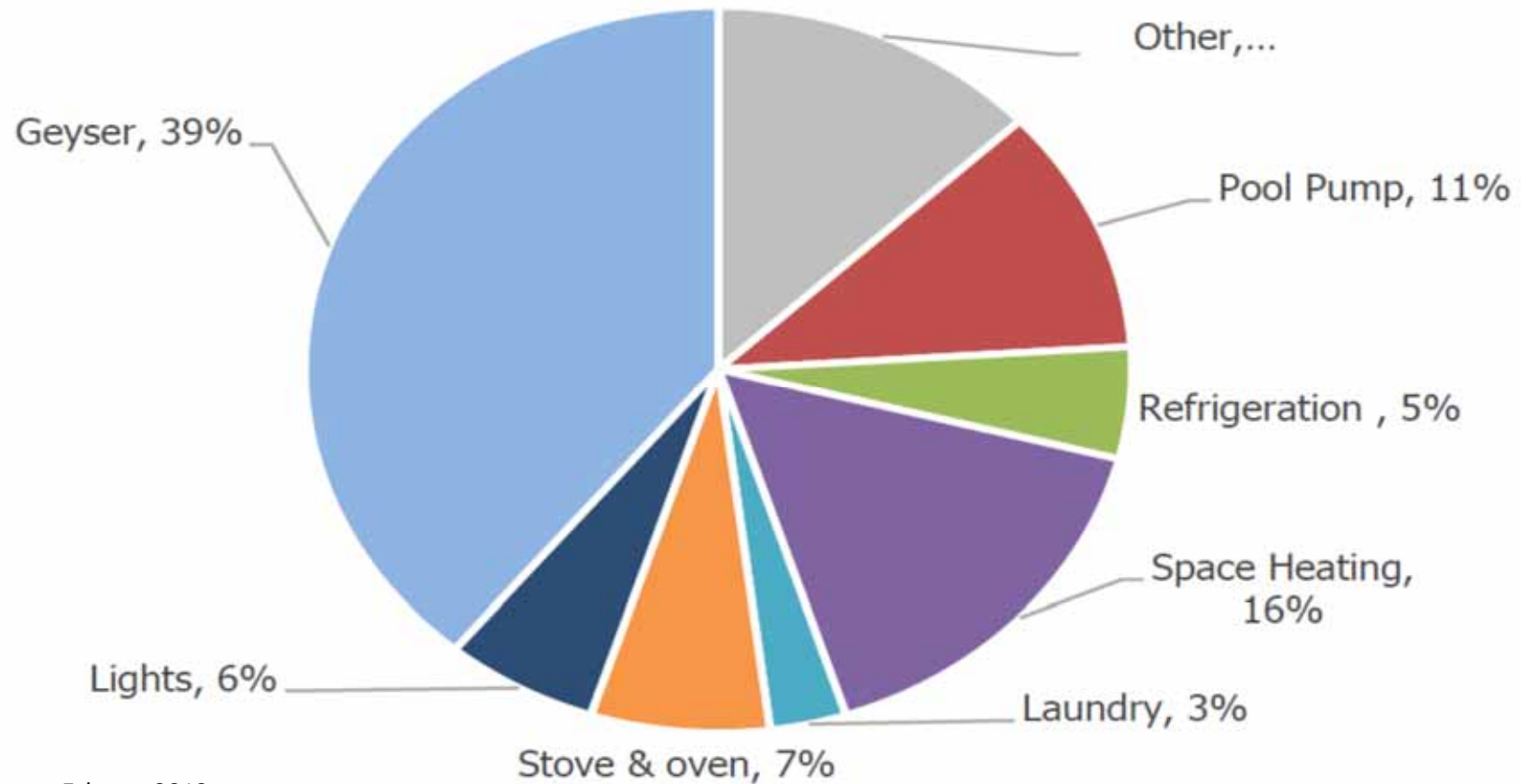


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# What Informed the Choice of Appliances



