



Department of Mineral Resources and Energy (DMRE)



energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA

The Future of Energy Efficiency in South Africa

Energy Efficiency Training Week for Sub-Saharan Africa

**Protea Hotel Fire & Ice, Menlyn, Pretoria
14-17 October 2019**

Outline of the Presentation

- ❑ DMRE's Energy Efficiency Mandate
- ❑ Background and context
- ❑ Proposed Energy Efficiency Targets, 2016-2030
- ❑ Energy Efficiency in Public Buildings and Infrastructure
- ❑ Appliance Energy Efficiency Standards and labelling
- ❑ EEDSM Grant Facility for Municipalities
- ❑ Conclusion

DMRE's Mandate on Energy Efficiency

- ❑ As part of the energy diversification, South Africa **advances** energy efficiency by planning, integrating and coordinating initiatives and interventions that are focused on:
 - ✓ **developing and improving the energy efficiency market** with relevant associated institutions across all sectors.

Background and context (1/3)

- ❑ The **South African National Climate Change Response Policy White Paper** (NCCRPW) has identified **energy efficiency and demand side management** and renewable energy programmes as the **Near Term Priority Flagship programme as Mitigation Measures** with respect to reducing the country's greenhouse gas emissions
- ❑ This is supported by the country's National Development Plan, 2030 which maps out the long term plans.
- ❑ Energy Efficiency is among the measures in the National Determined Contributions (NDCs) as outlined in the Paris

Background and context (2/3)

- ❑ The commitment for national energy efficiency improvements **were initially affirmed in the National Energy Efficiency Strategy (NEES)** that was developed and published in 2005 with economic wide energy intensity reduction of 12% by 2015 against the baseline of 2000.
- ❑ In 2015, an **Energy Efficiency Target Monitoring System (EETMS)** was developed
 - ❑ Data analysed through this EETMS showed energy efficiency improvement of 21.4% in 2015 (against the target of 12%) using baseline of year 2000.

Background and context (3/3)

- Subsequent to the development of the EETMS, post-2015 Energy Efficiency Strategy was developed, setting an economic-wide target of 16% by 2030 using baseline of 2015.
- Key aspects of the post-2015 NEES premised on a principle of government “***Leading by Example***”, with the aim of addressing energy efficiency across national and provincial buildings owned or occupied by government.
- Considering energy efficiency as the “**first fuel**” to ensure that sustainable economic growth whilst striving towards the **low carbon economy**.
- **Partnerships/collaboration** with key stakeholders remained the pillar in ensuring the improvements in energy efficiency.

Proposed Energy Efficiency Targets, 2016-2030 (post-2015 NEES) (1/2)



Economic Wide Sector: 16% reduction in energy consumption.

Public Buildings: 58% reduction in the specific energy consumption of buildings constructed post-2015, and 35% for buildings constructed pre-2015.

Municipal Services: 20% reduction in energy intensity of municipal provision, and 30% in the fossil fuel intensity of municipality vehicle fleet.

Industry and mining sector: (i) 16% reduction in weighted mean specific energy consumption; and (ii) cumulative total annual energy saving of 40PJ in the mining sector.



Proposed Energy Efficiency Targets, 2016-2030 (post-2015 NEES) (2/2)

Agriculture Sector: A total electricity saving of 1 PJ

Energy production and distribution: (i) a total of 10PJ derived from cogeneration; and (ii) average total electricity distribution losses below 8% by 2030 and average non-technical losses of below 0.5%.

