



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

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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.

Indicative technologies / interventions	Industrial	Commercial / Agricultural	Residential	Sustainability / Life expectancy	Implement costs and timeframe	Demand / Energy solution
Behaviour change	[Redacted]			short	low	Both
Demand reduction	[Redacted]			short	low - medium	Demand
CFLs (mass roll out)			[Redacted]	short	low	Limited energy
Lighting solutions	[Redacted]			short - medium	Low - medium	Energy
Compressed air	[Redacted]			medium	medium	Energy
HVAC	[Redacted]			medium	medium	Energy
Process optimisation	[Redacted]			medium	medium	Both
Heat pumps / LP and HP SWH / Hot water systems	[Redacted]			medium - long	medium - high	Limited energy
Building management systems	[Redacted]			medium	medium - high	Energy
Small-scale Renewable	[Redacted]			long	high	Energy



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

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

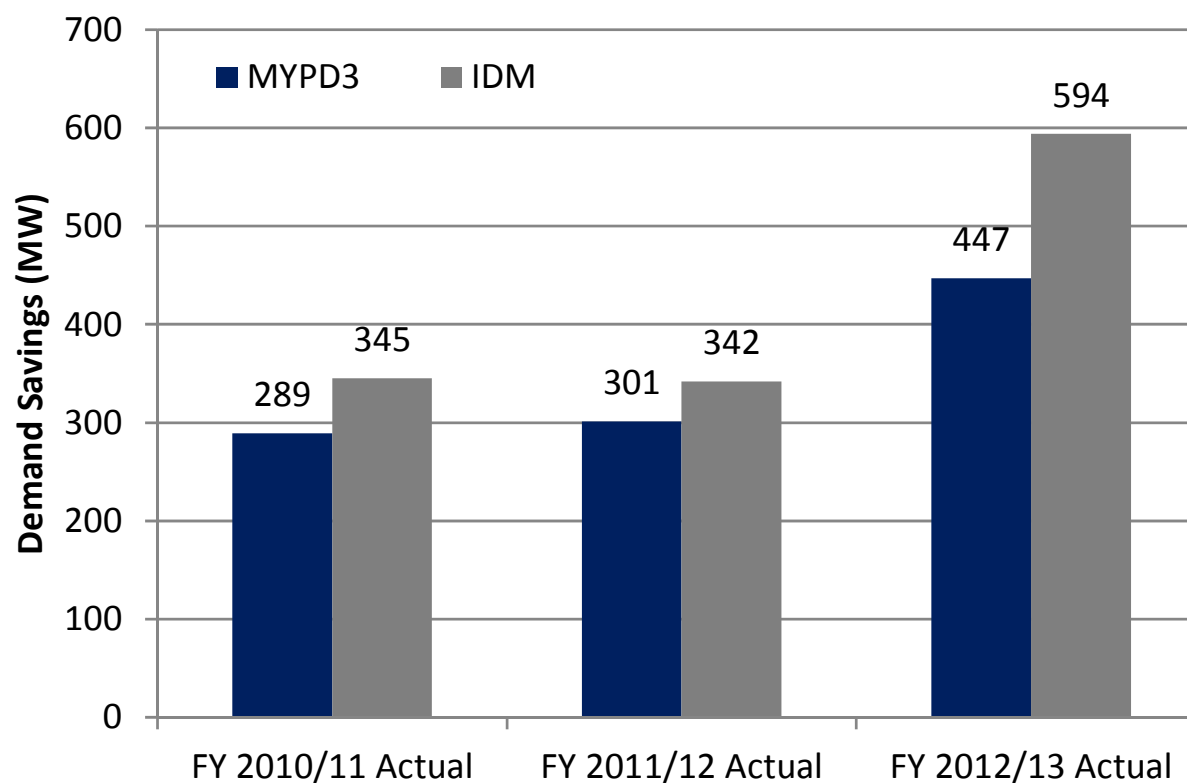
IDM Achievement Against MYDP2

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

- 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



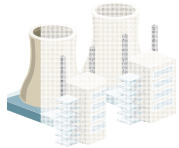
MYPD 2 Cumulative Demand Savings target = 1037MW
IDM Achievement = 1281MW (124% of MYDP2 target)



Since inception in 2004, the IDM programme has established capacity (negawatts) equivalent to that of an average power station

