



# 5 Minute Guide 1.1

PACIA

energy+

Turn energy savings into business power

## Improving your energy purchasing and generation

This 5 Minute Guide explains how you are charged for your energy, and discusses how to use this important information to save money in your energy purchasing. Understanding your energy bills will help you gain more value from the energy you buy. It will also generate ideas for renegotiating your energy purchasing arrangements and creating your own energy.

### Understanding your energy bills

Some businesses may find their bills confusing. However understanding your electricity and gas bills will open the door to reducing energy costs.

There are two key things to know from your energy bills:

- The cost of the energy you are using: energy has a different cost per unit at different times of the day, as reflected in your tariffs. Your retailer will be able to tell you when the tariffs start and end.
- When you use energy: knowing when you use energy will put you in a better position to negotiate with your retailer.

### Key elements of your bill

You should be able to see the following:

- A National Meter Identifier (NMI) for electricity or Meter Installation Reference Number (MIRN) for gas. This unique number identifies the metering at your address. For businesses with more than one meter, this is how you can tell which bill is for which part of your business.
- The billing or supply period. This is important as you will need this to determine how much energy you use on average, each day, week or month.
- The charges over the period, which are usually broken down into more detail on the subsequent pages of your bill. The charges may include:
  - electricity or gas
  - emissions
  - renewable energy
  - meter supply
  - market participation
  - distribution or network costs

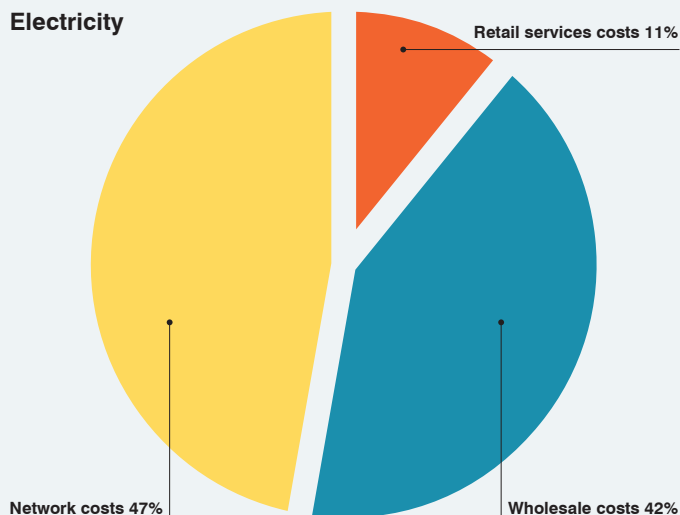
Figure 1: An example of an electricity bill

National Meter Identifier (NMI)		Billing or supply period		Total energy used through the meter		Tariff or rate	
Your electricity usage and service calculation							
Account number		Service address					
NMI 123 456 789 1011		Billing period		1 Jul 2013 to 31 Jul 2013			
Description	Quantity	Line Loss	Charge/Rate	\$			
Pool Pass Through							
Energy Consumption 01 Jul 2013 to 31 Jul 2013							
* Energy Charges	13,764.560 kWh	1,449.210 kWh	0.092230 \$/kWh	1,403.17			
* Supply Charge				35.00			
* Meter Charge				72.91			
* Ancillary Services	13,764.560 kWh	879.550 kWh	0.000733 \$/kWh	10.74			
* Market Participant Charge	13,764.560 kWh	879.550 kWh	0.000395 \$/kWh	5.78			
* SRES Charge	13,764.560 kWh	879.550 kWh	0.009052 \$/kWh	132.57			
* LRET Charge	13,764.560 kWh	879.550 kWh	0.005231 \$/kWh	76.61			
* Carbon Charge	13,764.560 kWh	1,449.210 kWh	0.020101 \$/kWh	305.82			
* En.Surcharge 12.5%				175.40			
Goods and Services Tax				221.80			
SUB-TOTAL				\$2,439.80			
Network Usage 01 Jul 2013 to 31 Jul 2013							
* Peak (7am-9pm CST)	11,788.110 kWh		0.037230 \$/kWh	438.87			
* Off Peak (All other)	1,976.450 kWh		0.037230 \$/kWh	73.58			
Peak Demand Step 1	100.000 kVa		17.907000 \$/kVa/mth	1,790.70			
Peak Demand Step 2	150.000 kVa		12.024900 \$/kVa/mth	1,803.74			
Peak Demand Step 3	105.880 kVa		9.818900 \$/kVa/mth	1,039.63			
* Total Peak Demand	355.880 kVa			4,634.07			
* Additional O/P Demand				151.18			
Goods and Services Tax				529.77			
SUB-TOTAL				\$5,827.47			
Current Charges				\$8,267.27			
An * indicates a GST applicable supply. Please refer to all pages of this invoice. Please note that the total Services Charges may include non-GST applicable items.							
Highest actual metered demand this period 265 (Recorded on 05/07/2013 at 14:00)							
Pass through of carbon price				Stepped tariffs for Peak Demand			
Various charges associated with energy usage and distribution							

