

Fact sheet

Self audit

a guide to calculating business electricity operating costs for energy tariffs

Introduction

It is surprisingly easy to calculate the electricity operating costs of your business. This guide gives you an overview of how the calculation is made and shows you where to find the information you require to make the calculation.

While this overview will provide you with an estimate of your costs, you may wish to undertake a more thorough assessment of your electricity operating costs. Some businesses can save hundreds or thousands of dollars a year with the right advice.

Sometimes the solution can be as simple as turning off equipment when it is not being used, or substituting it for equipment that is more energy efficient.

Saving energy will increase your profits and the long-term viability of your business. Saving energy is easy to do and does not have to cost you anything.

How to fill in the worksheet

There are a number of columns to fill in on the worksheet to arrive at the cost per day for each type of equipment you use.

Appliance

Write the type of appliance in the column provided. You can now compile a comprehensive list of the equipment you have throughout your workplace.

Number of appliances

Simply count up the number of appliances that have the same kilowatt rating.

Appliance rating (kilowatts)

This figure needs to be in kilowatts (kW). The appliance nameplate will usually tell you the rating in kilowatts, but sometimes it provides it in watts (W). To convert watts to kilowatts divide the number of watts by 1000.

Sometimes the nameplate will have a number of figures ranging from low wattage to high. Use the figure for the setting you normally use i.e. the kilowatts for low, medium or high setting.

If you don't have the rating in kilowatts you can calculate this by multiplying the Amps (A) and Volts (V) then dividing that amount by 1000.

e.g: heater at $\frac{10(A) \times 240(V)}{1000} = 2.4 \text{ kW}$

Hours per day

Average out the number of hours a day that the appliance is switched on.

Duty cycle

Duty cycle refers to a percentage of time the appliance is on per hour. Some appliances have thermostats that control their operation, which means that they are not using energy all the time, even if they are turned on at the powerpoint. To take this into account we have included a table of typical duty cycles for a range of appliance types. These are only approximations. Include the typical duty cycle for your appliance in the relevant column.

Appliance	Typical duty cycle
Heaters with thermostat	0.7
Heaters without thermostat	1.0
Cooking equipment	0.7
Fridges	0.6
Freezers	0.6
Lights (all types)	1.0
Motors	1.0
Computers	1.0
Hot Water	0.4

Kilowatt hours per day

To calculate the kilowatt hours per day:

number of appliances x kW rating x hours per day x duty cycle

Electricity rate

Refer to your Aurora electricity bill to find the rate you are being charged and add this figure to the relevant column.

Cost

Now multiply kWh per day by the energy rate (\$ per kilowatt hours) to discover the cost per day for each appliance.

For general information, call Aurora on **1300 13 2045** or visit www.auroraenergy.com.au

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Where to find the information you need to make the calculations

Your Aurora power bill

The first thing you must find out is what rate you are being charged. You will find this rate on your Aurora bill. For example if you are on an energy-only tariff then the use the unit rate for "Energy Step 2" within your calculations.

Electricity Charge for Miscellaneous building
Installation 249483 for the period 26 Jul 2005 to 25 Oct 2005 (92 days)

Charges	From	To	Units	Multiplier	Quantity	Rate(\$)	Amount
General - Tariff 22							
Services Charge					92 Days	0.624580	57.46
Meter 501677	73262	74781	1519		1519 kWh		
Meter C451552	88507	101523	13016		13016 kWh		
Meter H43752	84142	85426	1284		1284 kWh		
Energy Step 1					505 kWh	0.177430	89.60
Energy Step 2					15314 kWh	0.131470	2,013.33
Total							2,160.39
Includes GST Payable of							196.39
Approximate next reading date							24-Jan-2006

\$/kWh rate

Service charge rate

Appliance nameplate

Most of the other information you need to make the calculation can be obtained from the appliance nameplate that is attached to your appliance. This information is also usually included in the appliance's manual.

