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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of

APPLICATION OF
CAROLINA POWER AND LIGHT COMPANY
FOR INCREASE IN RATES AND CHARGES

DOCKET NO. E-2, SUB 297

Testimony of

DENNIS W. GOINS
ECONOMIST

NORTH CAROLINA UTILITIES COMMISSION

March 23, 1977

Q. Please state your name and background.

A. My name is Dennis W. Goins. I am an economist employed by the North Carolina Utilities Commission. In 1970 I was graduated from Wake Forest University. I received a Master of Economics Degree in 1972 from North Carolina State University, where I also received my Doctor of Philosophy Degree in economics in 1975.

I was employed by this Commission as an economist in August, 1974. Since then I have testified before this Commission several times regarding the issue of residential rate design. The residential rate designs that I presented to this Commission in the most recent Carolina Power and Light Company (Docket No. E-2, Sub 264), Virginia Electric and Power Company (Docket No. E-22, Sub 170), and Duke Power Company (Docket No. E-7, Sub 173) general rate cases were adopted and are presently in effect.

I am a member of the Ratemaking Task Force of the EEI-EPRI National Rate Design Study. In addition, I am working with the rate design and costing group of the experimental peak-load pricing study sponsored by the Federal Energy Administration in North Carolina. Carolina Power and Light Company (CP&L) and Blue Ridge Electric Membership Corporation are the two electric utilities that are participating in this study.

Q. What is the purpose of your testimony?

A. The purpose of my testimony in this proceeding is to analyze the residential rate schedule proposed by CP&L.

Q. Have you examined the testimony and exhibits of Mr. Davis?

A. Yes. I have closely examined his testimony and exhibits regarding CP&L's proposed residential rate schedule, RES-1. I have also examined other pertinent data provided to me by CP&L.

Q. Do you agree with the residential rate design proposed by Mr. Davis?

A. Mr. Davis has consolidated the residential rate schedules approved in Docket No. E-2, Sub 264 into one residential rate schedule, RES-1. This consolidation of Schedules R-2, R-3, and R-4 into Schedule RES-1 was accomplished by setting a uniform customer charge, eliminating the water heating discount block, eliminating the 801-1500 KWH block in Schedule R-2, and creating a summer-winter price differential applicable to all customers. I agree with the basic design of the RES-1 schedule proposed by Mr. Davis. However, I do have certain suggestions to offer concerning the applicable charges in Schedule RES-1.

The consolidation of Schedules R-2, R-3, and R-4 and the creation of a summer-winter price differential applicable to all residential customers removes some of the argument against charging different prices for electricity consumed during the same time periods. Schedule RES-1 is a form of peak-load pricing (based on the continuance of system peaks in the summer months), and such pricing formats should be encouraged.

The creation of a single KWH block for summer usage and two KWH blocks for winter usage essentially follows the blocking I recommended in Docket No. E-2, Sub 264. Exhibit DWG 1 shows average monthly KWH consumption per residential customer during different time periods. The data in the two pages of this exhibit show that except for peak month consumption, average R-3 and R-4 customer usage should fall in the 0-800 KWH winter block.

Q. Have you proposed a residential rate schedule that differs from Schedule RES-1 proposed by Mr. Davis?

A. Yes. Exhibit DWG 2 shows an alternative residential rate schedule that I have designed. This schedule differs from Mr. Davis' proposed RES-1 in three respects: (1) the basic facilities charge has been lowered to $6.00 per customer per month; (2) the summer KWH rate and the initial block KWH rate for the winter period has been raised by 0.1 mill to 3.54¢ per KWH; and (3) the winter tail block rate has been increased by 1.9 mills to 2.76¢ per KWH. These changes continue the movement to recover total customer costs through a separate rate component and also tend to spread the percentage price increase for the residential class more evenly among all residential customers.