Source: Eskom , 2013



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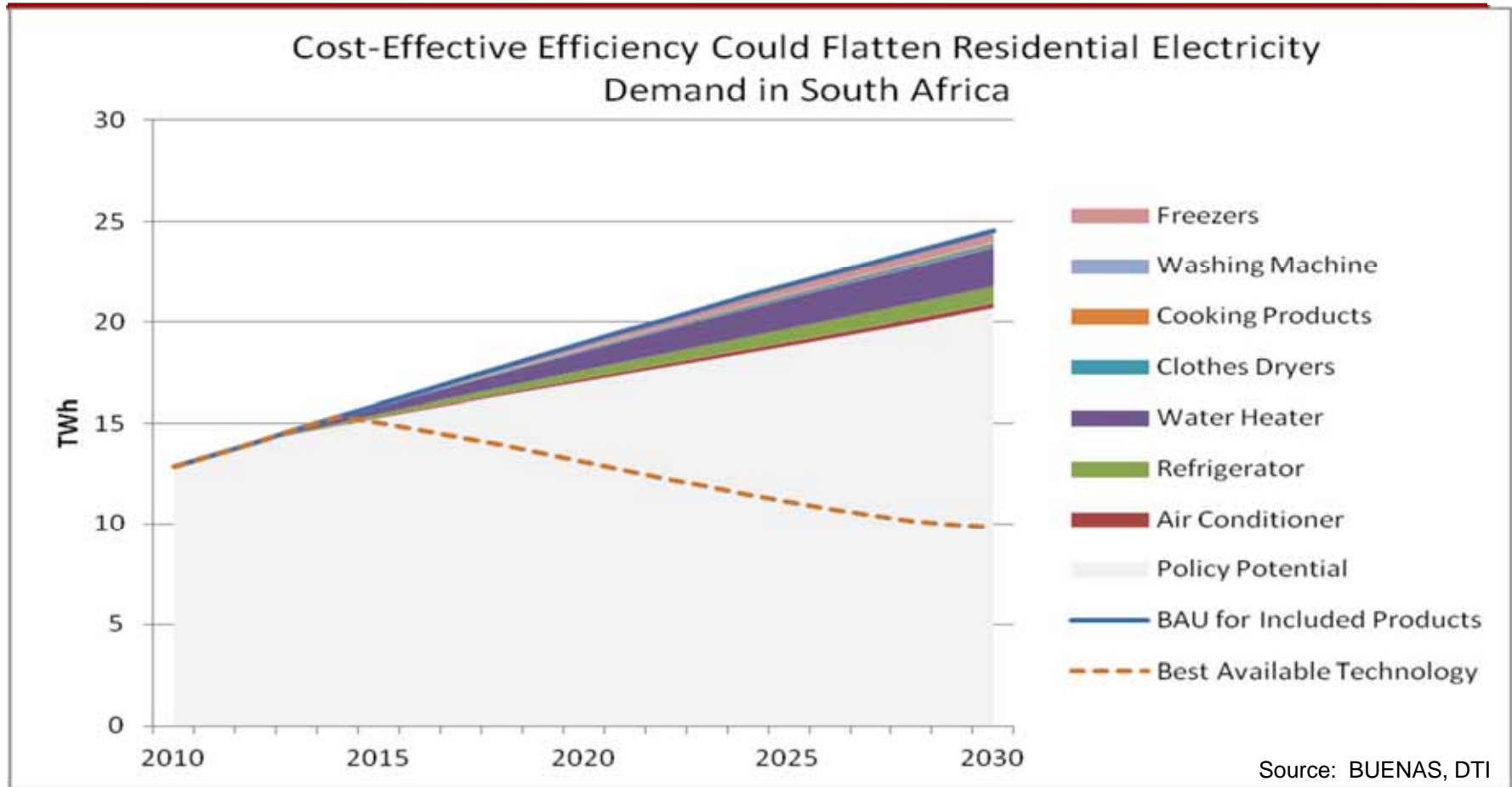


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# Cost-Effective Efficiency



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# Minimum Performance Standards

