



mineral resources
& energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

SAGEN

SOUTH AFRICAN-GERMAN
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german
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DEUTSCHE ZUSAMMENARBEIT

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Conducting simple walk-through audits of facilities

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sanedi

South African National Energy
Development Institute.



SOUTH AFRICAN LOCAL
GOVERNMENT ASSOCIATION

SALGA

Inspiring service delivery

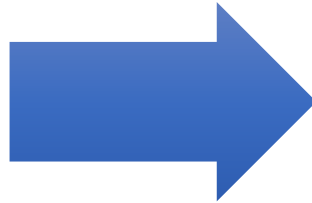


SEA

SUSTAINABLE
ENERGY
AFRICA

What is An Energy Audit?

An Energy Audit is an investigation into an operation's energy use to understand areas of energy wastage within the operation



Identify ways to reduce energy consumption and energy costs

There are two types of energy audit

Walk-through audit

- Simpler
- Less expensive
- Less time consuming
- Overview of existing energy use
- Identifies major energy- and cost-saving opportunities
- Typically done in-house
- Sometimes used to prepare for a detailed audit

Detailed audit

- Detailed
- More expensive
- More time consuming
- Historical energy use and costs of the operation
- Inventory of major energy-consuming systems
- Detailed energy- and cost-saving proposals
- Typically done by a technical specialist with measuring equipment

Walk-through audit - Summary

Steps

- i. historical analysis
- ii. collect building data
- iii. demand profile
- iv. walk-through
- v. tariff analysis

Lighting

Appliances

Lifts

**Air
Conditioner**

**Computers
and IT
equipment**

Etc.

Specific Information required on the various Systems operating: EG Lighting

Lighting

List of the installed lamps including model

Capacity

Hours of operation per week

Annual electricity consumption

The offices in the building are mainly illuminated with florescent tube lights T8 with magnetic ballasts and reflectors. Also some CFL were used.

	Capacity incl. ballast (Watt)	Pcs.	Installed Capacity (kW)	Operation hours per week	Weeks per year	Annual consumption kWh
Reception						
T8 36 W	44	4	0.176	35	51	314
T8 18 W	24	2	0.048	35	51	86
Meeting room						
T8 36 W	44	8	0.352	35	51	628
Office 1						
T8 36 W	44	4	0.176	35	51	314
T8 18 W	24	2	0.048	20	51	49
Office 2						
T8 36 W	44	4	0.176	35	51	314
Office 3, main office area						
T8 36 W	44	12	0.528	35	51	942
Counselor's office						
T8 36 W	44	4	0.176	35	51	314
Canteen room						
CFL	18	5	0.090	20	51	92
Toilets						
CFL	18	3	0.054	5	51	14
Total installed Capacity:			1.824	Annual elec. cons.:		3,068

Specific Information required on the various Systems operating: EG Air conditioning

Air conditioning

List of the units

Capacity

Hours of operation per week

Annual electricity consumption

Air-conditioning units for cooling were installed in all office rooms. In the table below the quantity of installed units is presented.

Airconditioning Units	Capacity (Watt)	Pcs.	Installed Capacity (kW)	Operation hours per week	Weeks per year	Annual consumption kWh
Reception						
Aircon unit Hitachi (2500-3000)	2700	1	2.700	35	51	4,820
Meeting room						
Aircon unit Hitachi (1140-1160)	1150	1	1.150	35	51	2,053
Aircon unit Hitachi (1790-1950)	1800	1	1.800	35	51	3,213
Office 1						
Aircon unit Hitachi (1750)	1750	1	1.750	35	51	3,124
Office 2						
Aircon unit Hitachi (1060)	1060	1	1.060	35	51	1,892
Office 3, main office area						
Aircon unit Hitachi (1060)	1060	2	2.120	35	51	3,784
Aircon unit McQuai (1990)	1990	1	1.990	35	51	3,552
Counselor's office						
Aircon unit Hitachi (960)	960	1	0.960	35	51	1,714
Total installed Capacity:			13.530	Annual elec. cons.:		24,151

It's time to put on your 'expert hat'!

- We have paired you into 5 groups of ~10 people
- Each group will do a basic walk-through audit of the 1st Floor (this room) and the rooftop
- You have 20 minutes!
- There's a prize for the winning team



It's time to put on your 'expert hat'!

In your groups, collect the data below....

Lighting

List of the installed lamps
including model

Capacity

Hours of operation per
week

Annual electricity
consumption

Another appliance (optional)

List of the units

Capacity

Hours of operation per
week

Annual electricity
consumption