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Your guide to energy efficiency in buildings.

Appliance energy efficiency in South Africa:

Policy gaps and recommendations to address actor-specific barriers

Wuppertal Institute
for Climate, Environment
and Energy

Presentation: Lena Tholen, Thomas Götz | EEDAL'15
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Energy background

- ZA residential electricity consumption: 17.2% (2nd)
  - Peak loads often exceed supply (rolling power blackouts)
  - Electricity prices among the lowest in the world in 1995, but tariffs tripled 2008 – 2012
  - Economic crisis (2008), energy intensive sectors

- As every country: Specific barriers for EE

  → bigEE ZA analysis

Barriers in the appliance sector

Electricity prices

- Coal widely and cheaply available: >85% of electricity generation
  - Monopolistic structure of the energy utility: State-owned utility Eskom provides >90%
- Since 2009: Multi Year Price Determination (MYPD) to guarantee energy security

→ Significant price increase (>3x until 2012)
→ 2015: 10 EUR ct/kWh (consumers)

Barriers in the appliance sector

Institutional barriers

- Public sector
  - Lack of (programme) co-ordination, resources, skills
  - Voluntary measures: low impact
  - Policies not as effective as possible

- Commercial sector
  - Lack of interest / capacities for compliance
  - Misconceptions: EE will disrupt production…

Barriers in the appliance sector

Lack of financial incentives

- Investors / demand side:
  - Capital constrains, risk aversion (high upfront investments/ long payback period)

- Suppliers:
  - Risk: New EE solutions not meeting sufficient demand

Barriers in the appliance sector

Lack of EE awareness and (consumption) information

•People are unaware that EE potentials exist, not sufficiently informed about costs and benefits

Low priority of EE

•Emerging country: “meet population’s basic needs”

•BAU practices remain, low hanging fruits not realised

→ <u>Strong arguments to address barriers with policies and measures</u>

Policy gap analysis appliance sector

ZA has just begun to focus on EE: 2005 National Energy Efficiency Strategy (NEES) was implemented

Appliances S&L

- 2005/06, voluntary label (refrigerators): low impact
- 2008: South African Bureau of Standards (SABS)
  - SANS 941, but mandatory S&L delayed

- 2015 MEPS: refrigerators, washing machines, dryers, dishwashers, electric water heaters, ovens, A/C, HP

Policy gap analysis appliance sector

Financing programmes & incentives

- Energy Efficiency and Demand-Side Management
- Barriers at responsible utility Eskom:
  - Funding problems, lack of process transparency
  - EEDSM vs. revenues, Load shifting vs. load reduction

- Oct 2013: Successful EEDSM abandoned
  - Indirect successor: 12L tax initiative (RES/EE projects) but not attractive for companies

Policy gap analysis appliance sector

Information campaigns (also reduced)

- 49M Initiative (radio spots, newspaper articles)
- Eskom Power Alert (TV adverts)

Other policy challenges

- Carbon tax plan: Strong general opposition
- Missing programmes: E.g. public procurement

→ Overall: No comprehensive EE policy package yet

Policy recommendations

- **Strengthen:** Energy Efficiency in public sector
- **Address:** Doubts on EE, lack of motivation / capacities
- **Optimize:** Attractiveness & security of investments
  - Responsibilities, implementation & coherence of P&M
- **Close identified gaps:**
  - (Re-)establish / develop EEDSM
  - Complement missing or delayed P&M

