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City of Cape Town's: Energy efficiency in Council buildings programme: 2013/2014

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Overview & of EE City Buildings Programme



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- DoRA EEDSM phase 2 programme:
 - Street light LED pilot programme
 - EE buildings retrofit
 - Behaviour change programme
 - Capacity building programme
 - Monitoring and Verification

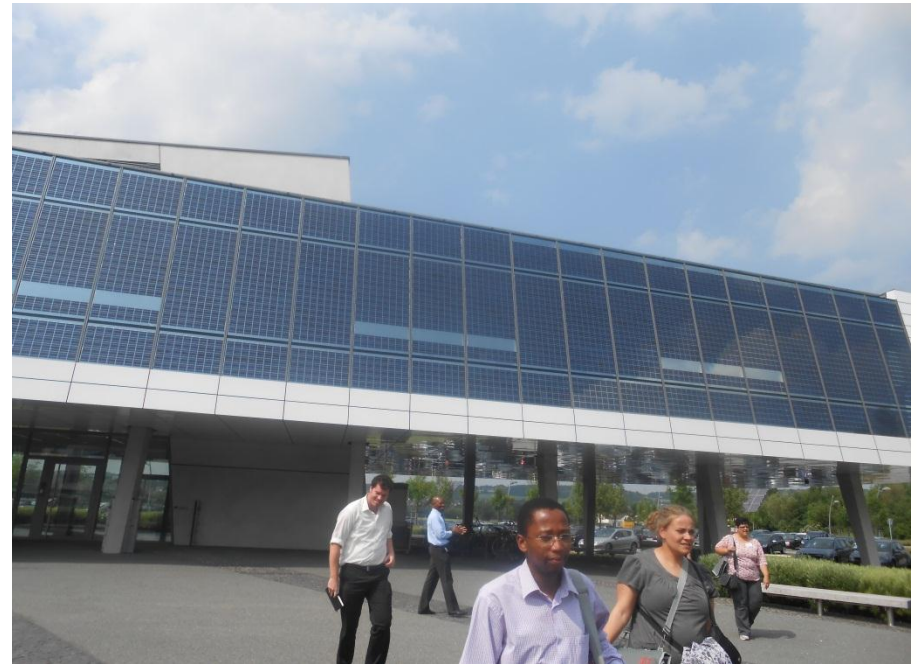
PV on City buildings

- 10kWp - Gallows Hill
- Various City buildings



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Smart Metering programme



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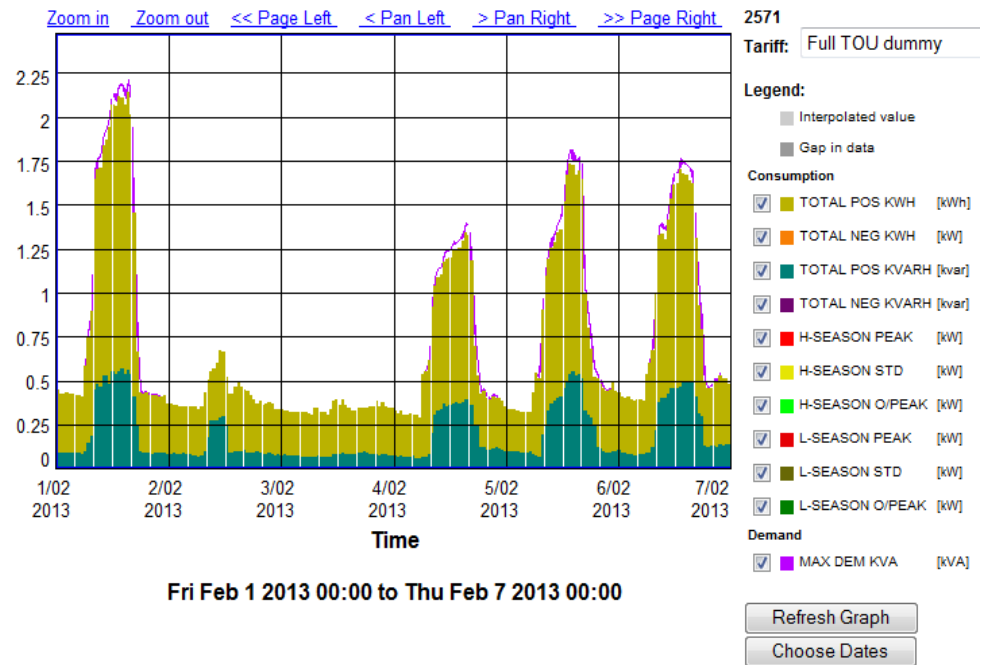
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Deliverables:

