Third Residential Rate Block - Revised

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> **First law of writing a position paper**: Just when you finished the paper, a new fact appears, requiring you to rewrite it.

Background by City Light (provided to RAC members in an issue description; table slightly modified)

"City Light had a two-block residential rate structure, with a lower-priced first block, from 1980 through mid-2001, i.e., about 21 years. The rate for the first 10 kWh per day (300 kWh per 30-day month) in the summer season and the first 16 kWh per day (480 kWh per 30-day month) in the winter was set at a relatively low level. The rate for all energy used beyond the first block was set at a higher level to reflect the marginal cost of energy, so that customers would receive the right price signal as an encouragement to conserve energy.

With the rate increase effective July 1, 2001, a three-block structure was implemented. The third block was set at $0.16 per kWh, almost twice the price of the second block, since the marginal cost of energy City Light was facing at that time was much higher than the marginal cost which had been used to set the second block price. Setting a very high rate for very high-consuming customers was meant to provide a stronger incentive for them to reduce their consumption. The third block price was increased along with other rates in both October 2001 and April 2002.

However, by June 2002 it became clear that wholesale energy prices were moving back toward normal (lower) levels, so the third block rate was decreased to $0.10 per kWh and the amount of energy priced at the second block rate was increased.

Rates in effect at this time, which were implemented April 1, 2003, have the following form (using standard Residential City rates as the example):"

	Cost	Summer rates	Winter rates
First block (per kWh)	$.0433	First 10 kWh/day	First 16 kWh/day
Second block (per kWh)	$.0866	Next 90 kWh/day	Next 151 kWh/day
End block (per kWh)	$.1008	All additional power	All additional power
Base Service Charge (per day)	$.0973		

Suburban and Residential Assistance rates are different per kWh, but use the same block sizes.

Alternatives

The following alternatives were listed by City Light in the issue description:

- Retain the current three-block structure and block sizes.
- Retain the three-block structure but change the block sizes.
- Return to the two-block structure, retaining the size of the first blocks.
- Return to the two-block structure but change the size of the first block, e.g., increasing or decreasing it, or making it the same year-round.

I have recast these alternatives into changing each of the following variables:

- Number of rate blocks
- Size of each rate block
- Rate for each block

I have omitted the seasonal variable (summer vs. winter), since it affects all rates.

Additional City Light Information and Recommendation

While preparing this paper, I was given a City Light staff paper dealing with the third residential rate block (from the file name I deduced that it was prepared in February of 2004). After reviewing some historical background, it presents month-by-month data of the estimated number of customers in the third rate block for 2002 and 2003. Data is broken down by standard and low-income customers as well as by city and suburban customers. The data for all customers is summarized in the following table:

Third Block Customers	**2002**	**2003**
Lowest # monthly customers-October	117	117
Highest # monthly customers-April	18,830	1,362
Revenue from third block	$4,351,469	$1,131,437
Revenue if third block at 2nd block price	$2,427,079	$971,328
Difference	$1,880,390	$160,109

This table and the more detailed month-by-month tables show a dramatic decrease in the estimated number of third-block customers between 2002 and 2003. This is also illustrated by the difference in additional income provided to City Light by third-block customers, only about $160,000 in 2003. The decrease holds for all classes, standard, low-income, city, and suburban, except when the numbers are very small and for the warm summer months of 2003, where the table shows an increase over 2002 (air conditioning?). I have attached some of the detailed tables with additional average and percentage computations.

It must be realized that much, if not most, of this decrease in number of third block customers is due to the increase in the second block size in June 2002, from 50 to 90 kWh/day in summer, and from 109 to 151 kWh/day in Winter. Without additional data, it is open to conjecture whether any decrease is due to conservation.

The staff paper recommends eliminating the third block when new rates take effect in 2005, citing the following reasons: A two-block structure is more equitable, given the current marginal cost of energy (about 7.3 cents per kWh), it is easier to explain and administer, and helps customers with special needs.

