



**Energy Management System**  
**1st December 2022**

**Municipal Energy Management Systems Course**  
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# Introduction

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- Electricity consumption is the primary source of GHG emissions in Durban and provides the greatest opportunity for transitioning to carbon neutrality.
- Currently, almost all electricity used in the municipality is produced externally by Eskom.
- Access to energy is a key problem in Durban, where the total number of households without formal electricity connections is 265,000-317,000.
- The imported electricity supplied in the city in 2017 was 11,276 GWh (99.65%)

- Thus, eThekweni Municipality embarked on an intensive energy efficiency drive, realized through the establishment of the eThekweni Energy Office in February 2009.
- The Energy Office's initial focus has been on implementing a wide range of programmes specifically targeted at improving the energy efficiency (EE) of municipal infrastructure.



# Background

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- eThekweni Municipality developed and adopted the eThekweni Energy Strategy in 2010.
- The Energy Strategy included an objective to reduce energy use within the municipal infrastructure systems.
- The Internal Energy Management Policy was adopted by the council in 2012



# Organizational Structure

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- In order to enable effective governance and to mainstream climate change planning and implementation across the City's departments, a Climate Change Implementation Framework containing a governance theme was established.
- The governance theme comprises two principal committees, namely the eThekweni Municipality Climate Change Committee (EMCCC) at a political level and the Durban Climate Change Strategy (DCCS) Technical Task Team (TTT) at a technical level.
- The TTT, convened at the level of Heads of Units, represents a trans-sectoral body of municipal sectors tasked with leading the implementation and mainstreaming of climate change activities, and there is Energy Steering Committee that reports to the TTT.
- This sub-committee is responsible for both energy efficiency and Renewable Energy initiatives across the city.



# Problem Statement

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While there are many energy management and renewable energy initiatives taking place throughout the municipality, there remain a number of critical gaps, which can be summarized as follows:

- There is a lack of accurate baseline data for energy use across most infrastructure operations. This enables the municipality to quantify incorrect energy savings;
- There is no coherent approach to monitoring and management of energy use and
- There is no clearly articulated and over-arching approach and methodology for energy management.



# Work in progress

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As a result of the above-mentioned gaps the city has:

- Established the Energy baseline for the building stock through the uses of MEMS tool
- Developed an accurate energy monitoring and evaluation management process for ensuring the implementation of energy efficiency measures.
- Implemented an eThekweni Energy Management System (EEMS) in 6 of municipal buildings that will manage the municipality's internal energy demand as well as identify potential renewable energy opportunities for implementation.
- The EEMS would be the basis for investing in and initiating internal energy efficiency and renewable energy interventions.
- The policy is under review with an assistance from EEPBIP committee.



# Municipal Data and MEMS Tool

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- All municipal metered customers are billed through a system called RMS.
- You need authorization from senior management to get access to the system (Protected).
- Data can be retrieved using Account number, meter number and physical address.

## **The system has flows:**

- Some accounts are read twice a month
- In some accounts monthly consumption data is missing in a 12 Month cycle.
- Duplication of account numbers.



A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Read Date	Read Order	Register	Register Type	Reading Value	Consumption	Current Date	Run Daily /	Consumption	Reading Type	Read Code	Device Number	Billable	Charged	Reading Status		
28/07/2022	11	1 - Energy	Continuous	41604.00000	161200	5373.333	5337.503	30	Routine	000 - Success	0346098M	Yes	Yes			
28/06/2022	11	1 - Energy	Continuous	40798.00000	170400	5875.862	5301.673	29	Routine	000 - Success	0346098M	Yes	Yes			
30/05/2022	11	1 - Energy	Continuous	39946.00000	147000	4741.935	4746.623	31	Routine	000 - Success	0346098M	Yes	Yes			
29/04/2022	11	1 - Energy	Continuous	39211.00000	150600	4858.065	4751.311	31	Routine	000 - Success	0346098M	Yes	Yes			
29/03/2022	11	1 - Energy	Continuous	38458.00000	129200	4455.172	4644.558	29	Routine	000 - Success	0346098M	Yes	Yes			
28/02/2022	11	1 - Energy	Continuous	37812.00000	140600	5021.429	4827.631	28	Routine	000 - Success	0346098M	Yes	Yes			
31/01/2022	11	1 - Energy	Continuous	37109.00000	252800	4077.419	4646.753	62	Routine	000 - Success	0346098M	Yes	Yes			
30/11/2021	11	1 - Energy	Continuous	35845.00000	158600	5664.286	5216.086	28	Check Reading	000 - Success	0346098M	Yes	Yes			
02/11/2021	11	1 - Energy	Continuous	35220.00000	135231	5409.238	5409.238	25	Estimated Consumption		0346098M	Yes	Yes			
08/10/2021	11	1 - Energy	Continuous	34544.00000	56800	6311.111	5409.238	9	Check Reading	Successful	0346098M	Yes	Yes			
29/09/2021	11	1 - Energy	Continuous	34260.00000	699000	5592.000	5138.676	125	Routine	Successful	0346098M	Yes	Yes			
02/09/2021	11	1 - Energy	Continuous	33060.00000	145246	4685.352	4685.352	31	Estimated Consumption		0346098M	Yes	Yes			
02/08/2021	11	1 - Energy	Continuous	32334.00000	145246	4685.352	4685.352	31	Estimated Consumption		0346098M	Yes	Yes			
02/07/2021	11	1 - Energy	Continuous	31608.00000	168673	4685.352	4685.352	36	Estimated Consumption		0346098M	Yes	Yes			
27/05/2021	11	1 - Energy	Continuous	30765.00000	281400	4769.492	4685.352	59	Routine	Successful	0346098M	Yes	Yes			
02/05/2021	11	1 - Energy	Continuous	30140.00000	156441	4601.212	4601.212	34	Estimated Consumption		0346098M	Yes	Yes			
29/03/2021	11	1 - Energy	Continuous	29358.00000	282200	4626.230	4601.212	61	Routine	Successful	0346098M	Yes	Yes			
02/03/2021	11	1 - Energy	Continuous	28725.00000	155591	4576.195	4576.195	34	Estimated Consumption		0346098M	Yes	Yes			
26/02/2021	11	1 - Energy	Continuous			10.000	-90868.569		Routine	No Access	0346098M	Yes	No			
27/01/2021	11	1 - Energy	Continuous	27947.00000	251600	4124.590	4576.195	61	Routine	Successful	0346098M	Yes	Yes			
02/01/2021	11	1 - Energy	Continuous	27594.00000	181001	5027.800	5027.800	36	Estimated Consumption		0346098M	Yes	Yes			
27/11/2020	11	1 - Energy	Continuous	26689.00000	155600	4862.500	5027.800	32	Routine	Successful	0346098M	Yes	Yes			
26/10/2020	11	1 - Energy	Continuous	25911.00000	145400	5192.857	5193.099	28	Routine	Successful	0346098M	Yes	Yes			
28/09/2020	11	1 - Energy	Continuous	25184.00000	165800	5181.250	5193.325	32	Routine	Successful	0346098M	Yes	Yes			