- Behaviour change programme
- Capacitating of facilities management (building managers)
- 55 STAT meters installed

Departments involved:

- ERMD, Electricity Services Dept , Corporate Services



Buildings retrofitted – On-going Performance Guarantee contracts



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Completed Projects:

4 Danida Buildings – Complete EE retrofits

- Total savings = 338 000kWh/a (guaranteed savings)
- Total investment = R4,6 million
- Payback = 7 years

14 DoRA EEDSM Buildings – EE lighting retrofits

- Total savings = 546 595 kWh/a (guaranteed savings)
- Total investment = R5,358,055 million
- Payback = 7 years

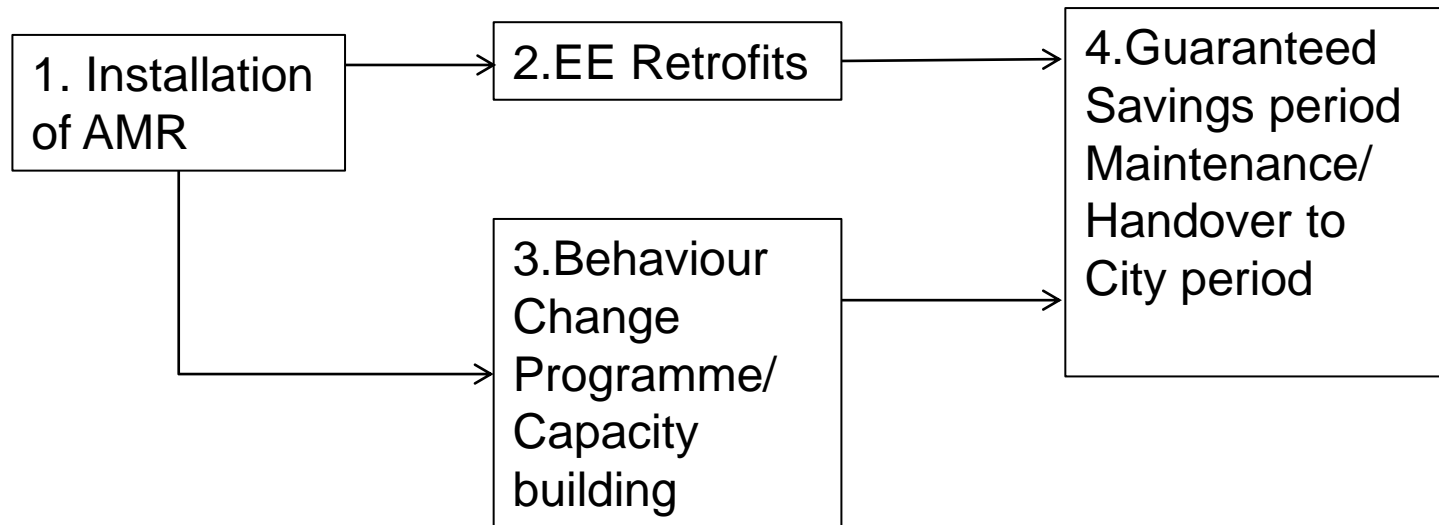
Integrated approach



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- Development of Internal Energy Management Protocol (IEMP)