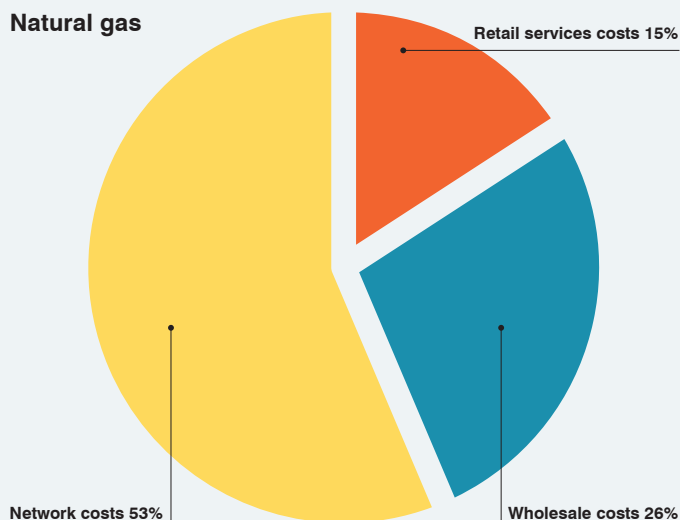
Understanding your tariffs means you will **know** when your energy is costing more.

**Figure 2: How bill payments are allocated to cover costs**

### Electricity



### Natural gas



Source: Electricity and natural gas bills explained – the costs of your electricity and natural gas; Australian Energy Regulator, 2011

## Explaining the charges

Figure 2 provides a breakdown of how energy billing costs are allocated.

Energy (electricity or gas) charges represent the cost of the energy used by your business. Distribution charges are the costs associated with transporting the energy to your business from the point of creation (such as from the power station), based on your usage.

Each charge is determined from a quantity of energy used through the meter (kWh or MJ) multiplied by the tariff or rate, which is the cost of the energy being supplied per unit of energy (\$/kWh or \$/MJ). Some retail tariffs have a peak rate; some may also have off-peak and shoulder rates. Some tariffs are 'stepped', meaning there is a different rate for the first consumption bracket compared to next brackets. Understanding your tariffs means you will know when your energy is costing more.

As a commercial customer you are likely to be charged for Peak Demand on your electricity bill in addition to usage. Peak Demand is your greatest demand for electricity over a billing period; that is, it is the largest electrical load you placed on the grid at any given point in time. You are essentially paying for the energy company to have that much electricity available to you should you need it. Peak Demand charges are usually 'stepped' with a number of different tariffs.

Your bill will also include renewable energy and emissions charges. These will vary from state to state, depending on the schemes in place as well as pass through costs such as a carbon price. Charges are based on your total energy usage.

In New South Wales, Victoria, South Australia, Queensland and the ACT, both the electricity and gas industries have been deregulated for business consumers. This means that you are free to choose your electricity and gas retailer and can **shop around for cheaper rates**.