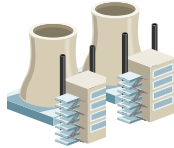


2004/05



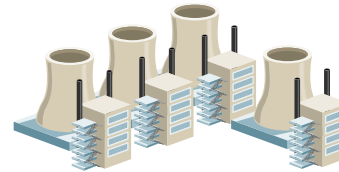
10% unit

2007/08



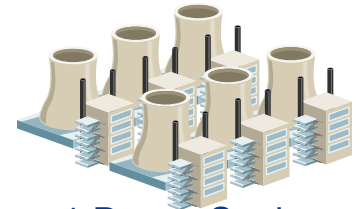
~2 units

2009/10

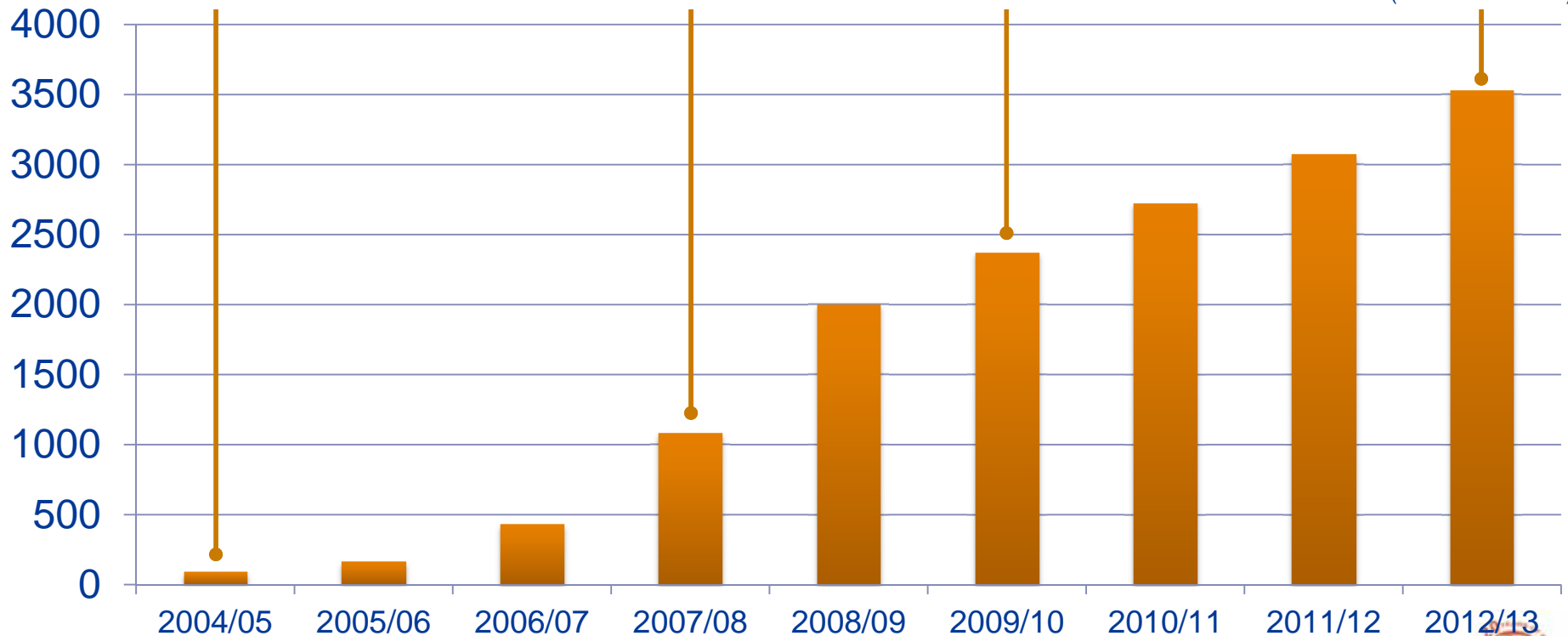


4 Units

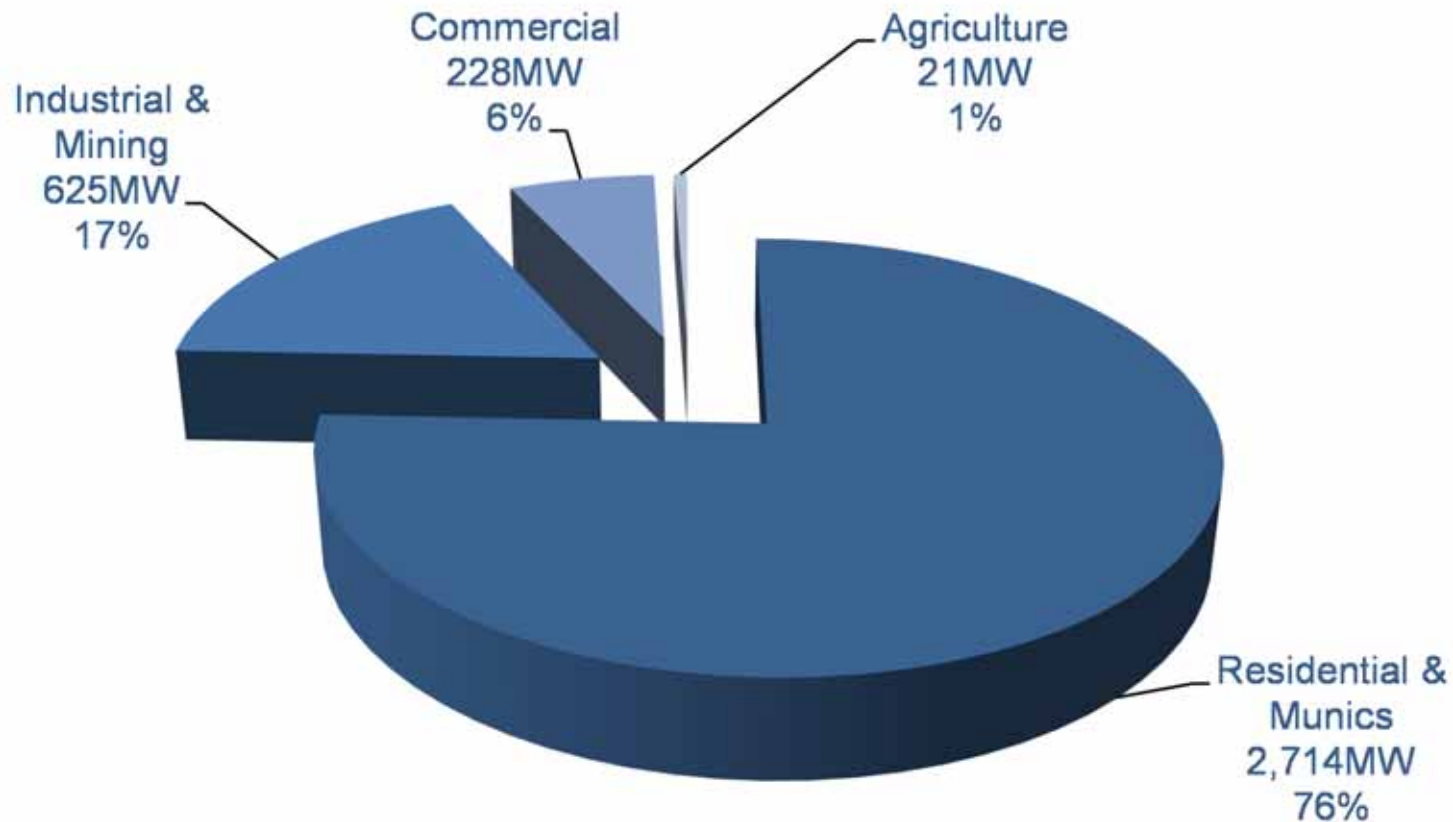
2012/13



1 Power Station