To make calculations you will need the number of Watts (W) or kiloWatts (kW). If this information is not given, look for the Amps (A) and the voltage (V).

BRAND X ELECTRICAL LTD	
VOLTS	240v
AMPS	3/6 A
WATTS	720/1440
SERIES	AV/81318
N145	MADE IN AUSTRALIA

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Electricity audit worksheet

Appliance	number of appliances	x	kW rating	x	hrs/day	x	duty cycle	=	kWh/day	x	\$/kWh	=	\$/day
Fluro light	5		0.08		12		1		4.8		0.131470		0.63
Fan heater	2		2.4		6		0.7		20.16		0.131470		2.65
Computer	1		0.15		24		1		3.6		0.131470		0.47
Hot water cylinder	1		3.6		24		0.4		34.56		0.131470		4.54
									Total (\$/day)				8.29
Days per quarter	9 ¹	days	x		\$8.29	\$/day	=		754.39			\$/qtr	
Services charges	9 ¹	days	x		\$0.624580	\$/day	=		56.87				
									Total \$/qtr				811.26

Appliance rating list

APPLIANCE	RATING KW	
HOT WATER STORAGE WATER UNITS		
160 Litre	2.40	
250 Litre	3.60	
BOILING WATER UNITS		
4.5 – 15 Litre	2.40	
25 Litre	3.60	
HEATING		
Fixed 3.5kW	3.50	
Fixed 4.5kW	4.50	
Fixed 6.0kW	6.00	
Portable (fan)	2.40	
Skirting heaters 0.8kW	0.80	
Skirting heaters 1kW	1.00	
Skirting heaters 1.2kW	1.20	
Skirting heaters 1.6kW	1.60	
Skirting heaters 2.4kW	2.40	
Air curtain 9kW	9.00	
Air curtain 18kW	18.00	
REFRIGERATION		
Bar fridge	0.16	
Upright fridge	0.16	
One door cordial fridge	0.25	
Two door cordial fridge	0.69	
Deli case 2.4m	0.60	
Deli case 3.6m	0.90	
Ice cream 2.4m	2.00	
Ice cream 3.6m	3.10	
Ice cream 1.8m (with top)	0.40	
Ice cream 3.0m (with top)	0.56	
Freezer room 2m * 2m	1.50	
Freezer room 3m * 4m	1.50	
Coolroom 2m * 2m	0.38	
Coolroom 3m * 4m	1.10	
COOKING		
Deep fryer	17.00	
Griddle	3.50	
Salamander	3.50	
Haros boiler	2.40	
Large hot plate	2.40	
Small hot plate	1.20	
Microwave oven	1.50	
Pie oven	1.20	
Bain marie	3.60	
Sandwich toaster	2.40	
Rotisserie	16.25	
Kettle	1.80	
Ovens	4.80	
GENERAL		
Exhaust fan	0.30	
Stereo	0.10	
TV and video	0.15	
Computer/monitor (average)	0.12	
Printer	0.85	
Photocopier	2.00	
Cash register	0.12	
Facsimile	0.05	
Vacuum	1.20	
Laptop (on average)	0.02	
LIGHTING		
Incandescent lamp (60w)	0.06	
Incandescent lamp (100w)	0.10	
Display lamp	0.05	
Flood lamp	0.30	
FLUORESCENT LIGHTING (LENGTH X DIAMETER)		
	Including ballast	
600mm X 38mm (20w)	0.020	0.026
600mm X 26mm (18w)	0.018	0.024
550mm X 16mm (14w)	0.014	0.017
850mm X 16mm (21w)	0.021	0.024
1200mm X 38mm (40w)	0.040	0.046
1200mm X 26mm (36w)	0.036	0.042
1150mm X 16mm (28w)	0.028	0.031
1500mm X 38mm (65w)	0.065	0.074
1500mm X 26mm (58w)	0.058	0.067
1450mm X 16mm (35w)	0.035	0.039