Discussion

When discussing the rate structure we need to consider two major issues: equity (both social and financial) and conservation. Financial equity argues for every ratepayer paying his/her fair share, social equity argues for every ratepayer paying according to his/her ability, while conservation argues for a rate policy that encourages energy savings. The current three-block structure has been designed to strike a balance between these issues.

Another desirable characteristic of a rate structure is predictability, which includes long-term stability. I assume that the next set of rates will remain predictable and stable for about two years, except possible changes due to the BPA pass-through requirement, and barring any disasters.

<u>Number of rate blocks</u>

There is really no necessity to reduce the number of rate blocks. In fact, one could have three rate blocks for all customers, providing flexibility in rate adjustments in the future, as dictated by changing conditions and/or the desire to change the balance between equity and conservation. To achieve the effect of a two-block structure one could establish the same rate for blocks 2 and 3. If the rates in all blocks were to be the same, one would have in effect a one-block structure.

<u>Size and rate for the third residential rate block</u>

As stated above, the third residential rate block with a relatively high rate was established when marginal energy prices were high in order to encourage high-end users to conserve energy. One now has to ask whether this policy has been effective. This question leads to a number of additional questions, some of which have been answered by the staff paper mentioned above.

Have all customer classes been affected by the third rate block?

> The staff paper shows that all customer classes, standard, low-income, city, and suburban, have been affected by the third rate block. It is not known

whether the percentages of third block ratepayers in each class are the same for all classes.

Has their consumption been measurably reduced as a consequence of higher rates?

This question cannot be answered without additional data.

To what degree is a higher consumption due to electric heating requirements?

No detailed data is available; however, two examples for two residential customers paying standard rates seem to indicate that electric heat is a major contributing factor to high consumption.

Apartment

One bedroom apartment in downtown subsidized senior housing. Electric stove, baseboard heat, and hot water heater. No washer or dryer. Single occupant in her seventies with medical problems.

Average winter consumption, from January 2004 bill: 34.1 kWh/day
Average summer consumption, estimated from January 2004 bill: 5 to 7 kWh/day

Single-family home

Four-bedroom, two-story home with full basement. Gas stove, heat, and hot water heater. Electric washer, dryer, and hot tub. Small pond with circulating pump in garden. Occupied by one couple in their seventies.

Average winter consumption, from December 2003 bill: 35.1 kWh/day
Average summer consumption, from July 2003 bill: 31.2 kWh/day

These examples clearly show the effect of electric heat on consumption.

An additional question: Why is the apartment customer billed monthly, while the homeowner is billed every other month?

Are there special (e.g., medical) requirements for some of these customers?

No quantitative information is available; the staff paper mentions numerous complaints to City Light from customers with special medical needs, large households, large homes and customers in group homes.

The data suggests that the introduction of a relatively pricey third block has had some effect on energy conservation. Additional data on the actual reduction of energy could strengthen or weaken this argument.

The main argument against a third block with a substantially higher rate is that it hurts people with truly special needs. However, one could perhaps find another solution to that problem, such as either a special rate class (which might impose an undue burden upon City Light), provide them with an extended second rate block upon approved application (which poses an administrative problem), or place them into one class with low-income customers.

Aside from the desirability of a higher-cost third block, its rate and the starting consumption level (kWh/day) can be set to send a weak or strong conservation signal. Further data on third-block customers is needed to present detailed recommendations.

Differentiation between first and second blocks

Although the topic of this discussion paper is the third residential rate block, I would like to suggest that the RAC also consider the differentiation between the first and second rate blocks. Currently, all ratepayers essentially subsidize the residential rate for the first block, since it does not cover the marginal cost to provide this service. It would be useful to know how many ratepayers do not exceed the size of the first rate block, and the composition of this group by several characteristics, such as income level and apartment vs. single family home, and based on selected census tracts. Based on that information, the RAC could recommend different rates and sizes for the first two blocks.