(6 x 600MW units)



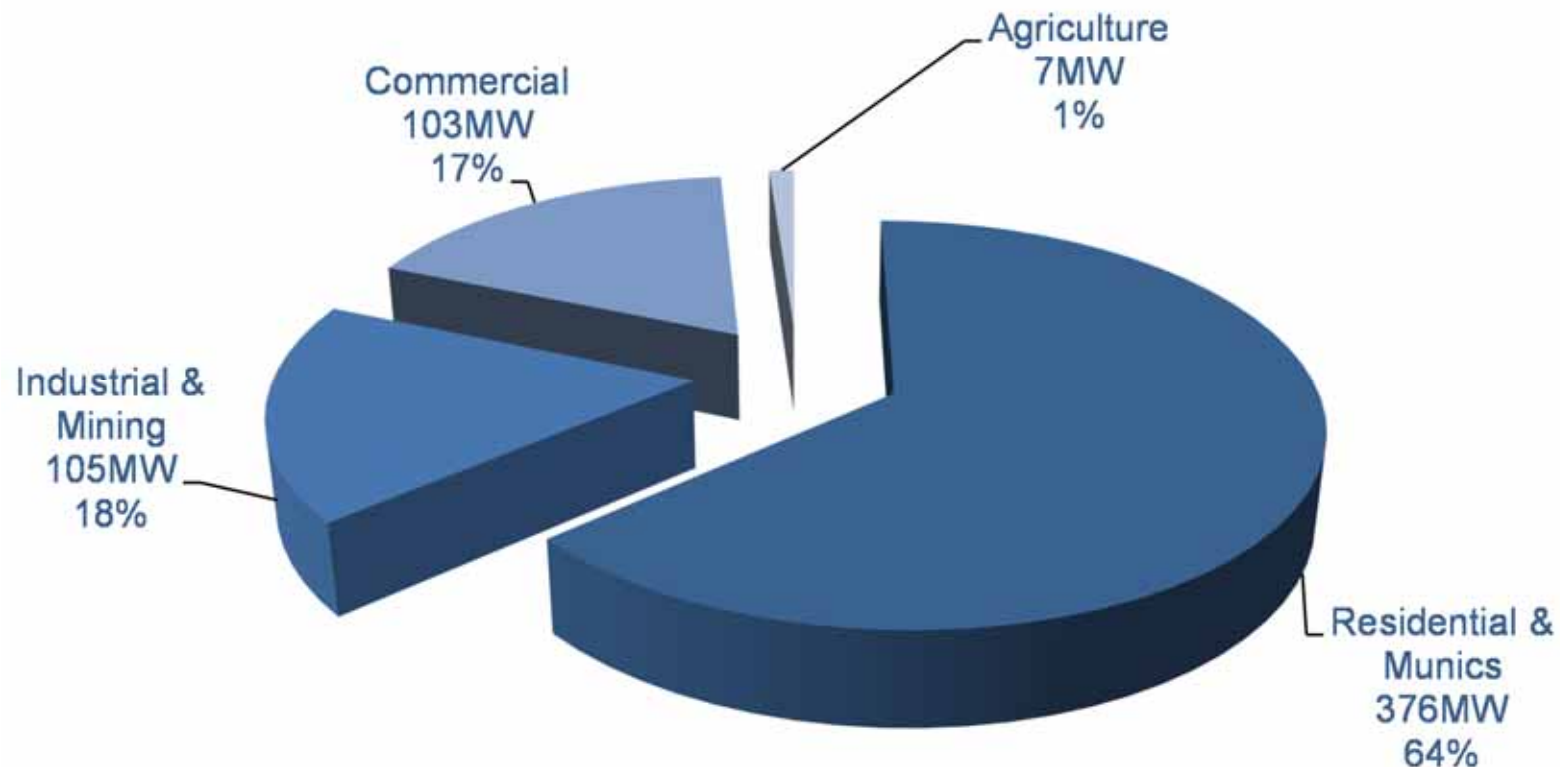
Breakdown of savings since inception By IDM Sector



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%)



- 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 supports 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.