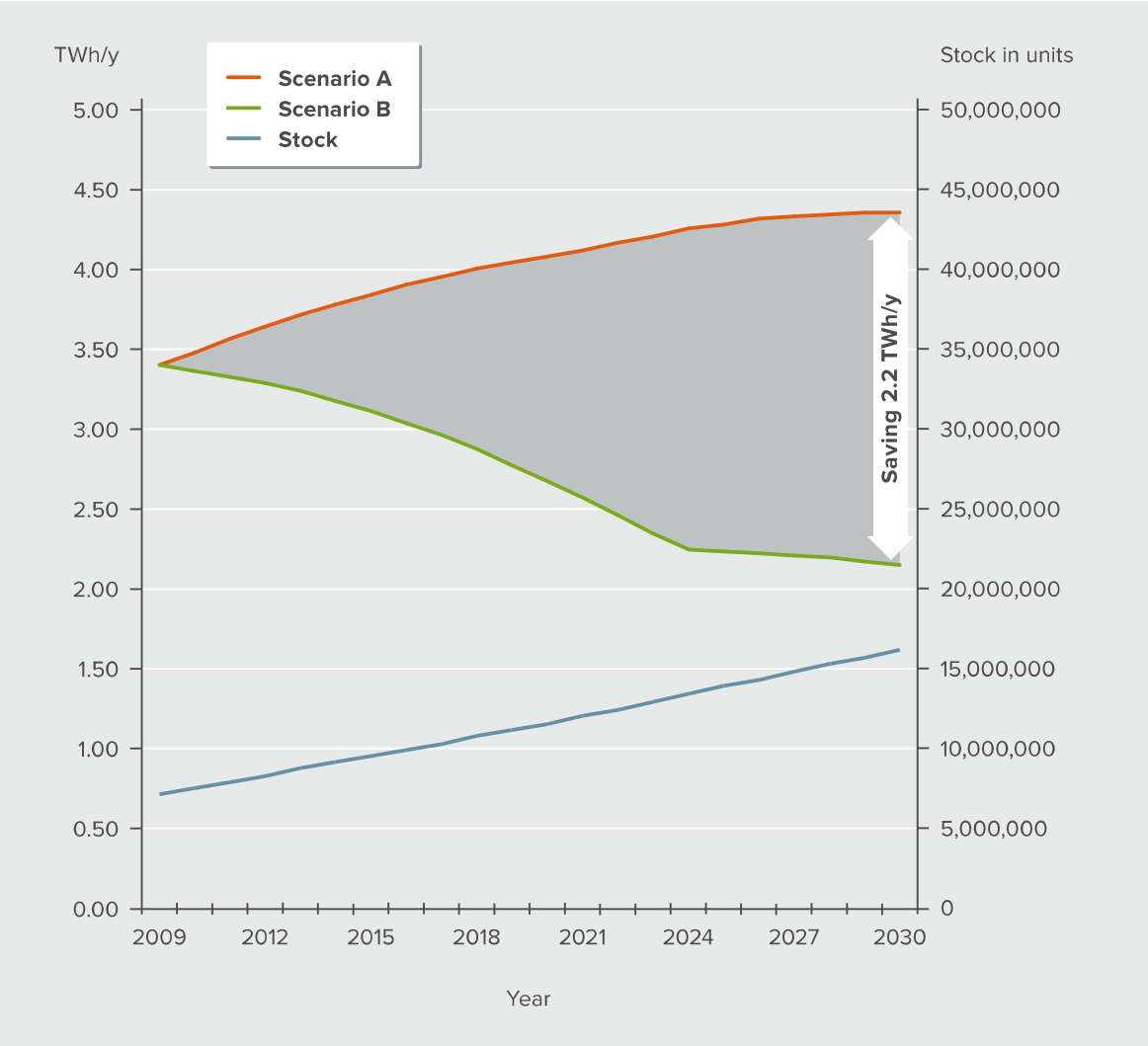
    → S&L Case Study

Case study: Cold appliances

Effects of appliances S&L delay

- Example: Fridge/Freezers & Freezers
  - Popular categories, high penetration rates (>80%)
  - Operate 24/7, lifespan >10 years
- 1st product group of South African S&L
  - 10 years: Voluntary label → Mandatory (2015)