Possible RAC recommendations

Retain the third residential rate block, structuring it to send a strong conservation signal to City Light's customers.

Request additional data on third-block customers from City Light to facilitate additional recommendations about the third rate block.

Estimated Number of Customers in the Third Block by Month in 2002

	Class		Standard Customers			Low-income Customers			
Month	Standard	Low-income	City	Suburban	Tukwila	City	Suburban	Tukwila	Total
1	3,175	292	2,156	985	34	194	89	9	3,467
2	2,754	261	1,878	847	29	176	76	9	3,015
3	1,723	171	1,169	533	21	117	49	5	1,894
4	17,317	1,513	12,052	4,984	281	1,013	455	45	18,830
5	7,593	648	5,162	2,325	106	419	212	17	8,241
6	1,063	51	790	258	15	27	21	3	1,114
7	403	7	309	86	8	3	3	1	410
8	417	6	316	93	8	2	3	1	423
9	434	9	323	104	7	5	3	1	443
10	116	1	84	29	3	0	0	1	117
11	312	16	218	88	6	7	8	1	328
12	659	42	461	190	8	25	16	1	701
Average	2,997	251	2,077	877	44	166	78	8	3,249

Estimated Number of Customers in the Third Block by Month in 2003

	Class		Standard Customers			Low-income Customers			
Month	Standard	Low-income	City	Suburban	Tukwila	City	Suburban	Tukwila	Total
1	389	25	266	115	8	16	8	1	414
2	352	30	254	94	4	19	10	1	382
3	242	15	172	65	5	12	2	1	257
4	1,264	98	892	355	17	70	25	3	1,362
5	646	27	477	159	10	17	8	2	673
6	475	5	357	110	8	2	3	0	480
7	471	3	358	106	7	1	2	0	474
8	463	3	346	111	6	0	3	0	466
9	477	9	352	120	5	4	4	1	486
10	116	1	82	30	4	1	0	0	117
11	238	10	163	71	4	5	5	0	248
12	372	15	259	108	5	7	7	1	387
Average	459	20	332	120	7	13	6	1	479

Reduction in Number of Customers, 2002-2003

	Class		Standard Customers			Low-income Customers			
Month	Standard	Low-income	City	Suburban	Tukwila	City	Suburban	Tukwila	Total
1	87.75%	91.44%	87.66%	88.32%	76.47%	91.75%	91.01%	88.89%	88.06%
2	87.22%	88.51%	86.47%	88.90%	86.21%	89.20%	86.84%	88.89%	87.33%
3	85.95%	91.23%	85.29%	87.80%	76.19%	89.74%	95.92%	80.00%	86.43%
4	92.70%	93.52%	92.60%	92.88%	93.95%	93.09%	94.51%	93.33%	92.77%
5	91.49%	95.83%	90.76%	93.16%	90.57%	95.94%	96.23%	88.24%	91.83%
6	55.32%	90.20%	54.81%	57.36%	46.67%	92.59%	85.71%	100.00%	56.91%
7	-16.87%	57.14%	-15.86%	-23.26%	12.50%	66.67%	33.33%	100.00%	-15.61%
8	-11.03%	50.00%	-9.49%	-19.35%	25.00%	100.00%	0.00%	100.00%	-10.17%
9	-9.91%	0.00%	-8.98%	-15.38%	28.57%	20.00%	-33.33%	0.00%	-9.71%
10	0.00%	0.00%	2.38%	-3.45%	-33.33%			100.00%	0.00%
11	23.72%	37.50%	25.23%	19.32%	33.33%	28.57%	37.50%	100.00%	24.39%
12	43.55%	64.29%	43.82%	43.16%	37.50%	72.00%	56.25%	0.00%	44.79%
Average	84.69%	92.01%	84.04%	86.28%	84.22%	92.25%	91.76%	89.36%	85.26%