## Reducing your energy costs

### Use less

Reduce your costs by controlling the amounts and types of energy you consume:

- ✓ Reduce your energy usage: the cheapest energy is the energy you do not use.
- ✓ Minimise the use of 'expensive' energy: understand which operations and equipment use energy during the periods that you are charged a higher tariff. Explore the opportunity to undertake these activities at a different time.
- ✓ Reduce your Peak Demand: by reducing the largest load you require, you will reduce your bill. This can be as simple as not starting all your equipment at the same time, but starting it sequentially over time.

### Get the best deal

You can save money when you buy energy:

- ✓ Negotiate with your retailer: ensuring you are taking advantage of competitive rates is the first step to cost savings.
- ✓ Shop around: the retail energy marketplace is competitive and the retailers have the latitude to negotiate on both supply and distribution rates.
- ✓ Consider going on a contract: retailers offer significant financial incentives to encourage you to enter a contract. The length of the contract will also influence the cost.

### Get more of the electricity you pay for

Some of the electricity you purchase will be lost or wasted due to inefficiencies. This is unavoidable. However you can get the maximum out of the electricity you are paying for, by checking the Power Factor of the electrical supply on your site.

- Power Factor is the ratio between the power that is supplied to your site (kVA) and the power that is actually used (kW). It is a measure of how efficiently an installation uses electrical energy.
- A Power Factor of 0.9 or less should be corrected as it means 10% of the electricity delivered to the site is wasted before use – it makes good sense to get the most from the energy you pay for.
- A Power Factor of 0.98 (meaning a 2% loss) is best practice and commonly achieved.
- Power factor correction equipment can be installed at your site distribution point. The savings made through the installation often result in an investment payback of around two years or better.

### Create your own energy

Consider ways to generate your own energy and reduce your reliance on grid electricity and mains gas with:

- ✓ Solar hot water systems to replace gas or electric hot water heaters or preheat boiler water.
- ✓ Diesel generators to replace grid electricity – beneficial during peak tariffs periods.
- ✓ Grid connected solar systems or small wind turbines to offset grid electricity.
- ✓ Cogeneration systems to generate both heat and electricity (usually from natural gas).

A decision to create your own energy should be based on your business's mode of operation, energy cost structure, future needs and investment payback.



**Grid connection can be expensive.** When considering on-site generation of electricity, make sure the investment analysis includes the cost of connecting any system to the grid if you need it. Stand-alone systems (such as solar hot water and diesel generators) do not need grid connection.

## Green energy products

Energy retailers offer a range of 'green' energy products across electricity and gas:

- **Green electricity:** The purchase of a green electricity product means that renewable energy sourced from the sun, wind, water or waste is purchased by your electricity retailer on your behalf. The most widely known is the government accredited GreenPower. You can generally buy green electricity directly from your energy retailer in percentages of your total usage (for example, 10% GreenPower).
- **Green gas:** The purchase of green gas products usually means that the retailer will purchase offsets on your behalf to offset the greenhouse gas emissions generated from your usage of gas.

Green energy products do not actually improve your energy efficiency and can cost more than standard energy. However they do reduce the overall environmental footprint and carbon emissions associated with your energy use. They are also a display of commitment to good environmental practice and energy use.



Remember to  
**refer back to your  
energy plan regularly.**  
Go to the PACIA energy+  
portal for help in setting  
up your plan.

### 'Green' claims

If you use 'green' energy and want to make public claims about your good energy practices, be mindful there are laws and Australian Competition and Consumer Commission guidelines for false and misleading statements.

### This is just one piece of the energy efficiency puzzle!

There are many other areas that you should also consider. PACIA energy+ covers the key topics and provides you with the tools and information you need to improve your energy efficiency and reduce costs. PACIA energy+ has been designed specifically for businesses in the chemicals and plastics industry.

**Go to the PACIA energy+ portal for more: [www.paciaenergyplus.org.au](http://www.paciaenergyplus.org.au)**



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