LED LIGHTS

* Energy consumption can be halved
* Reliable and reduced maintenance
* Adaptable

CONCERNS

* Photobiological effect of LED Lighting – blue lights (sleep, melatonin).
* Should be placed 5m and above
* Glare

COSTS

1kWh = Sh. 22.5 as at September 2020 KPLC

Our LED lights power ratings range from 150W – 300w

During the night currently

90 X 12 x 200W = 216,000Wh/1000 = 216kWh x Sh.22.5 = Sh. 4,860 x 30 = Sh. 145,800

At full power 150Lights

150 X 12 x 120W = 360,000Wh/1000 = 360kWh x Sh.22.5 = Sh. 8100 x 30 = Sh. 243,000

During the day select equivalent load

Total = 720kWh x 22.5 = Sh.16,200 x 30 = Sh.486,000

1 Year = 5,913,000

SOLAR

Advantages

* Renewable
* Low maintenance cost
* Technology Development
* Diverse application
* No trenching or routing

Disadvantages

* Initial Cost 5kW Home system ($5000 - $8000) Solaquotes translates to >>1M Ksh === 5M for 30kW

20 250W or 15 333W – 1.7m2 per unit

5kW - > 6.5m2 >>39m2

For unit lights means doing away with existing infrastructure and

* Weather dependent
* Storage is expensive
* Space for installation

60”,72” and 96” cell panels:

* Pollution at manufacturing and backup
* DC components are expensive

Storage Banks

A group of batteries to store electrical energy

Used also for stabilizing the grid

Used for short term peak power, UPS

Charge units, rectification, converters

Lithium-Ion batteries mainly used – light weight, high discharge and charge ratio, environment friendly, safety in use,

12v 300Ah >> Ksh.8000 – Ksh.40000

Life is 300-500 charge cycles >> 2-3 years

MHEP

Advantages

* We can tap into Existing lights and transmission lines to save on initial costs by 50%
* During the day this power can be directed to other selected equivalent loads to ensure maximum efficiency and remove the need for backup batteries
* With LED lights, offer dimming, sensors, to save on power consumption
* Low maintenance costs
* Scalable
* Supply surplus to grid

ALTERNATOR

Actual power == 30Kw

Actual power (kW) = Apparent power x Power Factor (p.f)

30Kw 3 phase dynamo == 53,640 Alibaba

Speed == 1500 – 1800 rpm, 50HZ , 54A, 230/400V