Electrical/Electronic Apparatus	Minimum Energy Efficiency Rating
Air Conditioners	Class A
Large Electric Ovens	Class B
Small/Medium Electric Ovens	Class A
Refrigerators	Class B
Freezers	Class C
Dishwashers	Class A
Washing Machines	Class A
Washer-Dryer Combinations	Class A
Tumble-Dyers	Class D
Lamps	VC 8043
Audio Visual	Standby Power
Geysers	Class B



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# MEPS for Electric Geysers

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# Geyser Study

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- Study objective:
  - To establish the likely cost and energy performance of each possible energy efficiency class;
  - To assess the impact of the proposed energy improvements; and
  - To determine the most appropriate minimum energy performance standard or energy efficiency class for electric water heaters
- Approach:
  - Research on possible energy efficiency classes for geysers
  - Techno-economic analysis on geyser insulation
  - Overall economic impact of introducing EE geysers



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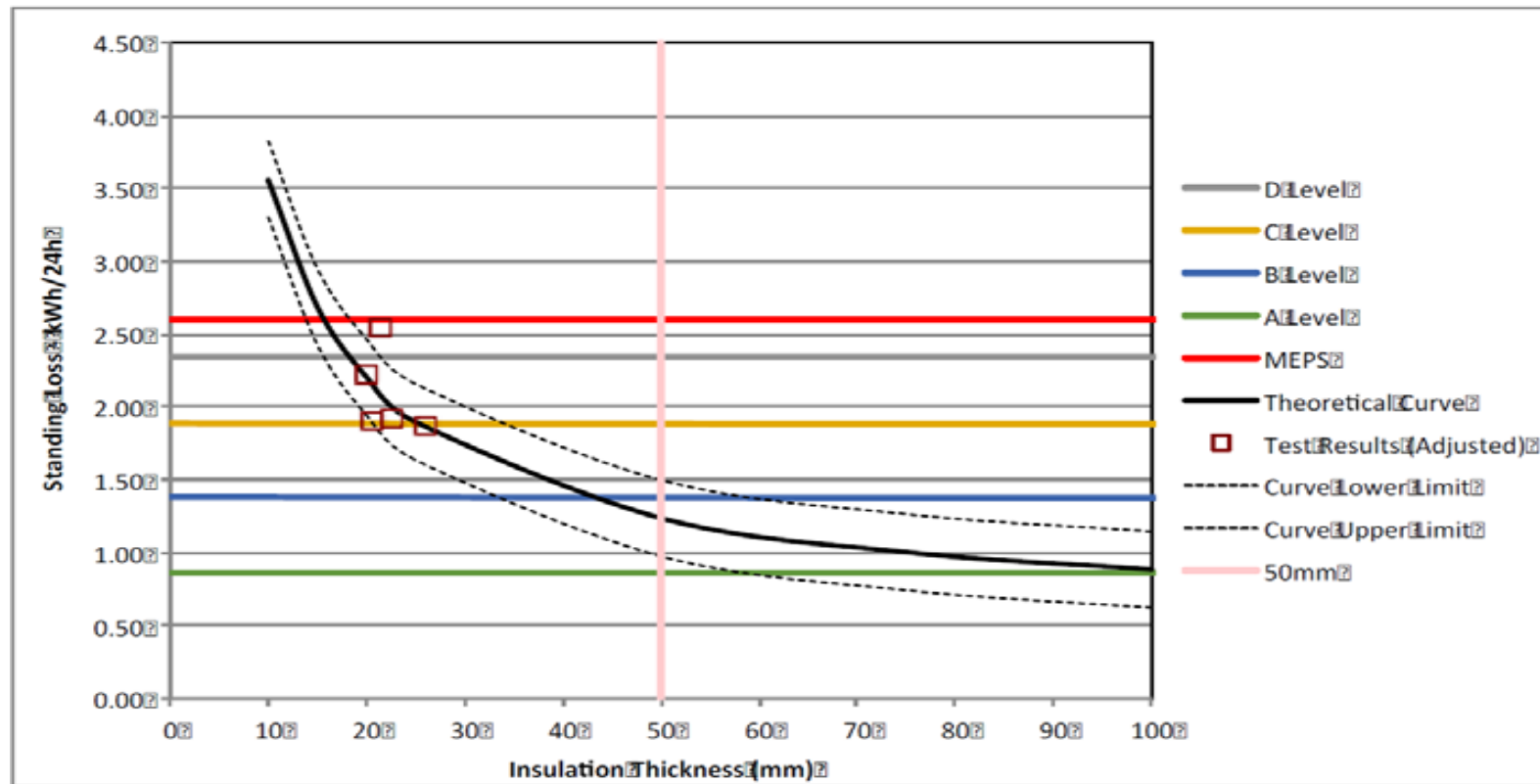
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# Geyser Study - Findings