Commercial Sector: 37% reduction in the specific energy consumption

Residential Sector: (i) 33% reduction in average specific energy consumption of new household appliances; and (ii) 41% improvement in the average energy performance of residential building stock

Transport Sector: 20% reduction in the average vehicle energy intensity



Proposed Energy Efficiency Measures: Cross-Cutting Measures



Institutional measures

- Support the professionalisation of ESCOs
- Energy endorsement label
- Energy efficiency technology hub

Fiscal measures



- Continuous improvement of 12L to become more relevant

Legal & regulatory measures



- Tightening of building standards
- Energy performance certificates for buildings
- Tightening and broadening of minimum energy performance standards

Energy Efficiency in Public Buildings and Infrastructure Project (EEPBIP)



Nationally Appropriated Mitigation Action (NAMA) Support Project: EEPBIP (1/4)

- ❑ The Energy Efficiency in Public Buildings and Infrastructure Programme (EEPBIP) was conceptualised in the context of South Africa's Energy Policy, National Energy Efficiency Strategy, Integrated Resource Plan (IRP), and the Climate Change Mitigation Flagship Programmes, as contained in the National Climate Change Response Policy.
- ❑ This NAMA supported project is implemented through the donor support by several countries, that is, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), the Ministry of Energy and Industrial Strategy of the United Kingdom of Great Britain and Northern Ireland, the Department Energi-, Forsynings- og Klimaministeriet of the Kingdom of Denmark, and the European Commission.
- ❑ GIZ is the international partners' executing authority on behalf of the NAMA Facility.

Nationally Appropriated Mitigation Action (NAMA) Support Project: EEPBIP (2/4)

❑ NAMA Support Project is 5 (five) year project implemented with the following partners:

❖ Department of Environment, Forestry & Fisheries (DEFF), Department of Public Works and Infrastructure (DPWI), South African National Energy Development Institute (SANEDI), Industrial Development Cooperation (IDC), National Business Initiative (NBI), and Carbon Trust.

❑ The key outcomes of the EEPBIP technical and financial components are that:

- ❖ **Technical strictures are established** across municipalities, provinces & national government to support the identification, procurement & implementation GHG mitigation projects & monitoring of impacts.
- ❖ **Enhanced investment climate & growth of the ESCO market through financial risk mitigation** for public sector energy efficiency interventions.

Nationally Appropriated Mitigation Action (NAMA) Support Project: EEPBIP (3/4)

☐ The anticipated impacts of the EEPBIP include:

- ❖ Greater public and private sector financing for energy efficiency mitigation actions;
- ❖ Increased greenhouse gas mitigation from national, provincial and municipal energy efficiency activities;
- ❖ EEPBIP catalyses vertically integrated initiatives from energy and other sectors; and
- ❖ Socio-economic transformation through job creation, enterprise development and improved service delivery

☐ The project is co-funded through the Energy Efficiency and Demand

Side Management (EEDSM) grant provided to municipalities.

Appliance Energy Efficiency Standards and Labelling

S&L Programme objectives: GEF co-funded

- ☐ The primary objective of the project is to facilitate 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&L) – and a series of associated awareness-building and monitoring activities.
- ☐ Provide for a continuous introduction of energy efficiency improvements in the appliance and equipment industry.
- ☐ Build the capacity of monitoring, verifying and enforcing institutions and personnel
- ☐ Remove barriers impeding the widespread uptake of energy efficient appliance

