

Energy Australia Tariffs

Over the past couple of years Energy Australia have introduced new PowerSmart (Type 5) metering systems throughout Australia, for all new or upgraded installations. The intent is to ensure that over a 10 year period all consumers with the old style (Type 6) meters will also be upgraded where power usage is greater than 15MWh per year (current annual electricity accounts of approx \$2,000.00 per year). The new meter measures how much electricity is used in a half hour period, then records it with the time and date. Your electricity charges are then applied based on the time of use.

Type 6 meters don't have this ability, so continue to be charged at flat (stepped rate)

Charges for Time of Use —(New Type 5 Meters)

The default tariff category in this case is termed PowerSmart Home. There are three time periods in the day with a sliding tariff charge.

Period	Time	Tariff
Peak	2pm—8pm Working Week days	27.61 cents / kwhr
Shoulder	7am—2pm Working Week days	9.79 cents / kwhr
	8pm—10pm Working Week days	
	7am—10pm Weekends	
Off Peak	7am—10pm Public Holidays	5.61 cents / kwhr
	At all other times	

Tariff charges are per Energy Australia rates effective 1.7.2007

Charges for Type 6 Meter installations

Charges applied are termed

Step 1	First 1750kwhr (90 day billing cycle)	12.87 cents / kwhr
Step 2	Excess of Step 1	17.93 cents / kwhr

Tariff charges are per Energy Australia rates effective 1.7.2007

What's your Actual Operating Cost ?

Nominating an actual system running cost is a very simple yet very difficult task. It's simple in that given a set of conditions / weather / system operation times / setpoints it is relatively easy to assess the actual running cost. It's difficult because there are so many variables concerned, primarily with the way in which each individual operates their system. And to make things even more difficult the ToU tariffs now applied complicate this task even further.

Given these variables, setting a dollar value on operating cost is impractical.

Assessment of Diversity

Diversity is used to portray a percentage offset from peak load / peak demand for a typical domestic air conditioning system. This diversity takes into account that not every day is a hot day, and daily ambient temperatures progressively increase then progressively decrease during the day. Humidity will also change daily, in addition our weather patterns can bring days with very high humidity (this results in greater system load), whilst other days will have lower levels of humidity.

Another important factor to consider is that the Diversity is assessed on the basis that an air conditioning system is in operation across a wide range of climatic conditions and periods. If you like it nominates an average demand across the full year.

Illustrative Operating Cost - Type 6 meters—(Domestic All Time Tariff)

The tables below are derived using the Step 2 tariff charge—Energy Australia Rates as of 1st July 2007—includes GST.

COOLING at 35C ambient diversity applied at 40%			
Model	Input kw	Cost per hr @ peak	Operating Cost per hr
SRA07*	2.50	44.83	26.89
SRA09*	3.20	57.38	34.43
SRA11*	3.70	66.34	39.80
SRA12	4.10	73.51	44.11
SRA13*	4.10	73.51	44.11
SAR14	4.80	86.06	51.64
SRA15*	5.30	95.03	57.02
SRA16	5.00	89.65	53.79
SRA17*	5.70	102.20	61.32
SRA18	6.00	107.58	64.55
SRA20	6.20	111.17	66.70
SRA22	6.90	123.72	74.23
SRA25	8.10	145.23	87.14
Cost is cents/hr			.

HEATING at 7C ambient diversity applied at 40%			
Model	Input kw	Cost per hr @ peak	Operating Cost per hr
SRA07*	2.45	43.93	26.36
SRA09*	3.05	54.69	32.81
SRA11*	3.51	62.93	37.76
SRA12	3.99	71.54	42.92
SRA13*	3.85	69.03	41.42
SAR14	4.64	83.20	49.92
SRA15*	4.70	84.27	50.56
SRA16	5.00	89.65	53.79
SRA17*	5.25	94.13	56.48
SRA18	5.56	99.69	59.81
SRA20	5.88	105.43	63.26
SRA22	6.49	116.36	69.82
SRA25	7.70	138.06	82.84
Cost is cents/hr			.

