

LED Lighting

Light emitting diodes (LEDs) are currently considered to be one of the most efficient electrical light sources. Therefore LEDs normally produce more useable, visible light per unit of energy than any other electrical lighting sources. It produces light when electricity is passed through a semiconductor, which produces photons (a basic unit of light). LEDs can reduce electricity usage for lighting by as much as 80%, saving money and electricity. LEDs have become very cost-effective and typically have pay-back periods of 1-2 years depending on how frequently they are used.



(Astute Lighting, 2018)

Recommendations

- Install LED lighting in new buildings.
- When retrofitting old lamps, start with the lights most often used.
- Use/purchase samples to test the replacement first.
- Consider:
 - Bulb Shape
 - Bulb Base
 - Brightness
 - Colour Temperature
 - Ability to dim
- Choose high quality bulbs (brands) or else they may fail prematurely.
- Contact [Ecolution](http://www.ecolution.co.za) for more details

Environmental Improvement	High
Awareness Impact	High
Capital	Medium
Payback	1-2 years

Savings and Benefits

- LED lighting can save up to 80% compared to other lighting technologies.
- Cost:** higher upfront cost but will have a greater lifespan in the long run.
- Example:** a building changed 100 x 40W incandescent lights to 5W LEDs, saving around R22 000 in electricity for 1 year with a pay back period of approximately 6 months.
- A quality LED lamp can last anywhere from 20,000 to 50,000 hours.
- LEDs require less maintenance and replacing of bulbs.
- LEDs give off considerably less heat.
- No mercury is used in the manufacturing of LEDs.
- Slow failure:** LEDs slowly dim over time, rather than burning out abruptly.
- Design:** The compact size of LEDs make them an ultra-flexible design element.
- Lower carbon dioxide emissions.



Example of possible savings with LED Lighting

LED Bulbs Savings Calculator

Replacing Traditional Light Bulbs with LED Lamps

Select the Type of Light Bulb to be Replaced	Standard Light Bulb (Incan ▼)
Select a Room or Area	Whole House ▼
Number of Bulbs to be Replaced	100
Current Bulb Wattage (W)	40
Current Bulb Unit Cost (ZAR)	24.00
Electricity Tariff per KWh (ZAR) incl. VAT	R 1.44 (Block 3) ▼
New LED Lamp Wattage (W)	5
New LED Lamp Unit Cost (ZAR)	125
Lifespan of LED Lamps (Hours)	25,000 ▼
Average Daily Usage (Hours)	12 ▼

Savings Results

Calculate

Cost of New LED's Lighting Units	R 12,500.00
Current Electricity Cost Per Month	R 2,074.32
Electricity Cost Using LED Per Month	R 259.29
Electricity Savings Per Month	R 1,815.03
Electricity Savings with LED's Over 1 year	R 22,082.87
Bulb Replacement Savings Over Lifespan of LED's	R 36,000.00
Payback Time In Months	6.23
Total Savings Using SaveEnergy LED Lamps	R 58,082.87