

INFOSHEET 8

Understanding energy bills

Electricity and gas bills provide a variety of information about average consumption over the billing period. Information from regular energy bills can be used in the saving energy @ school spreadsheet to graph consumption patterns and calculate school energy benchmarks (this spreadsheet is included on the TREES CD)

HOW TO READ YOUR BILLS

The format and presentation of information in electricity, gas and water bills varies slightly among the different utility companies but it should be possible to locate the items listed below. Refer to next page for examples of A–H below.

Electricity

On electricity bills the relevant information to look for is:

- (A) Meter reading dates (billing period)
- (B) Tariff (often on back of bill)
- (C) Price per Kilowatt hour (kWh) (peak and off-peak)
- (D) Service or other fixed charges
- (E) Number of days in billing period (on back of bill)
- (F) Peak consumption in kWh
- (G) Off-peak consumption in kWh
- (H) Total cost

See front of typical electricity account below

Natural gas accounts

Gas bills contain similar several important features.

- (A) Billing period dates (usually on front of bill)
- (B) Tariff (on back of bill)
- (C) Service or other fixed charges (may not appear every month)
- (D) Number of days in billing period (on back of bill)
- (E) Meter readings in cubic metres (back of bill)
- (F) Energy in Megajoules (MJ)
- (G) Total amount charged

Note: The energy consumed and charged to your school is calculated by:

Energy (in MJ) = consumption (cu.m.) x heating value (MJ/cu.m.) x pressure factor

Back of typical gas bill shown below

LPG accounts

LPG is usually supplied to schools by a tanker, which refills and meters gas into cylinders on site or on an exchange cylinder basis.

Tanker Deliveries

The volume of gas supplied is usually measures in litres. The invoice may only contain limited information. A delivery docket left by the driver may contain more detail:

- date and time of delivery
- quantity supplied in litres
- density kg/litre
- price per kg or price per litre
- cylinder rental
- total cost

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Front of typical electricity account:

Account Number: **8419 9887 9887** Service Address: [] Next Scheduled Reading: **6 DEC 1996**
 ISSUE DATE: 6 NOV 1996 Amount Due: **\$2,081.10**

TRIAL COLLEGE
MAIN ST

Pay By: **22 NOV 1996**

ACCOUNT SUMMARY : 3 OCT 1996 to 6 NOV 1996

PEAK USE	12300 kWh (see over for details)	\$1,982.90
OFF PEAK USE	2030 kWh (see over for details)	\$84.85
OTHER CHARGES	(see over for details)	\$13.35

COMPARE YOUR ELECTRICITY USAGE TOTAL AMOUNT DUE: **\$2,081.10**

SAME TIME LAST YEAR		THIS ACCOUNT	
Average daily use in kilowatt hours (kWh)		Average daily use in kilowatt hours (kWh)	
PEAK	387.2	PEAK	12300 / 31 = 396.8
OFF PEAK	63.4	OFF PEAK	2030 / 31 = 65.5

YOUR AVERAGE COST PER DAY: **\$61.21**

Payment Approved: []
 Paid/Cheque No. **\$2,081.10**
 Date Paid: **15/11/96**
 Account Code: []

Back of typical electricity account:

ITEMISED DETAILS: COMMERCIAL SUPPLY

Tariff Description	Meter Number	Bill Days	Current Readings	Previous Readings	Slowest Hour Usage	Your Account Calculations		
						kWh/Rate	\$	\$
PEAK USE								
E1 General Supply	8987205	34	803890	791230	12300	9500 @ 13.30¢	1270.50	1270.50
Tariff-1 1pm-5pm Est Daily						6800 @ 13.00¢	884.00	1982.90
OFF PEAK USE								
E2 General Supply	8987205	34	156230	154200	2030	2030 @ 4.18¢	84.85	84.85
1 1pm-7pm Est Daily								
OTHER CHARGES								
Service To Property Charge								13.35
TOTAL THIS ACCOUNT								\$2,081.10