Case study: Cold appliances



- EE potential **Fridge/Freezers:**

– Scenario A: BAU

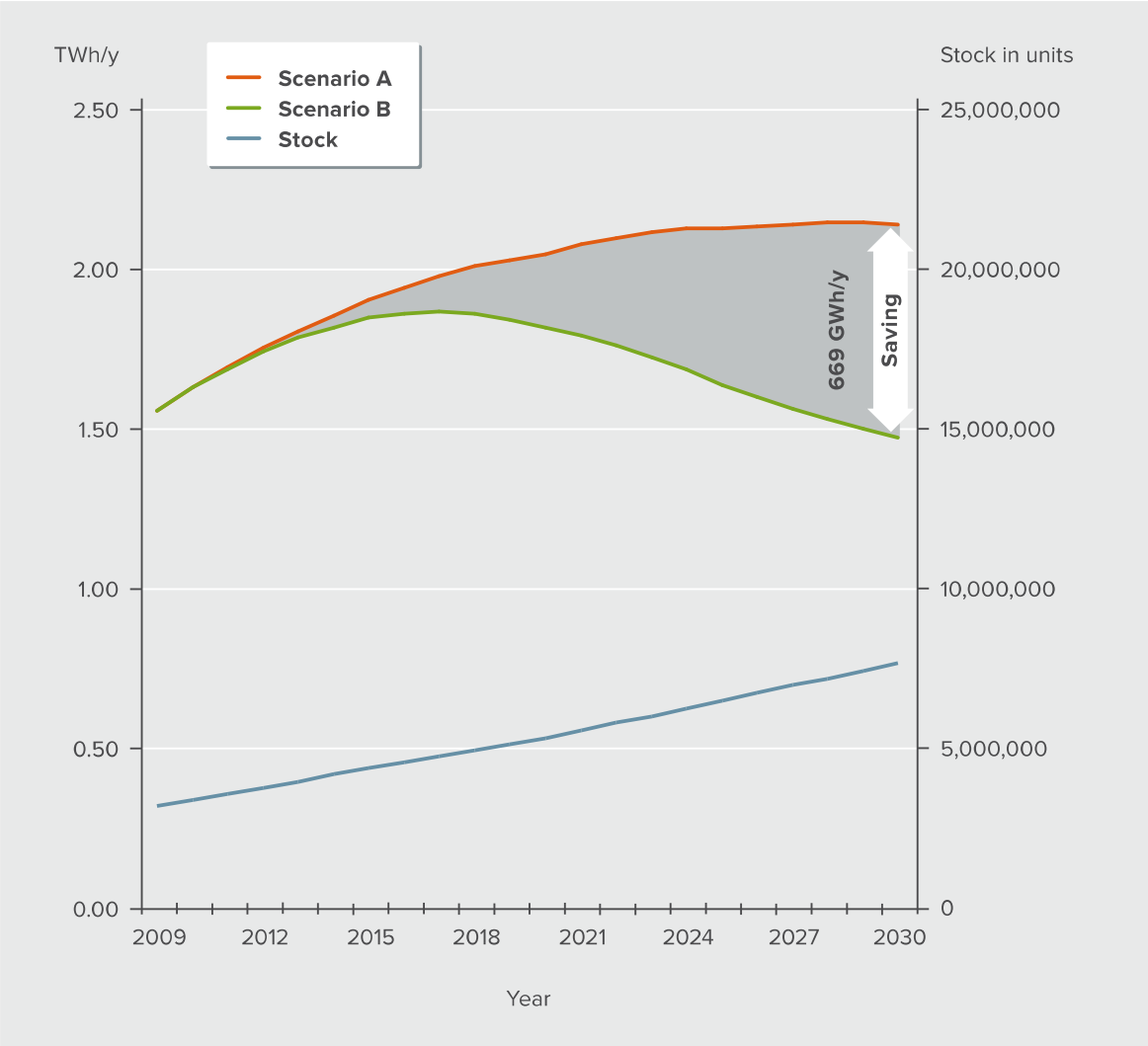
vs.

– Scenario B: BAT

→ Saving = 51 %

Source: Own calculation / illustration

Case study: Cold appliances



- EE potential **Freezers:**

– Scenario A: BAU

vs.