- City operations programmes forms part of low carbon CBD programme and World Design Capital programme

Current Projects



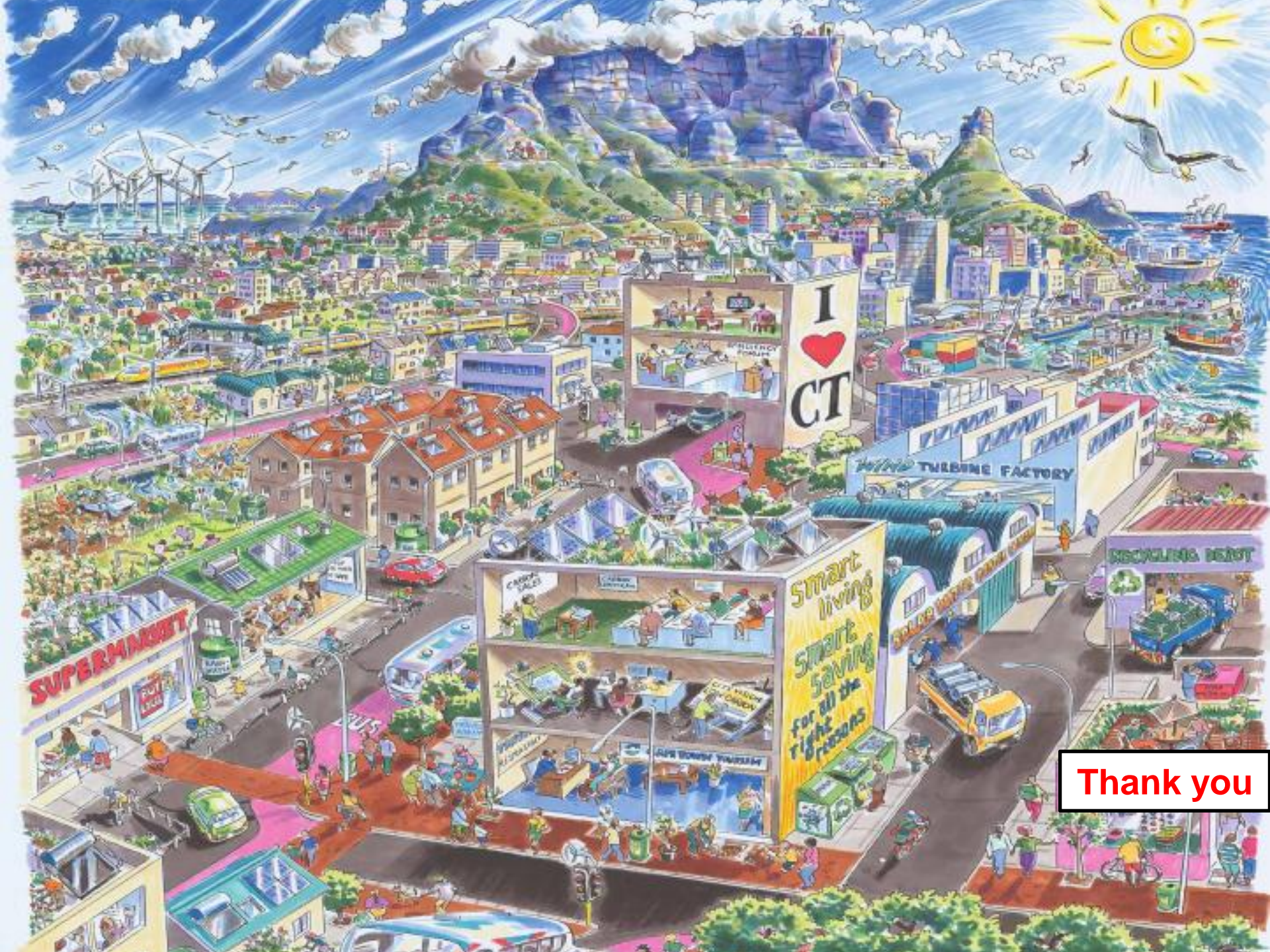
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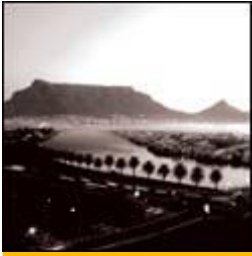
1. Smart metering
2. Civic Centre lighting retrofit
3. Behaviour change and capacity building of Facilities Management
4. PV on City buildings
5. EEDSM phase 2 programme