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

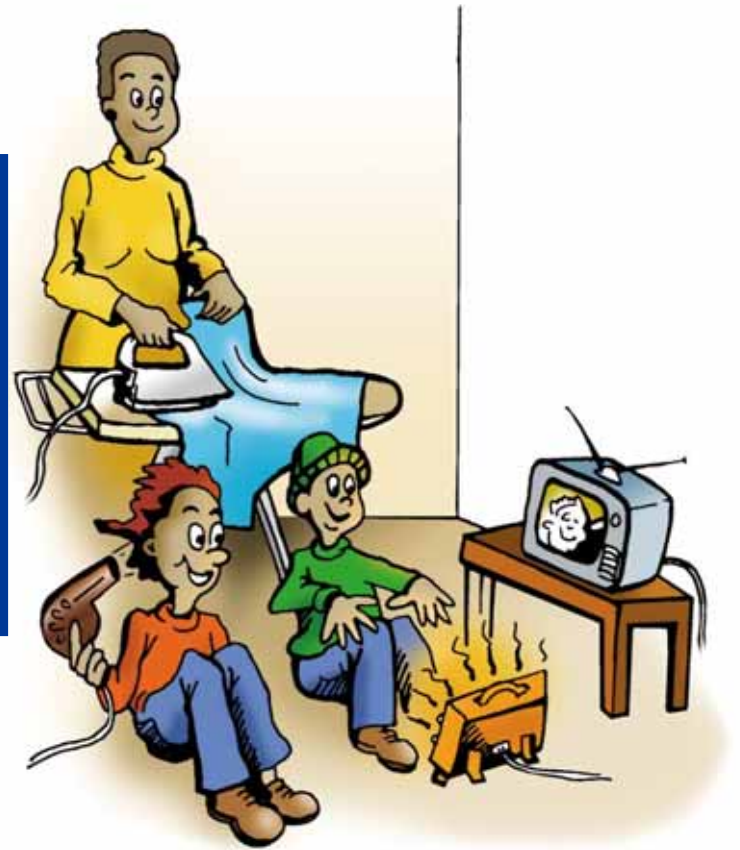
Aim to optimize energy usage



Demand at peak periods amounts to over **30%**



17:00 - 21:00



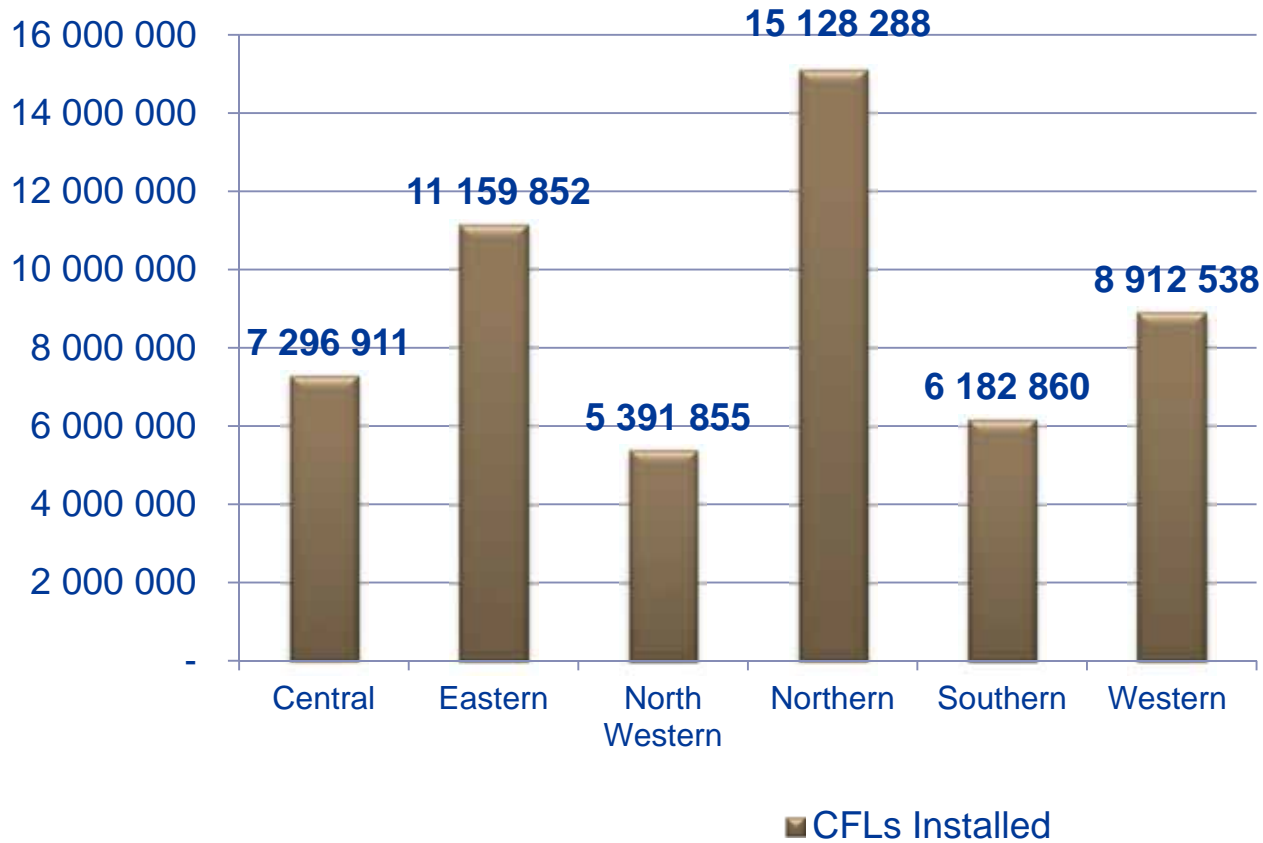
EE Initiatives: CFL Mass Rollout

- 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.