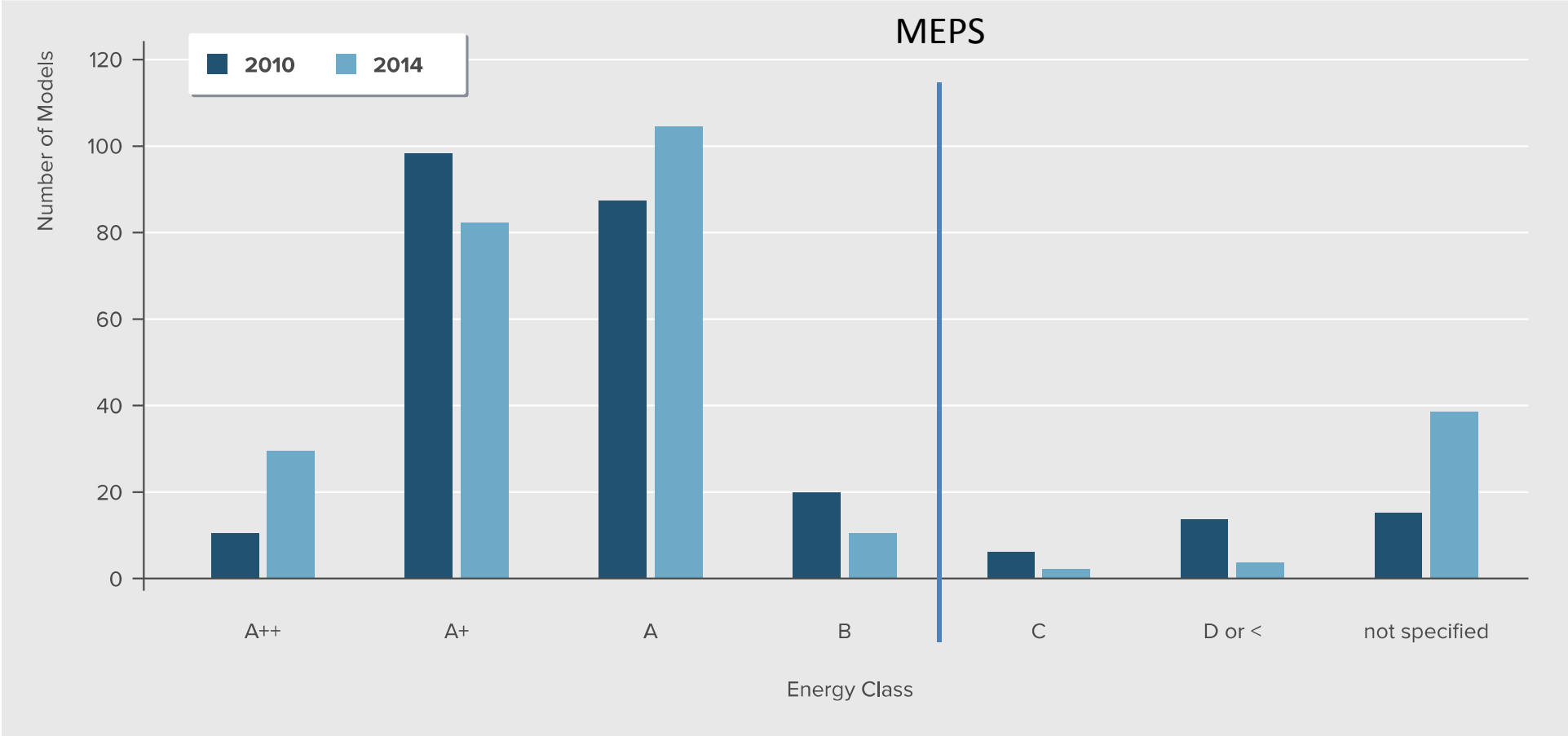
– Scenario B: BAT

→ Saving = 31 %

Source: Own calculation / illustration

Case study: Cold appliances

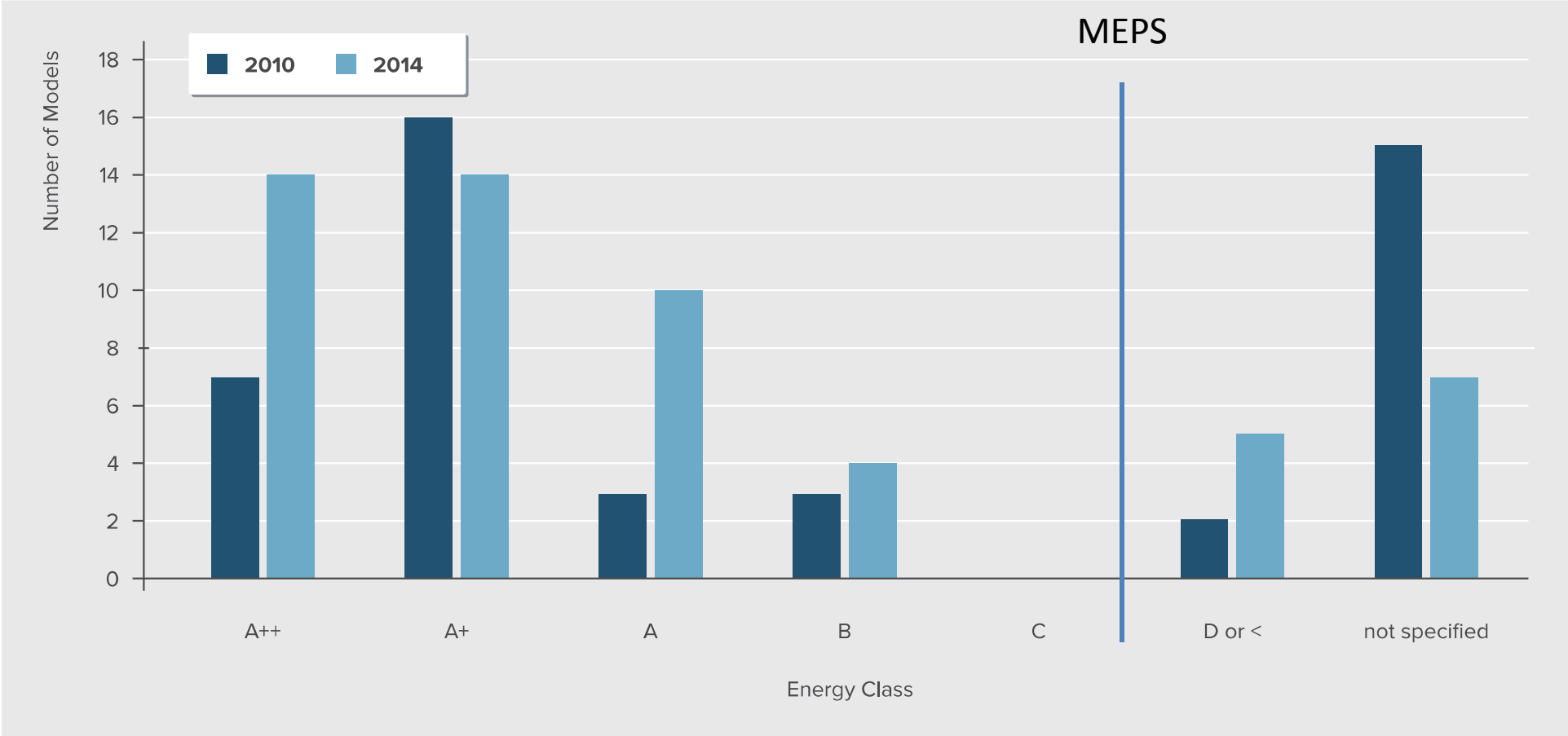
- Available EE classes: **Fridge / Freezers**



Source: Own illustration based on Covary, T. (2015)

Case study: Cold appliances

- Available EE classes: **Freezers**



Source: Own illustration based on Covary, T. (2015)

Case study: Cold appliances

- **Conclusions & recommendations:**
  - MEPS obsolete: Revise asap to harness EE potentials
  - Promote BAT, Phase-out obsolete technology
  - Avoid policy delays and exemptions (lock-in effects)
- Effective M&V:
  - Compliance & data for MEPS revision

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Thank you for your attention!