I have recommended that the basic facilities charge be increased only to $6.00 for two reasons. First, I do not believe that it is necessary to move immediately toward recovery of full customer costs by means of the basic facilities charge. The implementation

of basic facilities charges, which I recommended in Docket No. E-2, Sub 264, enabled CP&L to remove most of an inequitable distribution of customer costs through the KWH charges. The basic facilities charges implemented in Docket No. E-2, Sub 264 were $5.00 for Schedule R-2, $4.55 for Schedule R-3, and $4.40 for Schedule R-4. Raising each of these to $6.00 will enable CP&L to recover an even greater portion of the customer costs through a separate charge. However, customer costs differ for different classes of residential customers. Exhibit DWG 3 shows that customer-related costs for R-2 Customers exceed similar costs for R-3 and R-4 customers by nearly $1.50. Note that the average customer costs for the residential class exceed the customer costs for R-3 and R-4 customers. Second, if rates are to be raised, I believe that more emphasis should be placed on the recovery of demand- and energy-related costs than on the recovery of customer costs. This does not mean that I consider customer costs to be unimportant. I do believe, however, that since rate increases are requested primarily because of costs incurred in building facilities to meet increasing kilowatt demands, proper price signals should be given to consumers in order to show them that increased consumption, particularly during certain time periods, ultimately leads to new construction demands and requests for rate relief.

I have recommended that the winter tail block KWH rate be increased by 1.9 mills over the winter tail block KWH rate proposed by Mr. Davis. Winter heating loads have been induced by the establishment

of low tail block rates for all-electric customers. This treatment has been justified by citing the higher load factors and cost-related differences of R-2 customers. Exhibit DWG 4 shows, however, that the annual load factor of R-2 customers has declined steadily since 1972. This means that recovery of cost-related items for R-2 customers must be recovered by revenues from less KWH sales (less KWH sales as a percentage of potential KWH sales). In addition, Exhibit DWG 5 shows that in the 1976-77 winter season, CP&L's winter system peak exceeded the previous summer system peak. While this is not proof that CP&L is becoming a winter-peaking system, it does indicate that winter loads should not be encouraged by the residential rate structure as much as such loads have been encouraged in the past.

Monthly bill comparisons are made in Exhibit DWG 6. In the summer, monthly bills under either the CP&L RES-1 rate or the rate that I have proposed will be almost identical. However, in the winter, the monthly bills for high usage customers will be about $2.00 to $4.00 higher under my proposed rate than under the CP&L RES-1 rate.

The percentage increases in monthly bills under the CP&L RES-1 rate and my proposed rate are shown on Exhibit DWG 7, pages 1 and 2. Note that high levels of consumption in the winter by R-3 and R-4 customers actually result in lower bills for these customers. This is due to the consolidation of the rate schedules and the non-existance of a summer-winter price differential in the current R-3 and R-4 rate

schedules. I believe that the rate schedule I have proposed distributes the rate increase more equitably among all residential customers than does Mr. Davis' proposed Schedule RES-1. I do not believe that either schedule will promote wasteful and inefficient uses of electricity. I do believe that the winter tail block KWH rate should be higher than the rate proposed by Mr. Davis. In addition, I do not feel that the Commission should at this time increase the basic facilities charge to a level in excess of the $6.00 per customer per month that I have proposed. Once the final determination has been made on both CP&L's revenue requirement and the amount of fuel costs to be included in the base rates, adjustments on the KWH charges that I have proposed can be made.

Q. Dr. Goins, does this conclude your testimony?

A. Yes.

AVERAGE MONTHLY KWH CONSUMPTION
PER CUSTOMER[1]

Rate Schedule

Period	R-2	R-3 (KWH/Customer)	R-4
6-30-76[2]	1591	826	421
1975	1587	828	418
1974	1643	814	397
1973	1853	853	406
1972	1760	810	384

[1]System averages
[2]Test year 12 months ended 6-30-76

KWH CONSUMPTION PER CUSTOMER DURING MONTHS OF SUMMER AND WINTER PEAKS[1]

Period	Rate Schedule R-2	R-3 (KWH/Customer)	R-4
6-30-76			
S	1,412	919	541
W	2,986	912	435
1975			
S	1,412	919	541
W	1,940	784	381
1974			
S	1,388	959	512
W	2,336	804	376
1973			
S	1,579	1,070	558
W	1,919	772	358
1972			
S	1,427	958	521
W	2,123	778	353

[1]System averages

[2]S = Summer; W = Winter

STAFF PROPOSED RESIDENTIAL RATES

Schedule RES-1

Summer Billing Months (July-October)