Meter No	Account No	Address	Acc Name	Other Informati	Type of Facility	D-Form Category
E9007059	83327693770	5 Spinal Road kwaDabeka	Kwadabeka Hostel		Hostels	Electricity Department
E5400046	83327693770	5 Spinal Road kwaDabeka	Kwadabeka Hostel		Hostels	Electricity Department
E9007060	83327693770	5 Spinal Road kwaDabeka	Kwadabeka Hostel		Hostels	Electricity Department
E9007061	83327693770	5 Spinal Road kwaDabeka	Kwadabeka Hostel		Hostels	Electricity Department
E9813359	83060159922	57 Dalton Road Durban	Dalton Hostel		Hostels	Electricity Department
E6726200	83060177798	Milner Street, Jacobs	Jacobs Hostel		Hostels	Electricity Department
E6726205	83060177798	Milner Street, Jacobs	Jacobs Hostel		Hostels	Electricity Department
E6726198	83060177798	Milner Street, Jacobs	Jacobs Hostel		Hostels	Electricity Department
E9324258	83060179516	306 Dr Yusuf Dadoo	Thokoza Hostel		Hostels	Electricity Department
E9505103	83060179516	306 Dr Yusuf Dadoo	Thokoza Hostel		Hostels	Electricity Department
E6876061	83352106178	V764 (17 -D-44-13800) Hostel	Umlazi hostel Vection		Hostels	Electricity Department
E8905250	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E9045255	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905254	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905253	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905252	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905251	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905248	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905247	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905246	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905256	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905257	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905258	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905259	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905260	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department
E8905261	83060273950	V Section Road 8, 4066 Umlazi	Glebelands Hostel		Hostels	Electricity Department

Meter Number	Reading Date	Consumption (KWh)	Cost	Metered	Type of Facility	Facility	Acc Type	D-Form Cat	Month	Year	Column1
E8905239	01 December 2021	581		Metered	Hostels		0 Municipal	Electricity Dep	12	2021	
E8905239	28 October 2021	497		Metered	Hostels		0 Municipal	Electricity Dep	10	2021	
E8905239	30 September 2021	552		Metered	Hostels		0 Municipal	Electricity Dep	9	2021	
E8905239	30 August 2021	633		Metered	Hostels		0 Municipal	Electricity Dep	8	2021	
E8905239	28 July 2021	643		Metered	Hostels		0 Municipal	Electricity Dep	7	2021	
E8905239	28 June 2021	1194		Metered	Hostels		0 Municipal	Electricity Dep	6	2021	
E8905239	04 June 2021	178		Metered	Hostels		0 Municipal	Electricity Dep	6	2021	
E8905239	27 May 2021	840		Metered	Hostels		0 Municipal	Electricity Dep	5	2021	
E8905239	29 April 2021	2204		Metered	Hostels		0 Municipal	Electricity Dep	4	2021	
E8905239	04 April 2021	470		Metered	Hostels		0 Municipal	Electricity Dep	4	2021	
E8905239	04 March 2021	515		Metered	Hostels		0 Municipal	Electricity Dep	3	2021	
E8905240	02 February 2022	795		Metered	Hostels		0 Municipal	Electricity Dep	2	2022	
E8905240	04/01/2022	512		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	01/12/2021	480		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	28/10/2021	419		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	30/09/2021	525		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	30/08/2021	597		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	28/07/2021	471		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	28/06/2021	577		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	04/06/2021	94		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	27/05/2021	317		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	29/04/2021	1087		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	04/04/2021	366		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905240	04/03/2021	401		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905241	02/02/2022	882		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date
E8905241	04/01/2022	533		Metered	Hostels		0 Municipal	Electricity Dep	Error with	Error with	date



# Lesson Learnt with MEMS Tool

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- It is time consuming if you have a lot data to incorporate.
- The tool report tab only accepts monthly data from Jan – December of a year.
- The date tab in the internal data tool is not compatible with date data which we receive from our RMS system.
- The tool has assisted the city with data analysis which will contribute setting baselines or benchmarks to determine deviations and identify high energy consuming facilities.
- It is a user-friendly tool if you have the required data to incorporate.
- Baseline and trend lines
- Annual average consumption
- Monthly average consumption



# THANK YOU