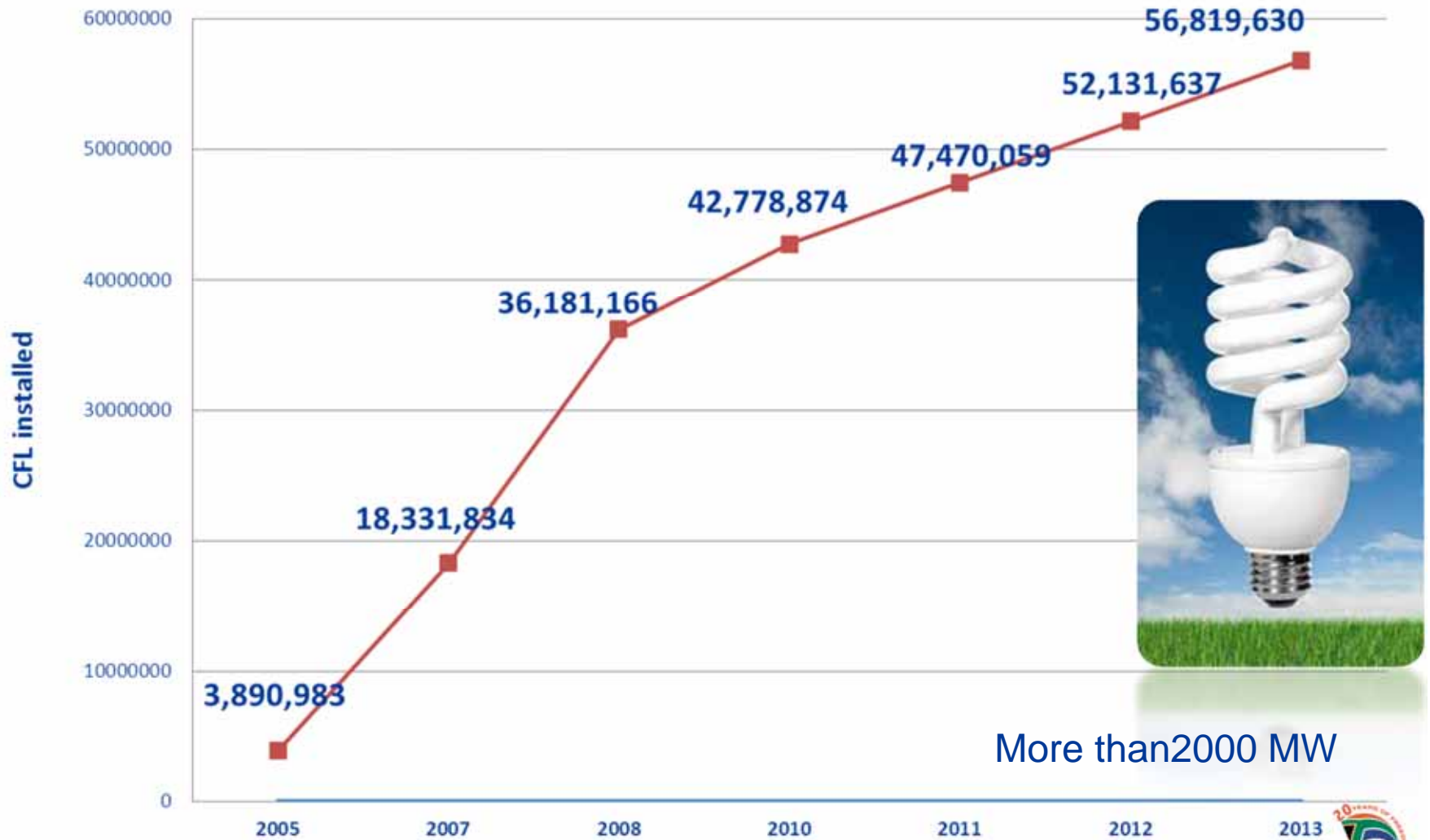


CFL Mass Rollout

CFLs Installed

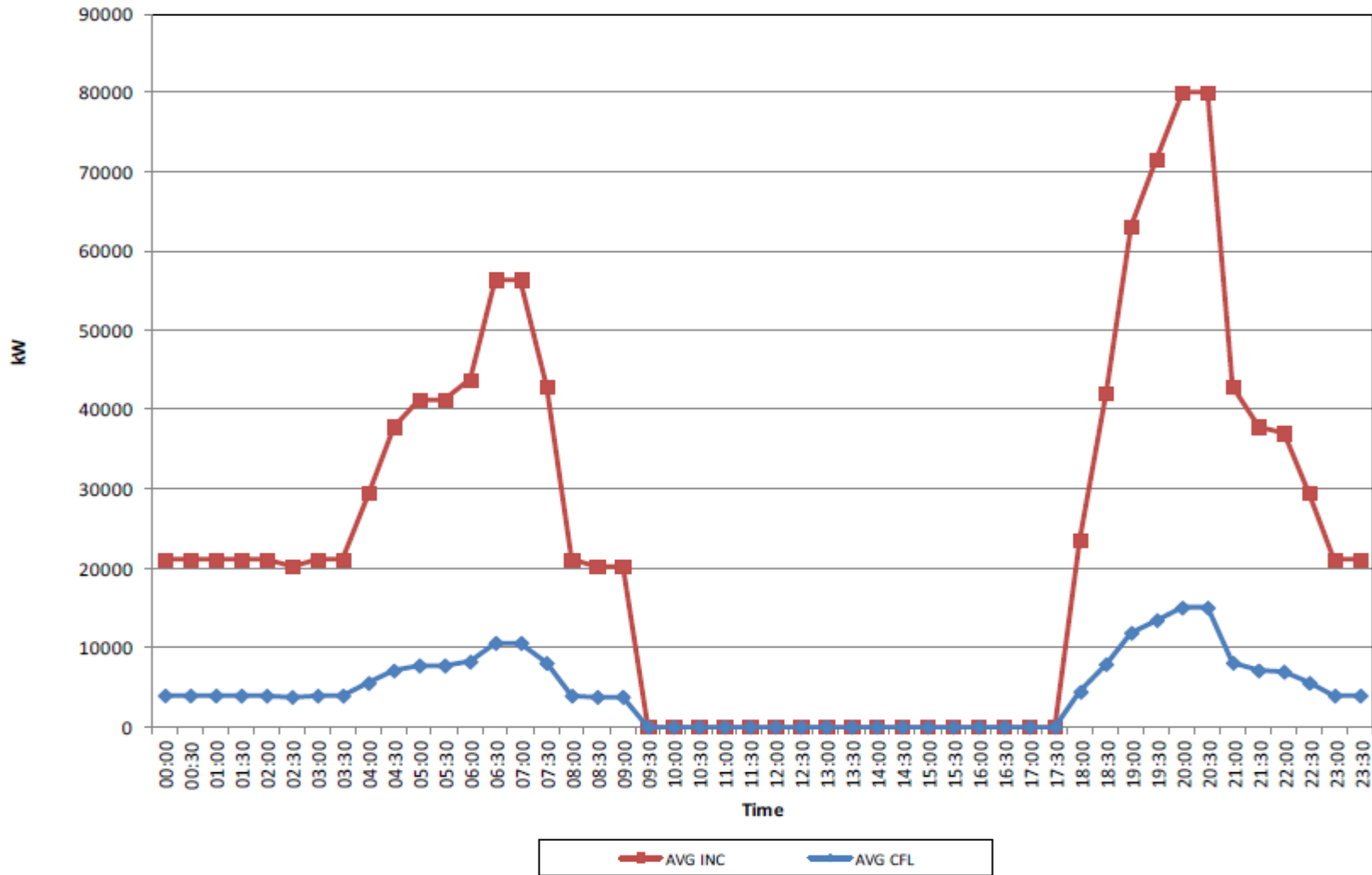


CFL Mass Rollout



Typical Incandescent to CFL Profiles

