The SAGATUG

INTERFACE

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Another Facet of Energy Conservation

Roy T. Beck

Another facet of California's ongoing electric power and energy problem is coming to light; that is the "baseline energy allotment" of energy.

A little background

Electric energy is retailed in units called Kilowatt-hours, or kWh. This is the energy consumed when a load of 1000 watts (a kilowatt) is operated for one hour's time. For any particular energy-consuming device, it is the product of the load in watts multiplied by the hours of operation, divided by 1000 to convert from watt-hours to kilowatt-hours. For example, a 100-watt lamp operated for 8 hours uses 8 x 100 = 800 watt-hours. Divide by 1000 and the result is 0.8 kWh consumed. The right hand pointer on your meter will register 0.8 units, or just under one count, since each digit on the pointer's circle is 1.0 kWh. Most electrical devices have either an ampere rating or a watt rating on their nameplate. If a device is rated in amperes, and is plugged into a 115-volt household receptacle, then the approximate wattage is 115 x the ampere rating.

The spate of news articles in recent months cites large dollar prices the utilities are having to pay for wholesale electricity. The very large dollar figures quoted are based on a larger unit of energy, the megawatt-hour or mWh. A mWh is 1000 times larger than a kilowatt-hour, and is used for convenience in reducing the number of zeroes on the numbers. Just as we cite budget numbers in millions of dollars, even though our paychecks only describe whole dollars, the news writers and the utilities deal in mWh, rather than kWh. To convert mWh into kWh, just multiply by 1000, or more simply, move the decimal point 3 places to the right

Recent Utility Wholesale Cost Increases

In the past, wholesale energy costs were typically on the order of $70 dollars per mWh, but recently have been as high as $2000 or more. To convert these to kWh prices, we must divide by 1000, or just move the decimal point 3 places to the left. Thus, $70 per mWh is the same as $.07 per kwh (7 cents per kwh). When a utility buys electricity wholesale at 7 cents per kWh and retails it to the consumer at 10 cents per kWh, the markup is intended to cover his operating costs, taxes, and still make a profit for the utility. This used to be the normal range of prices.

With prices as high as $2000 per mWh, the price per kWh becomes $2.00 per kWh. Since the utilities' retail rates have been frozen for a year or so at about the 10 cent level, a utility that has to buy

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wholesale at as much as $2.00 per kWh, but can only sell retail at 10 cents per kWh is not going to stay in business for long. This is why PG&E has declared bankruptcy and why Edison is threatening to do so.

Recently the Governor and the State Legislature have acted to raise the retail price of electricity to the consumers of California. This was required to increase the retail price of energy to partially salvage the utilities, and at the same time to incorporate conservation incentives.

For a number of years, there has existed a two-step rate structure applicable to homeowners. The first, lower cost rate was applicable to the monthly block of energy defined as the "baseline allotment". Any energy consumed monthly in excess of the "baseline" was charged for at a somewhat higher rate. Practically, the difference in rates was not vast, and the overall effect on the homeowner's bill was not enough to cause political upheaval.

Beginning in June, the two-step rate structure was modified to a five-step arrangement. The first block is the "baseline" amount, the second block is from baseline up to 130% of baseline, the third block is from the 130% level to 200% of baseline, the fourth block is from 200% to 300% of baseline, and the fifth block is everything above 300 of baseline.

Bear in mind that the new rate structure was intended to increase the flow of retail energy revenues to the utilities. Increased monthly billings was a prime purpose. Since the baseline structure was in place and was a known quantity with a decade or so of statistical data to support it, it was continued and extended in the form of the new, higher cost, rate structure. The new rates for Edison customers are as follows, rounded to the nearest cent:

Baseline block	13 cents per kWh
Second	15 cents per kWh
Third block	20 cents per kWh
Fourth block	24 cents per kWh
Fifth block	26 cents per kWh

For various reasons, the Los Angeles Department of Water and Power and certain other municipal systems are not subject to the recently announced rate increases. Count yourselves lucky if you have LADWP service!

More Bad News

How was the baseline block determined? In 1982 a rather crude statistical survey of residential customers was done, taking in to account the climate, the geographical location, whether the house had gas service, and the average energy consumption. The utility's territory was subdivided into fairly large areas for purposes of simple billing. The baseline quantity was then set for each area at about 50% of actual average billing on the assumption that this baseline quantity would allow sufficient energy for "life support", and all additional usage was not necessary, only discretionary. Obviously air conditioning, pool filters, TV usage, etc was not "necessary"

Note that this survey was done at a time before heavy personal computer usage in the home. The last adjustment of the baseline quantities was in the early 1990's. Two different baselines were determined for each area, a summer level beginning the first Sunday in June, and a winter level beginning the first Sunday in October. This split was to account for seasonal differences, and to some extent to allow some degree of cooling load. (Palm Springs and the Coachella valley did receive an especially generous summer allotment due to the ferocious heat there). Edison's territory is divided into six areas, PG&E into ten.