On-going Projects

1. 4 Danida buildings
2. 14 DoRA EEDSM buildings



Thank you



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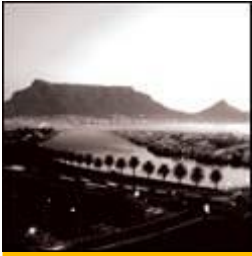


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Energy Efficiency Projects in the Cape Town Civic Centre

Peet Botha
Corporate Services
Specialised Technical Services
Resident Engineer



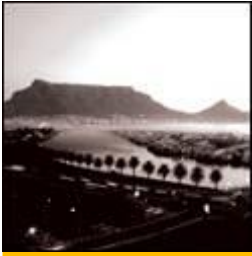
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Brief overview

- ❖ Retro fitting of the lighting in the Cape Town Civic Centre
- ❖ Diesel burners vs Heat pumps
- ❖ Improved building management system



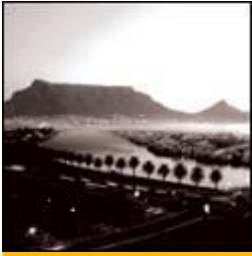
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Light fittings

- U-Tubes to be replaced with T5 LED type fittings
- Dimmable LED down lighters in boardrooms
- Lighting controlled by a BMS from 06:00- 17:00 Mondays- Fridays.



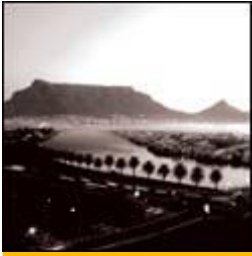
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Savings

1. There are approximately 19500 light fittings in the Civic Centre, consuming almost 15000 Mwh per Annum with a KVA demand of 1.682Mw.
2. The anticipated payback time is just over with a 3 year ROI of 117%
3. At this stage, only the parking and service Fluorescent lights are likely to remain fluorescent and this will be with T5 technology.



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Diesel Burners vs Heat pumps

ADVANTAGES

Diesel Burners

- Lowest initial capital costs
- Lowest carbon footprint
- Lowest electrical power requirement.
- Possible Bio fuel to be used

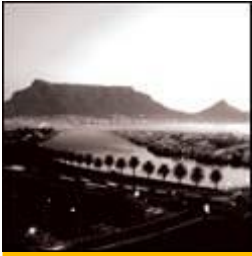
Heat Pumps

- Lowest operating costs.
- Provides cooling -no additional.
- Lowest energy consumption.

DISADVANTAGES

Highest operating costs

- Higher initial costs
- High carbon footprint
- Electrical consumption increased



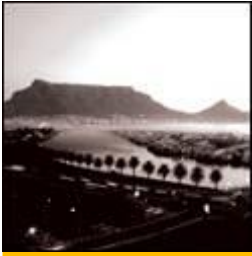
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Heating in the Civic Headquarters





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Facility Management Enterprise System

Primary (legislative/ Safety and Security)

- Fire detection
- Fire suppression
- Audio Evacuation
- Heating, Ventilation and Cooling (HVAC)
- Lift control
- Access control including visitor control
- Closed Circuit Television (CCTV)
- Security Alarms
- Information Technology (IS&T) Server room BMS

Energy Management and control

Secondary – Operational

- Movable Asset Management
- Key Management
- Event management
- Space management
- Parking management
- Emergency Voice Communications

Technical maintenance and SLA management



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End

