Eskom IDM programme:
Focus on Housing Sector of South Africa

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Powering your world
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Eskom Integrated Demand Management (IDM) Performance

Outlook for short-medium term

Changes on the horizon

Conclusions
IDM solutions span across sectors to serve a number of energy efficiency interventions

- **Eskom IDM** is responsible for developing solutions and managing the delivery of energy savings through a variety of programmes in the commercial, industrial, residential, and agricultural sectors.

- **New sectors, and future solutions** will be developed from time to time to address the changing needs of the market and changing conditions of supply outlook.

<table>
<thead>
<tr>
<th>Indicative technologies / interventions</th>
<th>Industrial</th>
<th>Commercial / Agricultural</th>
<th>Residential</th>
<th>Sustainability / Life expectancy</th>
<th>Implement costs and timeframe</th>
<th>Demand / Energy solution</th>
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<tbody>
<tr>
<td>Behaviour change</td>
<td></td>
<td></td>
<td></td>
<td>short</td>
<td>low</td>
<td>Both</td>
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<tr>
<td>Demand reduction</td>
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<td>short</td>
<td>low - medium</td>
<td>Demand</td>
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<td>CFLs (mass roll out)</td>
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<td></td>
<td>short</td>
<td>low</td>
<td>Limited energy</td>
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<td>Lighting solutions</td>
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<td></td>
<td></td>
<td>short - medium</td>
<td>Low - medium</td>
<td>Energy</td>
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<tr>
<td>Compressed air</td>
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<td></td>
<td>medium</td>
<td>medium</td>
<td>Energy</td>
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<tr>
<td>HVAC</td>
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<td>medium</td>
<td>medium</td>
<td>Energy</td>
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<tr>
<td>Process optimisation</td>
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<td>medium</td>
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<td>Heat pumps / LP and HP SWH / Hot water systems</td>
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<td>medium - long</td>
<td>medium - high</td>
<td>Limited energy</td>
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<tr>
<td>Building management systems</td>
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<td>Energy</td>
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<tr>
<td>Small-scale Renewable</td>
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<td>long</td>
<td>high</td>
<td>Energy</td>
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Demand side initiatives have delivered strong results, with potential to achieve more over MYPD3

- Over the past 3 years, significant investment was made in IDM to enable processes and systems. This investment has delivered good results with the programme gaining significant momentum during the last year, removing close to 1300MW during the MYPD2 period.

### NERSA MYPD2 Determination

<table>
<thead>
<tr>
<th>Demand Side Savings</th>
<th>Unit</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
<th>Total MYPD2</th>
</tr>
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<tbody>
<tr>
<td>Verified Evening Peak Demand Savings</td>
<td>MW</td>
<td>289</td>
<td>301</td>
<td>447</td>
<td>1,037</td>
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<td>Annualised Energy Savings</td>
<td>GWh</td>
<td>977</td>
<td>1,263</td>
<td>1,815</td>
<td>4,055</td>
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<tr>
<td>Funding</td>
<td>Rm</td>
<td>1,406</td>
<td>1,688</td>
<td>2,351</td>
<td>5,445</td>
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</table>

### IDM Achievement Against MYDP2

<table>
<thead>
<tr>
<th>Demand Side Savings</th>
<th>Unit</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
<th>Total MYPD2</th>
<th>% Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verified Evening Peak Demand Savings</td>
<td>MW</td>
<td>345</td>
<td>342</td>
<td>590</td>
<td>1,277</td>
<td>123%</td>
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<tr>
<td>Annualised Energy Savings</td>
<td>GWh</td>
<td>1,274</td>
<td>1,334</td>
<td>2,251</td>
<td>4,859</td>
<td>120%</td>
</tr>
<tr>
<td>Funding</td>
<td>Rm</td>
<td>779</td>
<td>1,769</td>
<td>2,895</td>
<td>5,443</td>
<td>100%</td>
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</table>

- The achievement accelerated during the period, culminating in 595MW verified as being taken of the grid in the final year of the MYPD2. This excellent achievement has continued into the MYPD3 period but is reliant on funding. This momentum should not be lost.
Integrated Demand Management Programme Savings (MW) - Achievement Against MYPD 2 Targets

MYPD 2 Cumulative Demand Savings target = 1037MW
IDM Achievement = 1281MW (124% of MYDP2 target)
Since inception in 2004, the IDM programme has established capacity (negawatts) equivalent to that of an average power station.
Since inception of IDM – 2,714MW (76%) of the savings verified have come from the Residential sector.
Breakdown of savings for 2013 financial year
By IDM Sector

Whilst the Residential sector still contributed the majority of demand savings (376MW – 64%) for the 2013 financial year, the Commercial sector is making a bigger contribution (103MW -17%)
Regulatory Issues : MYPD3

• NERSA determined on the Eskom IDM submission for MYPD3
  – NERSA approved R5,183m of the R13,090m Eskom requested
  – IDM needs to deliver 89% of the submitted GWh energy savings target, with only 40% of the applied for funding allowed
  – The benchmark rate reduced from R5.25m/MW to R3.52m/MW (R7.57m/MW applied for)
  – Technologies such as Solar Water Heating and Heat Pumps were not supported
  – Focus on the large customer market reduced due to their ability to self-fund

• Eskom will continue to engage NERSA on:
  – Proportionality of reduction in rebate rates and savings targets
  – Strategic approach to ensuring a sustainable energy efficiency market
  – Decision implications to the ability to support Security of Supply
  – Reasoning and implications of categorising savings per technology and the exclusion of certain markets and technologies
  – Continuity of the Small Scale Renewables Programme
## Future Focus Areas

- **Secure the funding requirements for the base IDM** plan to support security of supply.