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ANNEX

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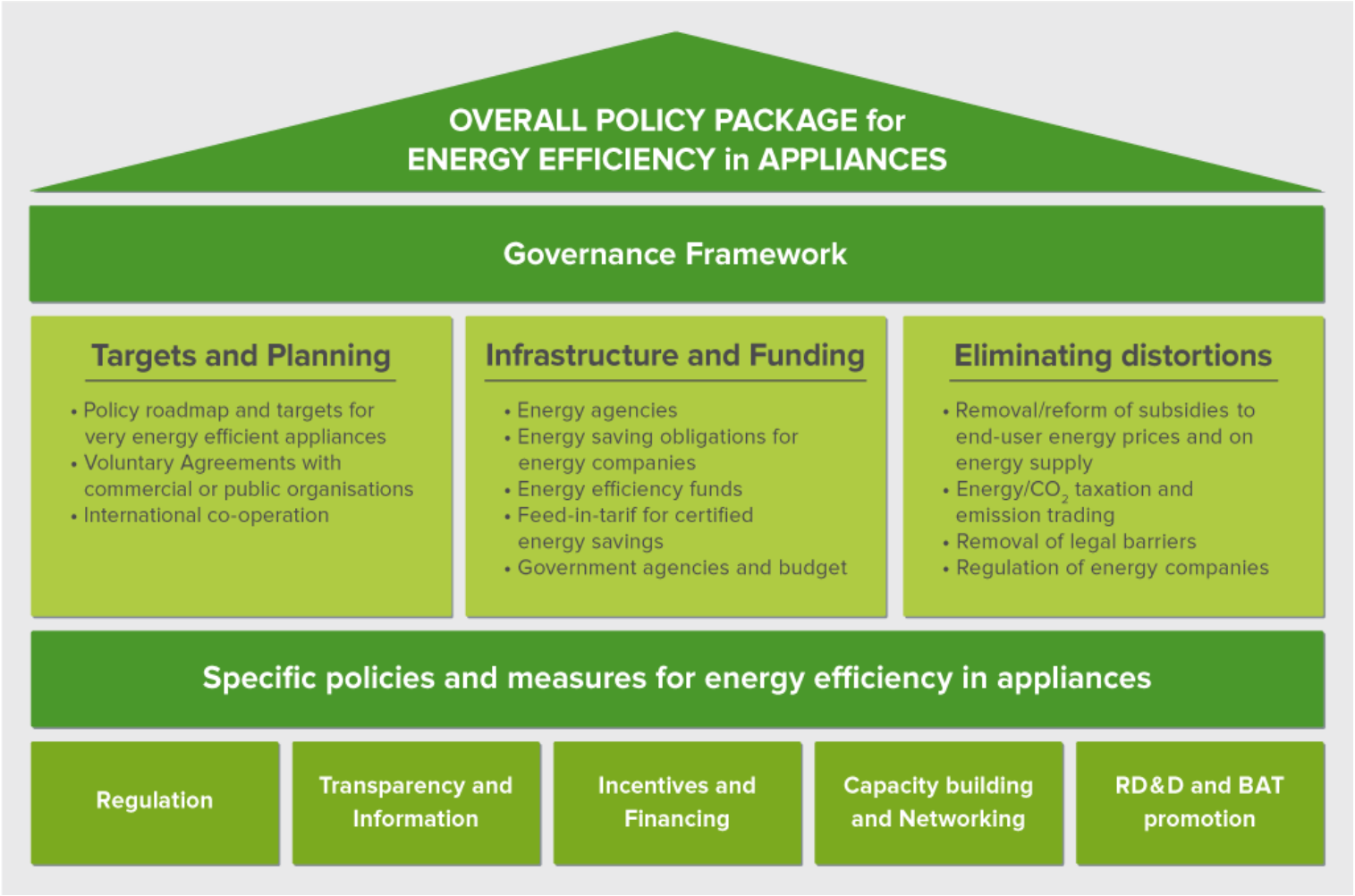
Recommended bigEE policy package



Policy gap analysis appliance sector

Financing programmes & incentives

- EEDSM umbrella programme
  - Eskom: financing support, recover by tariff revenues

- Sub-programmes (e.g.)
  - Standard product programme: pre-approved rebates (lighting, shower heads, A/C, HP, etc.)
  - Solar water heater (SWH) rebate programme
  - Residential Mass Rollout (RMR) / CFL programme
  - Standard Offer Programme (SOP) (50 kW to 5 MW)