Note also that many possible factors were not included, such as size of family, size of house, age of house, insulation of house, economic level of the neighborhood, etc.

Some Typical Loads

Obviously not all electrical devices are equal in terms of energy consumed and the resulting costs of operation.

Electric refrigerators are large, significant loads in the household setting. This is the reason the utili-

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ties are urging that "second units" in the garage or patio ought to be junked, replaced or at least taken out of service. Such old units consume relatively much more energy for the cooling effect produced than do new, more efficient units with better insulation. A 20 cubic foot 1987 model may consume about 112 kWh per month. It costs quite a bit to operate such a device.

An air conditioner is another major load. A 3.5 ton unit can consume anywhere between 378 and 1670 kWh per month. If you have to operate it, limit its hours and raise the temperature setting as high as tolerable. Try 78F as a starting point. A window unit operating eight hours per day may consume about 264 kWh per month.

A 2 HP pool filter pump operating 5 hours per day can burn up as much as 300 kWh per month.

If you leave your computer on continuously, expect to consume about 115 kWh per month.

Electric clothes dryers are heavy users; a 3000-watt rated machine operating 20 hours per month will use about 66 kWh per month. (This includes the motor).

Every household includes a number of small loads which individually may seem innocuous or invisible, but do add to the load. Night-lights, remote-controlled TVs and VCRs, clock radios, intercoms, portable telephones, answering machines, garage door openers, electric clocks, electric toothbrushes, battery chargers, satellite TV receivers, laser printers, and some programmable thermostats are examples. Collectively they do add up, even though individually they are small. Don't forget that some of these devices consume power even when turned "off", such as remote controlled TV's.

Possible Economy Measures

Fluorescent lamps are relatively more efficient than incandescents, and have longer lives to boot. For the same light output, use a fluorescent lamp of about ¼ the size of the incandescent it replaces.

I had to deal with a quirk. When I replaced an incandescent lamp with a fluorescent in my living room, my TV remote control ceased to work! When I restored the incandescent lamp, it worked again. All I can figure is that the 120 pulses per second of light from the fluorescent was triggering the infrared detector in the TV set and preventing it from recognizing the signals from the remote unit. I have another fluorescent lamp installed in a floor lamp which is not in direct line-of-sight with the TV set. This one does not cause a problem. Go figure!

Security or night-lights add up. Consider motion-sensing fixtures for outdoor lights. Indoor fixtures such as hall lights can be so arranged, also.

Programmable thermostats can be used to shut down air conditioners when the house is unoccupied on a regular schedule.

Install venetian blinds to deflect direct sunrays during the day.

Add or improve insulation in walls and ceilings. Seal leaks in air conditioning ducts. Weather-strip doors.

Use the Rinse and Hold cycle on your dishwasher, running a full load only once a day.

Use your microwave oven in preference to your regular oven when possible. It uses much less energy for the same cooking effect, due to the fact the energy is concentrated in the food and not in the oven walls.

Replace electric water heaters with gas fired units.

In Conclusion

The electric energy problem in California is long-term, and will never go away completely. The best we can hope for is amelioration of the problem. Accordingly, it behooves us all to be energy conscious; we will pay for it forever.

Mark my words, we will soon be hearing many complaints on talk shows and in letters to the editor about the "unfairness" of the baseline allotments. Just remember, there is no free lunch!

SAGATUG Meeting
Time and Place:
7 to 10 p.m., Friday, July 13
Arcadia Park Senior Citizen's Center
405 South Santa Anita Avenue, Arcadia.
(In the park just south of Huntington Drive)
Meetings held second Friday every month

Upcoming Events:

TRW Swap Meet, July 28
Last Saturday, monthly, Manhattan Beach

Pomona Fairplex, July 21 & 22 (Sat. & Sun.)
Bldgs. 6 & 7 LA Fair grounds, Gate 14) - Admission $7 plus parking

Buena Park, August 4 & 5 (Sat. & Sun.)
at the Sequoia Conference Center, 7530 Orangethorpe, (Beach Blvd exit from 91 Freeway) $3 admission

Reseda, July 28 & 29 (Sat. & Sun.)
at the Sherman Square Entertainment Center, 18430 Sherman Way. Admission $3.

Glendora Seniors Computer Club
La Fetra Senior Citizens Center, 333 E. Foothill Blvd., Glendora, 2nd & 4th Wednesdays at 1 p.m.

IN THIS ISSUE:

Deadline For The Newsletter
The deadline for the INTERFACE is the last Saturday of the month.

Republication:
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