Back of typical natural gas account:

CURRENT GAS CALCULATION Meter Number: YE6069 62 Days in Billing Tariff: Commercial 14

Meter Readings:	Previous	Current	Cubic Metres	Heating Value	Pressure Factor	Megajoules Used
	1957	8931 *	19,750.36	38.50	1.0109	768677

Item: **GAS** Details: Current charge \$ **\$5,255.41**
ACCOUNT BALANCE \$5,255.41

TARIFFS

Tariffs define the charge structure and are designed to suit or encourage various patterns of consumption. For example, off-peak electricity tariffs provide a cheaper way of purchasing energy for consumers who can use power between 11 p.m. and 7 a.m., or on weekends. Understanding the tariffs used to calculate your bills allows you to check whether your school is paying the most economical rate for your consumption pattern. It is advisable to check that your school is on the most economical tariff whenever there are price rises for electricity and gas and when consumption patterns are likely to change.

Demand tariffs

Some schools may be on an electricity tariff that may include a demand tariff. This type of charge structure includes a cost for the maximum rate of energy use (power) likely to be required at any time. It will be notated as the contract demand in kW or kVA, and appears as one of the network charges. Schools on these tariffs may find that after implementing energy efficiency measures that their demand is consistently less than what they are charged for and may be able to request a decrease in the demand charge.

CONTESTABILITY

In Victoria, the electricity and gas industries have been restructured into competitive markets. As a consequence, consumers have a choice as to who they purchase electricity and gas from. This choice is referred to as contestability.

The competitive energy market in Victoria has so far produced overall savings on the unit cost of electricity of around 25%. Between 10 to 25% savings in energy consumption and cost can be achieved by establishing an energy management program and implementing energy saving measures. It would therefore be prudent to reinvest a portion of cost savings from contestable electricity supply negotiations, into an energy management plan that secures longer-term savings.

Customers have a choice of about 20 retail energy providers with whom they can negotiate a contract to supply energy.

Local electricity and gas distributors, who maintain the network of poles, pipes and wires in local areas, still provide the means for transmitting energy.

The account received by contestable customers is more complex than the simple franchise account, as it shows a breakdown of costs and energy for each part of the market. Usually included are the consumption charges from the retailer, consumption and demand charges from the distributor, a fixed supply charge, metering charges and a fee from the National Electricity Market Management Company (NEMMCO).

The Essential Services Commission is responsible for supervising the deregulation of energy and publishes a booklet entitled Choice of electricity retailer. The Department of Education has developed savings and efficiencies by establishing electricity and natural gas Whole of Government contracts. The majority of Victorian schools participate in these contracts.

For more information contact the Essential Services Commission at www.esc.vic.gov.au

See Understanding a contestable electricity bill on last page of this Infosheet.

THE SAVE ENERGY @ SCHOOL SPREADSHEET

The spreadsheet is available on this CD.

The file is a MS Excel spreadsheet designed to analyse your school's energy consumption. Basic benchmarks are calculated which provide one measure of your school's energy use. The benchmarks can also be used to set targets for consumption and assess potential savings. The spreadsheet constructs a number of graphs and tables that display energy consumption, energy cost and greenhouse gas emissions for each type of energy. These can be very useful if making a presentation to others in the school community.

The file contains a number of worksheets. On these, there are yellow cells into which data taken from utility accounts needs to be entered. Consumption and cost data should be

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entered in the month in which most of the consumption occurred. Leave blank any sections that do not apply. Do not change the values or formulas in other cells unless you make a back-up copy of this file.

See *description of spreadsheet* below.

OBTAINING ENERGY DATA

It is best to enter at least 12 months of previous energy consumption data into the spreadsheet. If past bills are difficult to obtain then contact the utility company named on the bill and quote the account number and school address. You should request a summary of the school's electricity (or gas) consumption for the past 12 or 18 months that cover the following:

- Meter reading dates
- Peak kWh
- Off Peak kWh
- Meter demand (if applicable)
- Total cost

For gas, ask for energy in megajoules (MJ) not kWh.