Weekday Operational Demand Profile (Pre/Post-Implementation)



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



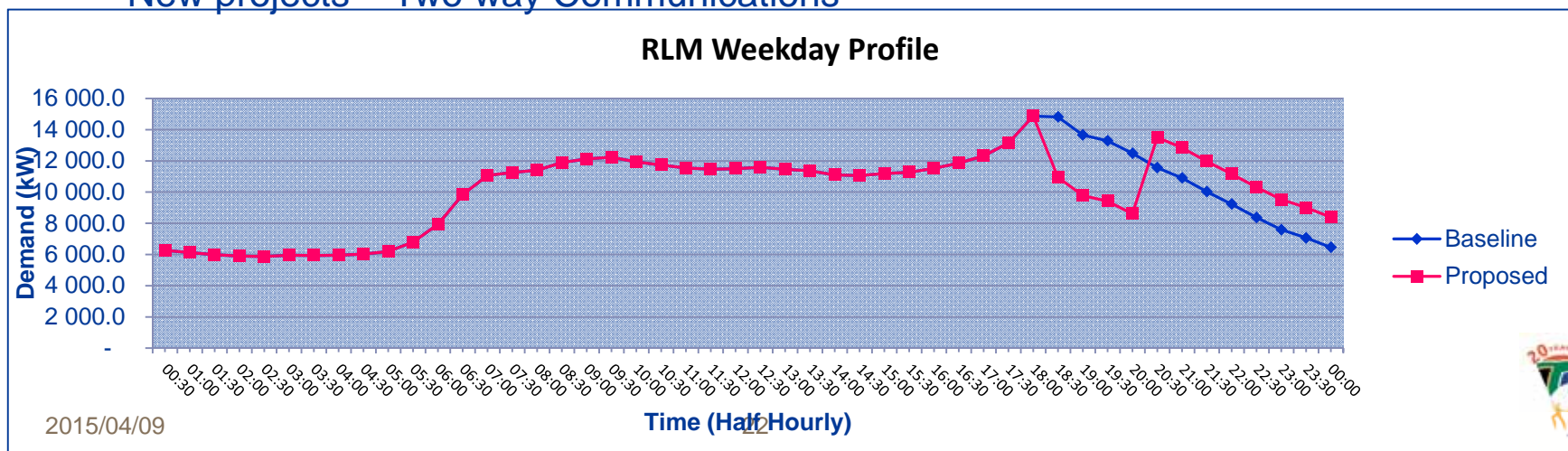
Residential Mass Rollout (RMR)