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# Geyser Study - Findings

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- **Technical analysis on insulations:**
  - Conducted with 150 L geysers
  - Insulation (polyurethane) to 50 mm was recommended
  - Payback period is within 2 months of the additional equipment cost (R161.00)
  - Energy efficiency Class B is achievable



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# Project Status

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# Use of Policy Instruments

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- Methodology used to introduce EE Household appliances is based on 4 key policy instruments
  - Regulation
  - Communication
  - Incentives
  - Capacity building



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# Regulation

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- Introduction of Minimum Energy Performance Standards
  - Technical regulations issued by the NRCS
    - VC 9008 – Covers 10 of the listed appliances (except for electric geysers and lamps). Makes reference to SANS 941
    - VC 9006 – For electric geysers and references SANS 151
    - VC 8043 – For regulation of incandescent lamps which references SANS 60064
  - The technical regulations above will be enforced through the NRCS Act which stipulates compliance monitoring, verification and enforcement action to be followed



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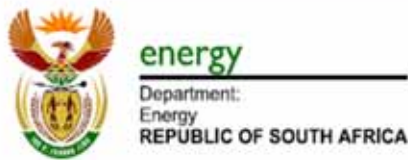
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# Regulation

- Introduction of product labelling
  - Labelling requirements are included in the National Standards cited above (except for lamps) and enforced through NRCS Act
  - EE Labelling will also be used in raising awareness on choices available to consumers

Energy Air conditioners	
<b>Manufacturer</b>	
Outside unit Inside unit	
More efficient	
Less efficient	
<b>Annual energy consumption, kWh, in cooling mode</b> <small>Actual consumption will depend on how the appliance is used and the climate.</small>	<b>X.Y</b>
Cooling output kW	X.Y
Energy efficiency ratio <small>Full load (the higher the better)</small>	X.Y
Type: Cooling only —	
Cooling + heating —	←
Air cooled —	
Water cooled —	←
Heat output kW	X.Y
Heating performance	ABCDEF
<b>Noise (optional)</b> (dB(A) re 1 pW) <small>Further information is contained in the product brochure.</small>	<b>XY</b>
Norm SANS 54511-3 Air conditioner Label Directive 02/31/EC	



# Project Communications

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- A robust communications drive is required to successfully transform the SA market and change behaviour towards energy efficient appliances
- Several communications campaigns are planned for the project in line key project milestones.
- These campaigns are targeted to all key stakeholders including relevant government departments, manufacturers, importers, retailers and consumers of the listed appliances.



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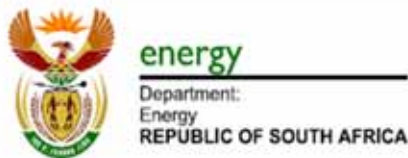
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# Incentives

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- Incentives programs will be introduced to overcome barriers of higher initial cost that often restricts the purchase of energy efficient products.
- A study aimed at investigating relevant incentives to increase the uptake of energy efficient appliances is underway.
- Approach:
  - Review of local incentive schemes (Eskom, NT, DTI)
  - Research on relevant international incentives
  - Workshop with experts (locally and internationally)
  - Set criteria for appliance selection



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# Criteria for Appliance Selection