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



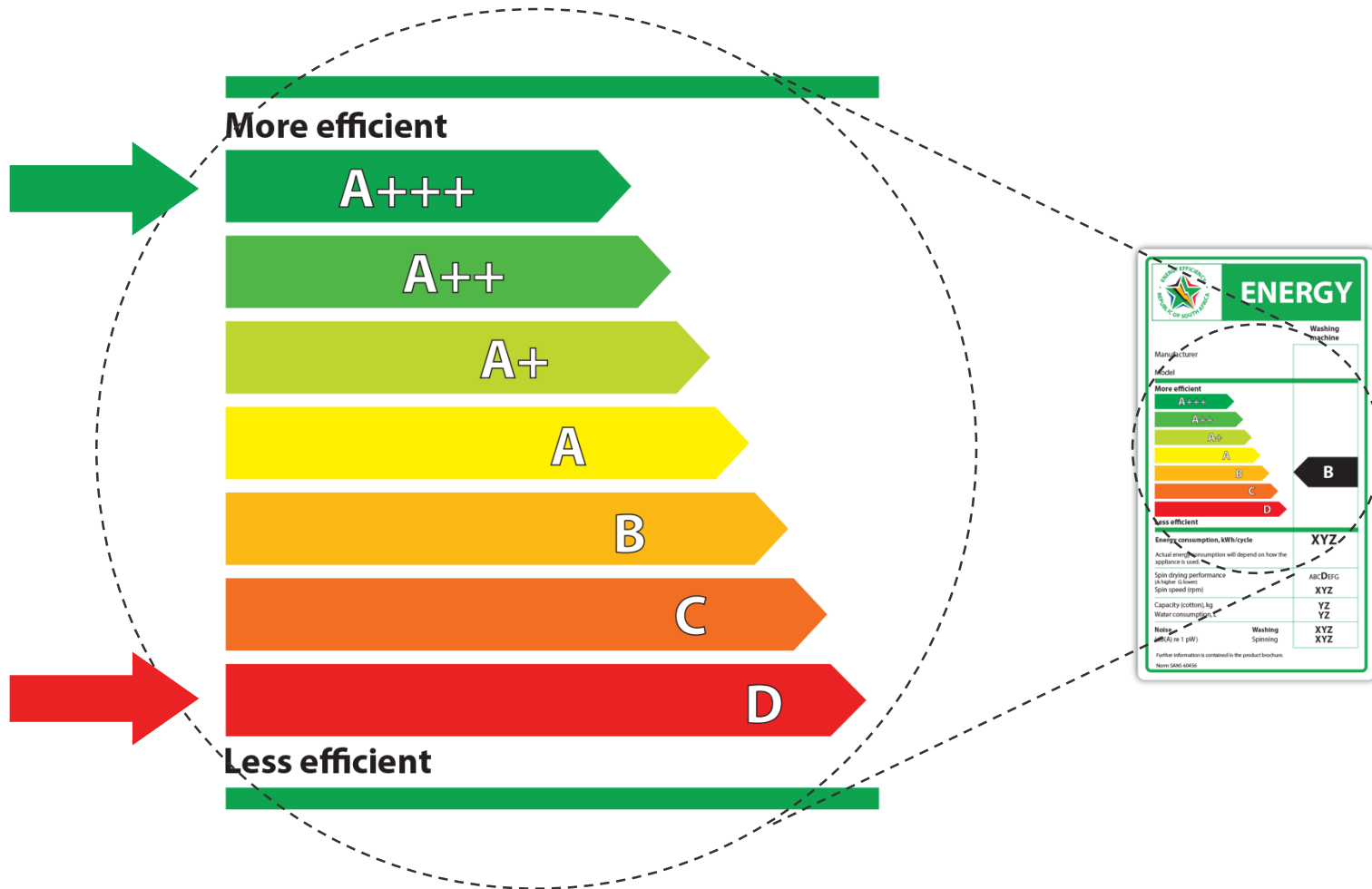
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Key focus areas for S&L Programme

- ❑ **Review of policy and regulatory framework** – A supportive legal and regulatory framework for the adoption of mandatory appliance EE standards and labels
- ❑ **Define labelling specifications and MEPS thresholds** – Conduct market and engineering analysis for the 12 products selected for S&L regulation and finalize the adoption of labelling specifications and MEPS thresholds
- ❑ **Strengthen the capacity of institutions and individuals involved in the S&L program.**– Ensure that Institutions and individuals involved in the S&L program are able to implement and monitor the S&L program
- ❑ **Awareness raising campaign for standards and labels, targeting manufacturers, distributors, retailers and end-users** - Increased EE awareness and knowledge of regulations by manufacturers, distributors, retailers and end-users levels
- ❑ **Implementation of S&L Market Surveillance and Compliance regime (MSC) regime to ensure mandatory energy performance standards are met** - Market regulations adequately monitored and enforced

Energy label defining MEPS (1)