- 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 downlighter
 - Geyser Blanket (optional)

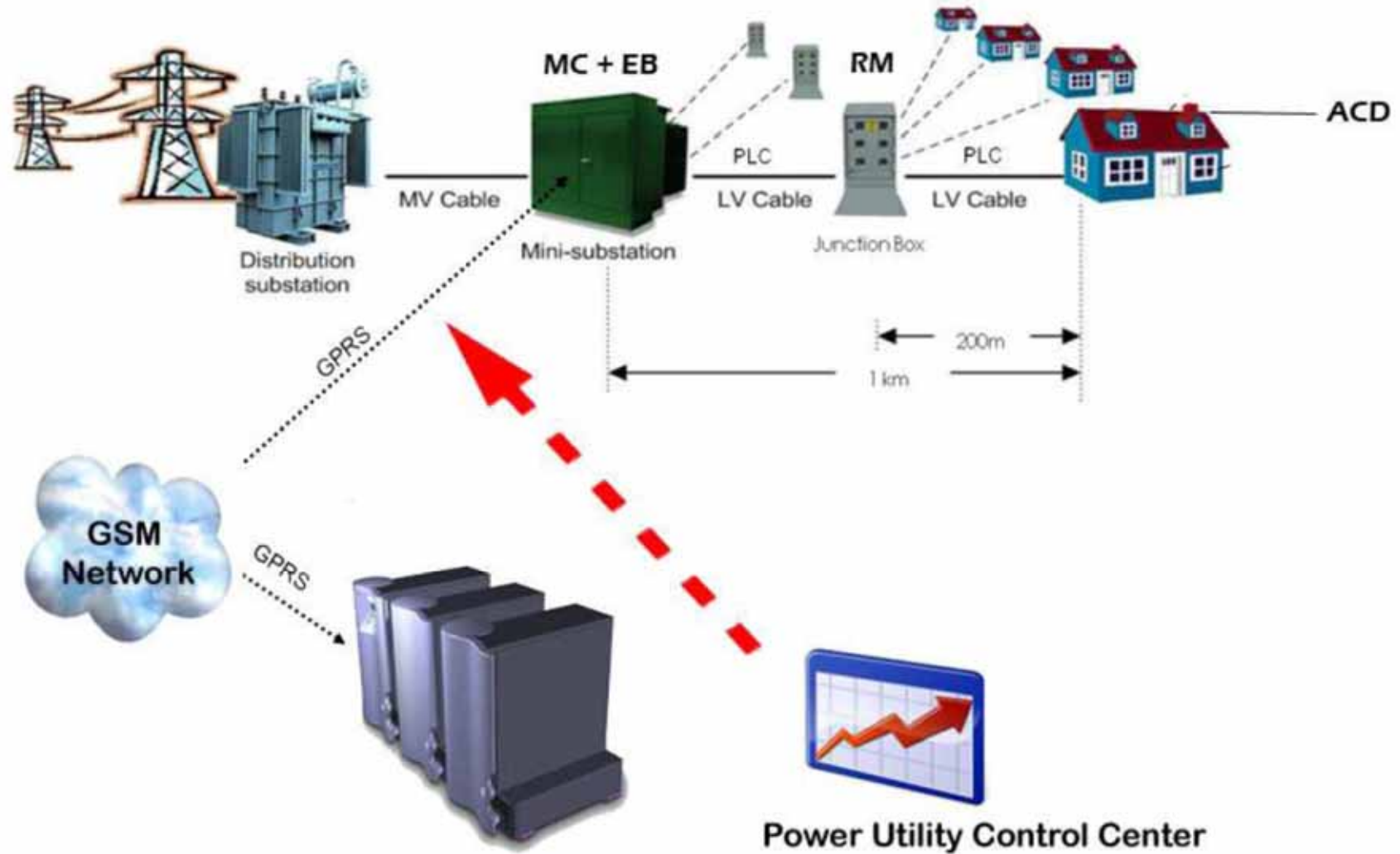


Residential Load Management

- 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



Residential Load Management Implementation

2005-2006

Worcester, Ulundi, Mmbatho, Buffalo City, Potchefstroom, Klerksdorp, Lukhanji, Mthatha, Amahlathi, Port Alfred, NMB (Port Elizabeth), Cradock, Randfontein, Table View, Kraaifontein, Kuilsrivier