$6.00	Basic facilities charge
3.54¢	per KWH for all KWH

Winter Billing Months (November-June)

$6.00	Basic facilities charge
3.54¢	per KWH for the first 800 KWH
2.76¢	per KWH for all over 800 KWH

CP&L UNIT COSTS[1]

Schedule	Present Rates Annualized		Proposed Rates Annualized	
	Demand+ Energy (¢/KWH)	Customer ($/Customer/Mo.)	Demand+ Energy (¢/KWH)	Customer ($/Customer/Mo.)
R-2	2.7371	9.00	3.0822	10.04
R-3	2.8683	7.59	3.3370	8.58
R-4	2.7707	7.30	3.2406	8.21
Total	2.8111	7.85	3.2330	8.84

[1]System data for 12 months ended June 30, 1976

ANNUAL LOAD FACTORS[1]

Rate Schedule

Year	R-2	R-3 (%)	R-4
1975	59.48	48.78	42.68
1974	62.27	48.54	43.93
1973	66.59	46.69	42.17
1972	76.28	57.93	49.61

[1]Computed on a coincident peak responsibility basis; KW demands measured at customer meter level

SYSTEM PEAK DEMANDS

Period	MW Demand
S[1] 1976	5121
W[2] 1976-77	5509
S 1975	5060
W 1975-76	4968
S 1974	4771
W 1974-75	4261
S 1973	4711
W 1973-74	4219
S 1972	4119
W 1972-73	3957
S 1971	3625
W 1971-72	3625

[1]S = summer

[2]W = winter

MONTHLY BILL COMPARISONS

KWH Usage	Present Rates				Proposed Rates			
	R-2		R-3	R-4	CP&L RES-1		Staff Proposed	
	Summer	Winter			Summer	Winter	Summer	Winter
0	$5.00	$5.00	$4.55	$4.40	$6.50	$6.50	$6.00	$6.00
100	8.34	8.34	7.89	7.74	10.03	10.03	9.54	9.54
500	20.77	20.77	20.32	21.03	24.15	24.15	23.70	23.70
1000	35.11	34.91	34.66	37.08	41.80	39.88	41.40	39.84
1500	50.56	49.86	50.11	52.53	59.45	52.73	59.10	53.64
2000	66.01	60.61	65.56	67.98	77.10	65.58	76.80	67.44
3000	96.91	82.11	96.46	98.88	112.40	91.28	112.20	95.04

COMPARISONS OF PERCENTAGE INCREASES IN MONTHLY BILLS: CP&L RES-1 VERSUS PRESENT RATES

Rate Schedules

KWH Usage	R-2		R-3		R-4	
	Summer	Winter	Summer	Winter	Summer	Winter
			(%)			
0	30.00	30.00	42.86	42.86	47.73	47.73
100	20.26	20.26	27.12	27.12	29.59	29.59
500	16.27	16.27	18.85	18.85	14.84	14.84
1000	19.05	14.24	20.60	15.01	12.73	7.55
1500	17.58	5.76	18.64	5.23	13.17	0.38
2000	16.80	8.20	17.60	0.03	13.42	(3.53)[1]
3000	15.98	11.17	16.52	(5.37)	13.67	(7.69)

[1]Numbers in parentheses denote percentage price decreases

COMPARISONS OF PERCENTAGE INCREASES
IN MONTHLY BILLS: STAFF PROPOSED RESIDENTIAL
RATES VERSUS PRESENT RATES

Rate Schedules

KWH Usage	R-2		R-3		R-4	
	Summer	Winter	Summer	Winter	Summer	Winter
			(%)			
0	20.00	20.00	31.87	31.87	36.36	36.36
100	14.39	14.39	20.91	20.91	23.26	23.26
500	14.11	14.11	16.63	16.63	12.70	12.70
1000	17.92	14.12	19.45	14.95	11.65	7.44
1500	16.89	7.58	17.94	7.04	12.51	2.11
2000	16.34	11.27	17.14	2.87	12.97	(0.79)[1]
3000	15.78	15.75	16.32	(1.47)	13.47	(3.88)

[1]Numbers in parentheses denote percentage price decreases