- Find way to **optimise funding of IDM** to increase MW yield per investment – collaborative effort with banks and financial institutions.

- Engage stakeholders to clarify **role of Eskom in IDM**, specifically during the system constrained period, as a key lever to keep the lights on.

- Sign up the **top 500 customers for incentivised demand response**.

- DOE to implement the government funded **Solar Water Heating** programme.

- Develop **automated processes and systems** for IDM solutions to enhance auditability and controls.

- Expedite mobilisation of the IDM Energy advisory services.
The role of IDM within Eskom to implement initiatives in support of *Keeping the lights on*

- Until 2010, IDM was mostly based on mass roll-out programmes and large projects in the industrial and mining sectors. **IDM is currently implementing multiple products that will maximise customer uptake and ensure predictable outcomes to demand side initiatives.**

- IDM has been a key focus to support the *Keeping the lights on* strategic initiative, and plays a significant role in implementing solutions to mitigate the risk to security of supply. Additionally the plan forms part of and is major input to the Integrated Resource Plan (IRP).

- Historically, the energy efficiency and demand-side management programme, which now forms part of IDM, largely funded its demand and energy-savings initiatives through tariff applications approved by the National Energy Regulator of South Africa (NERSA).

- The most recent approved application was MYPD2, which was applicable from 1 April 2010 to 31 March 2013. The need for continuity beyond this period to realise further demand and energy savings has been identified.

- The costs of IDM relate to peak demand savings, annualised energy savings, overhead costs and other costs. Costs are offset by the avoided costs of expensive generation options and associated environmental benefits.
Residential initiatives Implemented By Eskom

Energy Efficiency initiatives

• CFL Mas Rollout
• Residential Mass Rollout (Technology Basket)
• Residential Rebates Programmes

Load Management Initiatives

• Residential Load Management (RLM) Programme
• Awareness Programmes
Why Residential?

Residents: greatest contributors to peak time loads

Aim to optimize energy usage

Demand at peak periods amounts to over 30%
EE Initiatives: CFL Mass Rollout

- Objective: Replace Incandescent with CFLs
- The programme is entirely on tender bases
- Programme consist of:
  - Supply /procurement of CFLs
  - PM Companies per Region (Operating Units)
  - Multiple Installation Teams per Region (Operating Units)
  - Crushing and Disposal (both Incandescent and CFLs)
- Preference is given to small companies based on BBBEE level status.
- Target areas: Predominantly lower LSM and few higher LSM
- Temporary jobs creation in communities where the rollout is targeted.
CFL Mass Rollout

More than 2000 MW
Typical Incandescent to CFL Profiles

Weekday Operational Demand Profile (Pre/Post-Implementation)
Residential Rebates Programme

**Solar Water Heaters Rebate**
- Installed Over 350 000 SWHs installed in 8 years
- Low Pressure (incl. Load Reduction programme) and High Pressure
- Target Market: Low and High LSMs

**Residential Heat Pump Rebate**
- Installed over 17 000 Residential Heat Pumps in 3 years
- Both Integrated and Split Systems
- Target Market: High LSM
Residential Mass Rollout (RMR)

- Target Market: High LSM
- Phase 1 and 2 completed Phase 3 Postponed.
- Turn-Key Implementation on a tender process
- Basket Technology Offer
  - CFLs
  - Geyser and swimming pool Timer
  - Shower heat
  - LED downligter
  - Geyser Blanket (optional)
Residential Load Management

- **ADMD** – After Diversity Maximum Demand, Calculated or Assumed
- Pure Load Management means Neutrality – Area(energy) under the graph
- Control of come back load

**Types of projects**
- Extension projects – One way Communications
- New projects – Two way Communications
Residential Load Management
Awareness Initiatives

- Power Alert, Beat the Peak and Winter campaigns
5pm to 9pm switch off campaign: Phase 2 - Why

Switch off your geyser between 5pm and 9pm. Here’s why:

The reason we ask you to switch off your geyser between 5pm and 9pm, is that the country uses more electricity during this time and supply is under severe pressure. Switching off your geyser helps free up power for other things and relieves the pressure on the grid.

Here’s an interesting fact; the huge demand for energy during the evening between 5pm and 9pm is the equivalent of one power station. There is an estimated 5.4 million electric geysers in homes across South Africa.

Our combined contribution makes a significant difference. Switch off your geyser every day between 5pm and 9pm and help us beat the peak to keep South Africa powered up.

For more information visit: www.eskom.co.za/idm
5pm to 9pm switch off campaign:
Phase 1: Introduce geyser and pool pump characters

Between 5pm and 9pm, Geyser is not welcome. Please switch it off.

Between 5pm and 9pm, Pool pump is not welcome. Please switch it off.

The evening peak period between 5pm and 9pm is when a lot of people are home after a day at work. During this time people cook, play video games, watch TV and take baths. All of this leads to a large demand on our limited power supply. A geyser can consume up to 39% of household power, whereas a pool pump can use up to 11%. Please help us reduce the pressure on the national grid by switching off your geyser and pool pump during peak periods.

For more information please visit www.eskom.co.za/ide
Let's Beat The Peak!!!

Thank you

Email: tshabas@eskom.co.za
Office: 011 800 8639