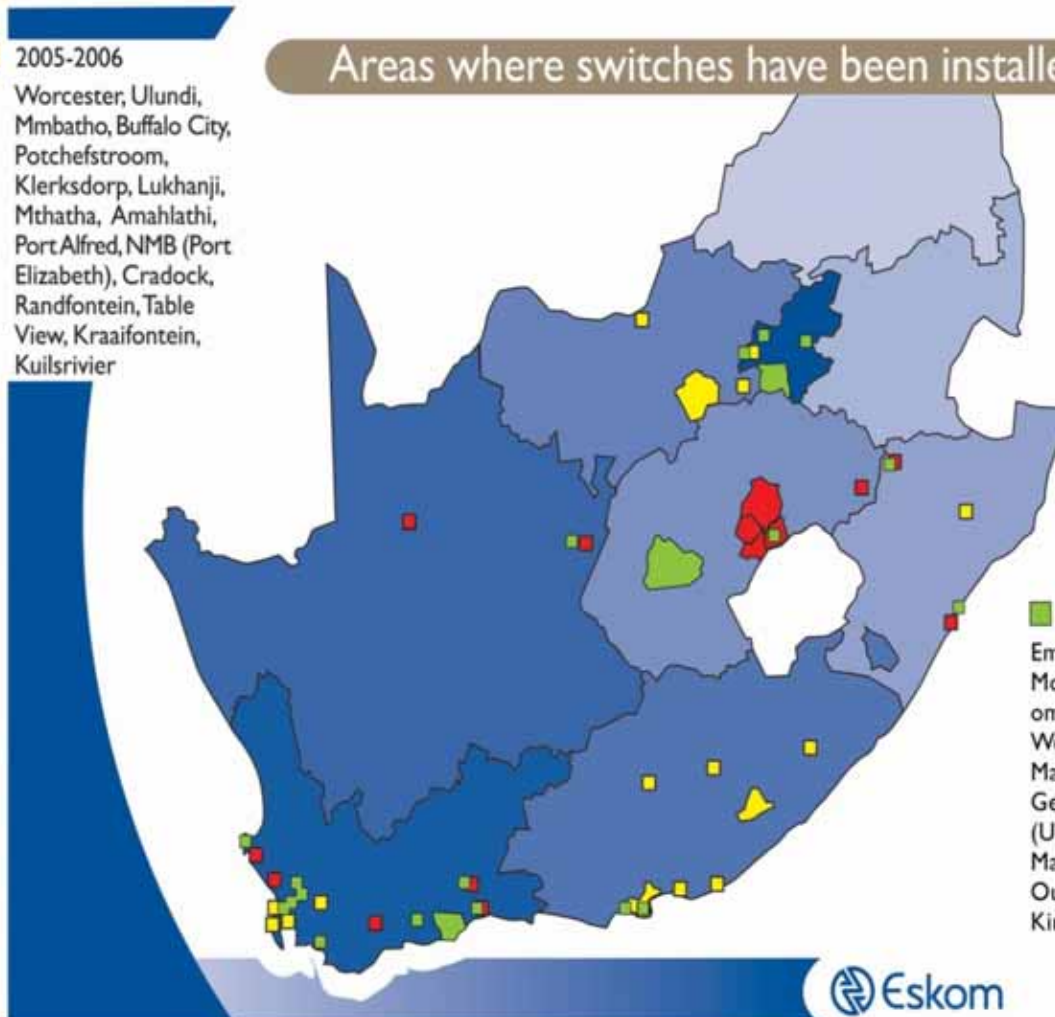
Areas where switches have been installed

2007

Setsoto (Ficksburg, Clocolan, Senekal, Marquard), George, Swellendam, Malmesbury, Khara Hais (Upington), Oudtshoorn, KwaDukuza (Ballito), Maluti-A-Phofung (Harrismith, Phuthaditjhaba), Sol Plaatje (Kimberley), Saldanha Bay (Saldanha, Vredenburg and Langebaan), Newcastle

2008-2012

Emfuleni (Vanderbijlpark en Vereeniging), Mosselbaai, Overstrand (Hermanus en omgewing), Drakenstein (Paarl en Wellington), Ekurhuleni (Benoni), Nelson Mandela Bay (Port Elizabeth), Stellenbosch, George, Hessequa (Riversdal), Khara Hais (Upington), KwaDukuza (Ballito), Malmesbury, Maluti (Ficksburg), Newcastle, Oudtshoorn, Saldanha, Randfontein, Kimberley, Bloemfontein



Awareness Initiatives

- Power Alert, Beat the Peak and Winter campaigns



How you can help to keep the lights on this winter ... especially between 5pm and 9pm weekdays

South Africa's homes – from flats and clusters to stand-alone houses and residential estates – demand 17% of the electricity used in our country. But an increase between 5pm and 9pm, this demand increases and peaks at 35% a huge jump that puts severe strain on the power supply.

Why does this happen?

We arrive home from work around 5pm, Monday to Friday.

The first thing we do is switch on the lights, television, our electrical space heaters, followed by the oven, the microwave and the washing machine or dishwasher. We also run hot water in the kitchen and take a bath or shower – with the geyser heated away in the living rooming hard to heat the water.

None of us follow this evening routine at the same time, which means South Africa's households use more than one third of the electricity consumed in the country between 5pm and 9pm on weekdays.

As the demand increases, Eskom does all it can including running some emergency power stations during the day to balance supply and demand. The winter we need to continue with power station maintenance and the system will be tighter during the peak period from 5pm to 9pm.

What can you do to help keep the lights on this winter?

Three simple things:

1. Switch off your electrical element geyser between 5pm and 9pm, this appliance uses the most electricity of all in the home and can account for up to 30% on your electricity bill.
2. Don't switch on your space heater between 5pm and 9pm. This appliance is energy-intensive and can account for up to 14% on your monthly electricity bill. Instead dress warmly, switch on a gas heater and use a hot water bottle and blankets to keep warm.
3. Switch off your pool pump between 5pm and 9pm, this appliance uses the second most electricity of all in the home and can account for up to 11% on your electricity bill.

Let's switch off together ... and keep South Africa powered up this winter

Visit www.electricity.gov.za for detailed information on saving tips for winter and Eskom's energy efficiency product returns.

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Powering your world

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

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5pm to 9pm switch off campaign: Phase 1: Introduce geyser and pool pump characters



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 29% 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/ids



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Lets Beat The Peak!!!

Thank you

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