LPG

Request the following information.


- Delivery date
- Quantity of LPG delivered (litres or kilograms (kg))
- Total cost

Utility companies will either provide this over the phone or send the information through the mail or fax.

DESCRIPTION OF SPREADSHEET

Worksheet name	Content	Action
Spreadsheet guidelines	Guides on how to use the spreadsheet, overview of contents	Read first.
School information	Contains basic school information and site details. School energy use and benchmarks are displayed.	Enter school details into yellow cells. Refer back to the blue cells for annual energy use and benchmark information.
Electricity data	Allows for two separate accounts, with each set to record up to three years of energy data.	Enter details of supply company account numbers and tariffs. Meter reading dates, peak and off-peak consumption can be entered on a monthly or quarterly basis, depending on whether an 'M' or 'Q' is entered in cell C9. This enables the summaries and benchmarks to be calculated accurately.
Natural gas (NG) data	Allows for two separate accounts, with each set recording up to three years of energy data.	Enter details from accounts on a bi-monthly basis.
LPG data	Worksheet has three tables, each intended for one year of consumption.	Enter quantity of LPG used in litres not kilograms.
Electricity and NG charts	Each of the worksheets indicates the seasonal energy use. The electricity 12-month trend graph displays the energy use for the immediate 12 months to that date. There are no graphs for LPG.	Graphs should immediately update when data is changed. Analyse the seasonal/yearly variation in energy use to detect problems, or the success of your energy management program.
Water data and charts	Worksheets have two tables (for two accounts) each being set to record three years consumption.	Enter account details into the yellow cells. Data should be entered on a quarterly basis. Analyse graphs to identify consumption patterns.

UNDERSTANDING A CONTESTABLE ELECTRICITY BILL



	Consumption	Rate	Charge (\$)
01/08/99 to 31/08/99			
Retail Energy Charges			
Peak Usage Mon-Fri 7:00am-11pm	243104.94	2.0400	4,959.34
Off Peak Usage (All Other Periods)	80690.16	1.2554	1,012.98
Total Retail Energy Charges			\$5,972.32
Network Charges			
Network Peak	243104.94	1.5460	3,758.40
Network Off-Peak	80690.16	0.7150	576.93
Network Standing Charge			284.17
Network Demand	1090	\$0.172020	5,812.56
Communications Charge	1	\$1.39	43.06
Meter Charges	1	\$0.50	15.62
Total Network Charges			\$10,490.74
Other Charges			
NEMMCO Ancillary Services	323795.1	0.1150	372.36
NEMMCO Charges	323795.1	0.0562	181.97
Smelter Reduction Payment	323795.1	0.2197	711.38
Meter Charge	1	\$1.10	34.22
Demand Adjustment			-79.95
Total Other Charges			\$1,219.98
			Bill Total \$17,683.04

*DLF=4.51% TLF=.1%
Contract Demand is 1090 kW
Highest actual metered demand this period is 969 kW
Meter Usage: 323795 kWh;*

Fixed (service) costs

demand cost

Peak energy costs

Off peak energy costs

Adding bill components together

Peak energy costs:	243105kWh x (2.0400 + 1.5460 + 0.1150 + 0.0562 + 0.2197)cents/kWh	= \$9668.04
Off peak energy costs:	80690kWh x (1.2554 + 0.7150 + 0.1150 + 0.0562 + 0.2197)cents/kWh	= \$1905.33
Demand costs:	(Note that this is based on historical highest demand)	\$5812.56
Fixed (service) costs:	31 days x (9.1667 + 1.3890 + 0.5039 + 1.1039)\$/day	= \$377.07
Less refund for demand adjustment:		-\$79.95
TOTAL COST		\$17683.05