Criteria	Description	Outcome
Impact on Energy Consumption	Needs to make a substantial contribution to potential residential energy saving	Hot water, lighting, cooking, refrigeration
Local Manufacturing	Money spent must contribute to local manufacturing and job creation	Geysers, refrigeration, cooking appliances
Impact on the Poor	Needs to help those least likely to be able to help themselves	Lighting, hot water, refrigeration and cooking
Currently Working Programmes	Take from programmes currently working	SWH / HP
Critical Mass	Needs to be able to have a significant intervention	Lighting, refrigeration, cooking



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# Proposed Incentives

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## ■ Manufacturing Incentives

- To reduce the ultimate price of geysers by providing funding for the incremental improvements on geysers.
- To help reduce the price of LED lights for a set period as a measure to promote the use of LED lights.

## ■ End-User incentives

- For lower LSM end-users: A swap system for refrigerators – old refrigerators to be swapped for new and more energy efficient fridges. This incentive scheme is based on the Ghana's success with introduction energy efficient fridges.
- For higher LSM end users: A rebate system for energy efficient appliances purchased in a particular tax year.



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# Capacity Building

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- Strengthen the capacity of institutions
  - Audit conducted for SABS to identify gaps in terms of training, equipment and available resources
    - Intertek was appointed mid 2014
    - Assessment of SABS' capacity and advice on facility layout and equipment requirements concluded
    - SABS is now SANAS accredited for standby testing
  - Facilitate the upgrade of test facilities
    - R13million set aside for upgrades and R400k committed and s
  - Review of compliance and monitoring regime for the SA programme – work in progress



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# Capacity Building

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- Strengthen the capacity of individuals
  - Facilitate training to compliance testing staff
    - Intertek partnership concluded
    - Training on standby power, dishwasher and refrigeration testing completed
    - A study visit to test labs and air conditioner manufacturers to get clarity to air conditioner standards and designs
  - Provide training for on-going compliance monitoring and enforcement officers
    - A study visits to South Korea to better understand their surveillance inspection system, the approval process of products in the market and the mechanism used to ensure continuous compliance on the market and overall compliance enforcement system
    - Benchmarking of NRCS' capacity and identification of capacity gaps has commenced
  - Organised study visit to the UK with special focus on the following:
    - Policies supportive of the S&L project
    - Incentives as driver for manufacturers and consumers
    - Monitoring and enforcement
    - Future collaborations on key project areas



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# Key Successes

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- The VC 9008 was promulgated in November 2014 and its enforcement will be phased in as follows:
  - For standby power – 6 months after promulgation date; **May 29, 2015.**
  - For air conditioners – 18 months after promulgation; **May 29, 2016.**
  - For the rest of the appliances – 9 months after promulgation; **August 29, 2015.**



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# Key Successes

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- The study to determine the minimum energy performance standard to electric geysers, which focused on the effect of thicker insulation for geyser tanks, concluded that energy Class B for geysers was technical achievable and this was presented to manufacturers without any objections to the findings.
- It's projected that the improvement from a Class D (with a standing loss of 2.25 kWh per 24 hour period) to Class B (with standing loss of 1.38 kWh per 24 hour period), will result in a saving of 1714 GWh per year.



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# Key Successes

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- A survey conducted with test facilities for electronic appliances to check their level of readiness to test against new SABS standards, showed that SABS, Gerotek and Test Africa were all ready to test for standby power and preparations to test for all standards under VC 9008 are at an advanced stage.
- A database to track the penetration of energy efficient household appliances has been developed being tested by end-users.



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# Concerns

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- Overall communication on the project is far from adequate
  - Communication on the label
  - Promulgation of regulations
  - General awareness campaigns
- Immediate activity:
  - Launch of the label



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# Concerns

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- Findings of the recent baseline study reveal that there has been improvement in the efficiency of some of the appliances listed for S&L
  - The % of appliances that will fail the current MEPS has dropped from the 2011 study estimates
  - Projected electricity demand and GHG emission reductions has dropped from 11.5 to 5.5 Mt CO<sub>2</sub> eq (by 2030)
- Calls for frequent review of MEPS to raise efficiency bar as guided by available technology



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# Thank You

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