* Single Phase Systems

Illustrative Operating Cost— Type 5—Time of Use Meters

When time of use meters were introduced it did seem on the surface that consumer cost would escalate at the new tariff arrangements. This is true if you aren't careful and don't run your air conditioning system as it was designed. In other cases, where "smart" operating methods are employed we can end up with a slight cost saving over the Domestic All Time Tariff.

But also beware—if you don't operate your system as designed—you will pay a premium. A couple of examples are indicated below—please take these as illustrative, as noted earlier many variables will affect the result hour by hour and day by day.

Time of use metering example 1

Scenario—Actron SRA18—operating from 7am to 10pm 15hrs—the diversity factor is applied.

Domestic All Day Tariff—from tables on page 2 our cost per hr for system will be 64.55 cents/operating hour.

$$15 \text{ hrs} \times 64.55 \text{ cents} = \$9.68$$

PowerSmart Tariff—the SRA18 input kw is 6.0—diversity will be applied.

From 7am to 2pm tariff = 9.79c/kwhr (6kw x 9.79) x 40% diversity = 35.24c/hr
 From 2pm to 8pm tariff = 27.61c/kwhr (6kw x 27.61) x 40% diversity = 99.40c/hr
 From 8pm to 10pm tariff = 9.79c/kwhr (6kw x 9.79) x 40% diversity = 35.24c/hr

Therefore

7am to 2pm—7hrs @ 35.24c/hr	= \$2.47
2pm to 8pm—6hrs @ 99.40c/hr	= \$5.96
8pm to 10pm-2hrs @ 35.24c/hr	= \$0.70 >>>> \$9.13

In this example although the peak tariff is around 54% higher than the flat domestic rate the final result for the day's operation was a saving of around 6% using the ToU metering.

Now let's see things go horribly wrong.

Time of use metering example 2

Scenario—Actron SRA18—system is started when customer arrives home from work at 4pm. We cannot apply diversity here as the load will be so great that the equipment will run at 100% load for some time to regain control of the space. We will assume in this example that the unit runs at full load from 4pm to 8pm before we reach a point where cycling diversity can be recognised, the system is switched off at 10pm.



*Tariff rates and examples refer to domestic use.
 Commercial tariffs and load expectations will be
 greater than depicted in these examples.*



Domestic All Day Tariff—from tables on page 2 our cost per hr for system will be 64.55 cents/operating hour with diversity considered but 107.58 cents/hr at peak load.

From 4pm to 8pm—4hrs x 107.58c/hr = \$4.30
From 8pm to 10pm—2hrs x 64.55c/hr = \$1.29

Total >>>>> \$5.59

PowerSmart Tariff—the SRA18 input kw is 6.0

From 4pm to 8pm tariff = 27.61c/kwhr (6kw x 27.61) x 0% diversity = 165.66c/hr
From 8pm to 10pm tariff= 9.79c/kwhr (6kw x 9.79) x 40% diversity = 35.24c/hr

Therefore

2pm to 8pm—6hrs @ 165.66c/hr = \$6.63
8pm to 10pm-2hrs @ 35.24c/hr = \$0.70 >>>> \$7.33

In this example the penalty with ToU metering is a cost increase of around 30% over the old domestic tariff.

So when you compare the two examples—it has cost more in example 1— \$9.13 v \$7.33 ?

Don't forget—when the system was switched on at 4pm it took 4hrs at peak load to achieve the comfort condition—so you really paid \$3.67 / hr for the 2 comfortable hrs gained. In example 1 the cost per hour was 60 cents.

Actron Air ESP and ESP Plus—more savings to reap !

Actron's ESP system can deliver cost savings of up to 30 % over a standard system. The ESP Plus up to 55% savings. Savings are assessed on a seasonal basis.

How do you get the most from your system at the lowest cost ?

Run your system at the optimum comfort level—a 1 degree C variation in temperature setting will equate to around a 15% variation in operating cost.

Any air conditioning system is designed to keep a cool space cool—let your system work with the load progressively through the day. If you know it's going to a hot one, start the unit early, switching on when you can't stand it any longer isn't the answer.

Use a setback condition when the space isn't occupied rather than leaving the system switched off—in summer say 27C—or winter say 18C—your system will only operate if these temperatures are exceeded—and it will be pretty easy to recover from these temperatures to your comfort level when you return to relax in your air conditioned home.



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