# Energy Efficient Appliances

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We need energy to perform work or to produce products.

Energy Efficiency means to "**output the same level of goods and services with a smaller amount of energy input**". In other words, the same service, but using less energy for it.

Energy Efficient appliances use less energy than inefficient ones, while performing to the same standards. Efficient appliances cost less to run, so they save you money every time you use them.

Energy Efficient technologies like compact fluorescent lights and solar water heaters can reduce average household energy expenditure by as much as 80%. Collectively, Namibian households can save over N$ 150 million every year on their electricity bills.

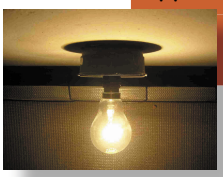
Energy efficient appliances are also environmentally friendly. They use less electricity, so they are responsible for fewer greenhouse gas emissions at the electricity power station. Greenhouse gases such as carbon dioxide ($CO_2$) are changing the earth's climate, causing temperatures to increase and sea levels to rise.

**Solar Water Heater**
Uses the sun to heat water
Equipped with an electric back-up
Approximate monthly electricity expense:
**N$ 0**
5 to 10 year warranty

**Electric Geyser**
3,000 W electricity
Approximate monthly electricity expense:
**N$ 100** (Windhoek pre-pay)
Heating through electric element

**Compact Fluorescent Light (CFL)**
Sizes: 7 W to 20 W
Efficiency: 80%
Approximate monthly electricity expenses
(1 light): **N$ 0.90**
Life time: about 3 years

**Incandescent Light Bulb**
Sizes: 40 W to 100 W
Efficiency: 12% light, 88% heat
Approximate monthly electricity expenses
(1 light): **N$ 3.60**
Life time: about 6 months



**Gas Stove**
Uses Liquefied Petroleum Gas (LPG)
Approximate monthly energy expense:
**N$ 40 - N$ 50** (LPG)
Faster cooking and convertible to biogas

**Electric Stove**
3,000 W to 8,000 W electricity
Approximate monthly electricity expense:
**N$ 60** (Windhoek pre-pay)

**Efficient Fridge/Freezer**
30 kWh per month
Approximate monthly electricity expense:
**N$ 20** (Windhoek pre-pay)
Improved insulation

**Inefficient Fridge/Freezer**
60 kWh to 80 kWh per month
Approximate monthly electricity expense:
**N$ 50** (Windhoek pre-pay)
Poor insulation causes longer running hours

Most energy efficient appliances do not cost more to buy than inefficient models and they will almost always work out cheaper over their lifetime. So the next time you want to replace one of your appliances, go for an efficient appliance and you'll be saving money and helping the environment.

In order to calculate electricity consumption you need:

1.) the rated power (in Watts or kiloWatts)

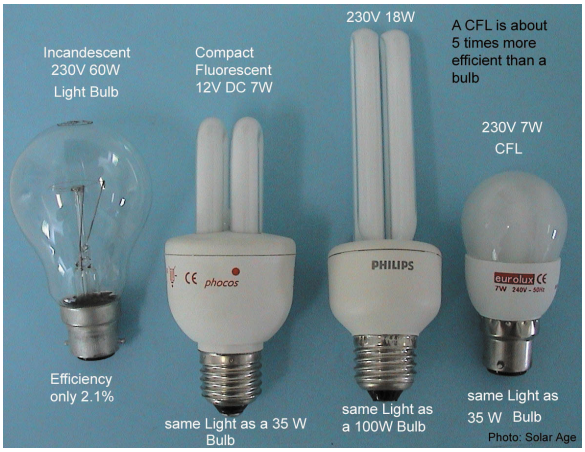
2.) the amount of time used (in hours).

Thus one light, using 60 W, and burning for 3 hrs every day would use 60 W x 3 hrs x 30 days = 5400 Whrs per month. This is 5.4 kWh. In Windhoek 1 kWh of pre-paid electricity costs 67 cents.

So this one light costs you N$ 3.62 every month.

# Power Ratings of Electrical Appliances (1990)

| Appliance | kW |
|---|---|
| Shaver | 0.1 |
| Electric blanket | 0.1 |
| Hi-Fi | 0.1 |
| Juice extractor (small) | 0.1 |
| Laptop computer | 0.1 |
| Radio | 0.1 |
| Flourescent Lights (ave. 10 x 15 W) | 0.2 |
| Food mixer | 0.2 |
| Coffee grinder | 0.3 |
| Desktop computer (LCD monitor) | 0.3 |
| Fridge (200 l) | 0.3 |
| Grinder | 0.3 |
| Infrared lamp | 0.3 |
| Juice extractor (large) | 0.3 |
| Soldering iron | 0.3 |
| Television (66 cm colour) | 0.3 |
| Desktop computer (tube monitor) | 0.4 |
| Floor polisher | 0.4 |
| Hair curlers | 0.4 |
| Drill | 0.5 |
| Battery charger | 0.6 |
| Coffee filter | 0.6 |
| Freezer (150 l) | 0.6 |
| Hair drier (400 - 1000 W) | 0.6 |
| Vacuum cleaner | 0.6 |
| Dishwasher: Washing motor | 0.7 |
| Automatic washing machine: wash/dry motor | 0.8 |
| Incandescent Lights (ave. 10 x 75 W) | 0.8 |
| Waffle grill | 0.8 |
| Washing machine: not heated | 0.8 |
| Warming tray (Salton) | 0.9 |
| Ice maker (large) | 1 |
| Heaters: Panel | 1.1 |
| Toaster | 1.1 |
| Frier (rotating) | 1.4 |
| Frying pan | 1.5 |
| Heaters: Ceramic/capil | 1.5 |
| Iron (600 - 2000 W) | 1.5 |
| Microwave | 1.5 |
| Swimming pool pump | 1.5 |
| Automatic washing machine: heated | 2 |
| Heaters: Fan | 2 |
| Kettle (1500 - 3000 W) | 2 |
| Welder (portable, single phase) | 2 |
| Dishwasher: Heater | 2.2 |
| Automatic washing machine: tumble drier | 3 |
| Geyser | 3 |
| Stove (3000 - 8000 W) | 6 |




Incandescent light are enormous energy wasters and outdated technology. Converting to 15 W CFLs provides very good light quality, is available as cool white or warm white and saves money.

Swimming pool pumps often run unnecessarily. Covering a pool with a plastic cover saves water, chemicals and energy.

**Additional Information**

http://en.wikipedia.org/wiki/Energy_efficiency

http://eia.doe.gov/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