MEPS and Compulsory Specifications currently under implementation

Compulsory specification	Focus
VC 9008	Energy efficiency and labelling of electrical and electronic apparatus (air conditioners and heat pumps, audio and video equipment, dishwashers, electric ovens, refrigerators and freezers, tumble dryers, washer-dryer combo, washing machines) reference to SANS 941
VC 9006	Energy efficiency and labelling of Hot water storage tanks for domestic use references SANS 151
VC 8043	Incandescent Lamps references SANS 60357
VC 9091	Compact Fluorescent Lamps (CFLs) referencing 60969



Minimum Energy Performance Standards: currently being implemented

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-Dryers	Class D
Lamps	VC 8043
Audio Visual	Standby Power
Geysers	Class B

Municipal Energy Efficiency and Demand Side Management (MEEDSM) Programme

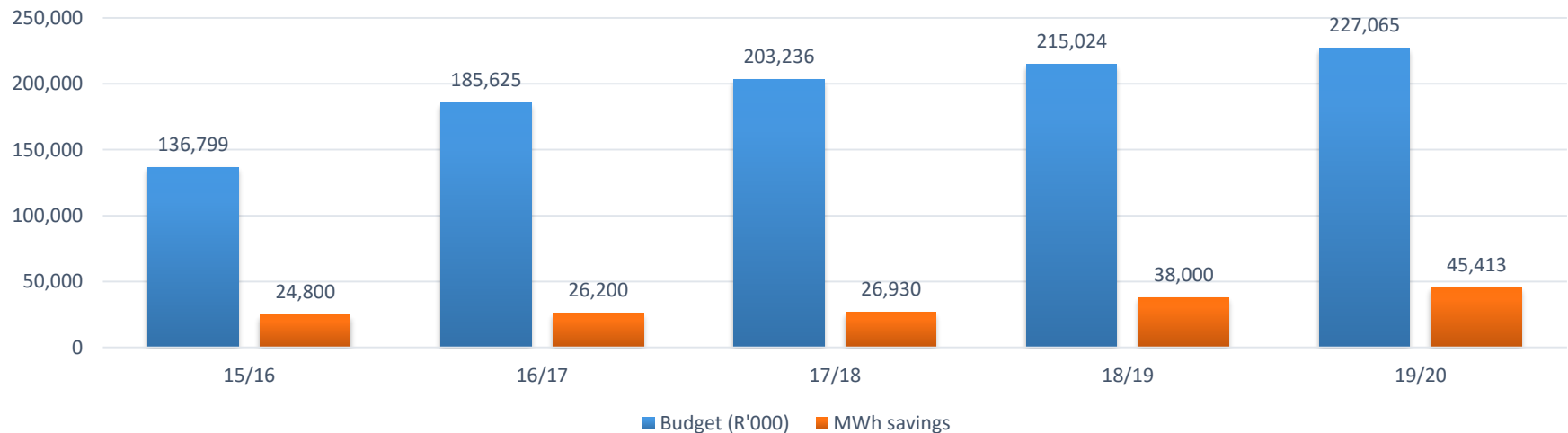


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EEDSM Grant Facility for Municipalities

- ❑ EEDSM grant subsidy to improve energy efficiency of municipalities' infrastructure.
- ❑ More than 100 municipalities participated over the last three financial years.
- ❑ Opportunity for integration of small-scale RE and EE technologies in buildings, WWTPs and streetlights.
- ❑ Opportunity for knowledge sharing and technology transfer and innovation with other departments.
- ❑ To date over a R1 billion has been invested in municipalities in the last 10 years.



Conclusion

- The implementation of energy efficiency measures have a potential to reduce energy demand and create jobs.
- The nature of energy efficiency work cuts across various institutions and as such the Department implements the initiatives with all relevant stakeholders starting from designing energy efficiency policy measures for all the sectors in preparation of the review of the first five-years of the post-2015 NEES.
- EETMS is being enhanced and aligned with the Carbon Tax Policy
- Data collection tools and methodologies are also being reviewed with the aim of establishing end-use energy database across all sectors.
- Energy efficiency indicators are being aligned with the climate change mitigation requirements.