ELECTRIC METHODOLOGY AND FORECASTS

FOR

CUSTOMERS, SALES AND REVENUES

1993 - 2012

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Short Range Methodology and Forecasts

For

Electric Customers and Sales

1993 − 1994

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I. SHORT RANGE METHODOLOGY AND FORECASTS

This chapter presents the development of the short range electric sales forecasts for the Company. The 1993 and 1994 monthly forecasts for electric customers, average usage, and total usage are developed according to company class and rate structures with electric industrial customers further classified into SIC (Standard Industrial Classification) codes and residential customers classified by housing type (single family, multi-family and mobile homes) and by those customers with electric space heating and those without electric space heating. For each forecasting group, customers and either total usage or average usage was estimated for each month of the forecast period. The missing value of the three was obtained using the relationship (Total usage = number of customers * average usage)[1]. The forecasts for these variables are developed using one of two short range methodologies.

The short range methodologies used to develop these models are determined primarily by available data, both historical and forecast. Monthly sales data by class and rate are generally available historically. Monthly heating and cooling degree data for Columbia and Charleston are also available historically, and may be forecast using averages based on NOAA normals[2]. Therefore, only sales, weather, and time dependent variables were used in the short range forecast. In general, the forecast groups fall into two classifications, weather sensitive and non-weather sensitive.

For the weather sensitive classes, regression analysis is the methodology used, while for the non-weather sensitive classes, time series analysis based on the autoregressive integrated moving average (ARIMA) approach of Box-Jenkins is used.

The short range forecast developed from these methodologies is also adjusted for marketing programs, new industrial loads, or terminated contracts as discussed in Section 3.

1. Models Based on Regression

Regression analysis is a method of developing an equation which relates one variable (such as usage) to one or more other variables which should explain the first (such as weather or time). This method is mathematically contrived so that the resulting combination of explanatory variables produces the smallest error between the historic actual values and those estimated by the regression. The output of the regression analysis provides an equation for the variable being explained. In the equation, the variable being explained equals the sum of the explanatory variables multiplied by an estimated coefficient. Several statistics which indicate the success of the regression analysis fit are shown for each model. The indicators are R-SQUARE, Mean Squared Error of the Regression, Durbin-Watson Statistic and the T-Statistics of the Coefficient. The T-Statistics are shown in parenthesis under each variable in the equation. PROC REG of the Statistical Analysis System (SAS)[3] was used to estimate all regression models. PROC AUTOREG of (SAS/ETS)[4] was used if

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autocorrelation, as indicated by the Durbin-Watson statistic, was present in the model.

To develop short-term models for monthly average use based on regression analysis, several elements are needed:

1. A historical data base of monthly activity (customers, kilowatt hours, average use).

2. A historical data base of monthly values for potential independent variables; and,

3. The availability of, or ability to, forecast values of the independent variables for 24 to 36 months in the future.

An assessment of the current data bases quickly limited the number of potential independent variables to weather-related variables, for which 30-year normals[2] could be used to forecast future months, and variables that were functions of time.

Two variables were used extensively in developing average use models: heating degree days (HDD) and cooling degree days (CDD). A month's value for HDD and CDD is the average of the values for Charleston and Columbia. The base for degree days is 65°. In order to account for cycle billing, the degree day values were disaggregated into degree days for: (1) the first half of the previous month; (2) the second half of the previous month; (3) the first half of the current month; and (4) the second half of the current month. Billing sales for a month may actually reflect consumption that occurred in the previous month based on weather conditions in that period and also consumption occurring in the

current month. Therefore, this method should more accurately reflect the impact of weather variations on the consumption data. The second half of the month was put on a fifteen day basis based on the assumption that the average number of days in a billing period is 30.

The development of average use models began with plots of the disaggregated HDD and CDD data versus average use by month. This process led to the grouping of months with similar average use patterns. Summer and winter groups were chosen with the summer models including the months of May to October and the winter models including the months of November through April. For each of these groups, an average use model was developed. Total usage models were developed with a similar methodology for the municipal and cooperative customers. For these customers, HDD and CDD for the current month were used since their usage does not span two months for billing purposes.

The plots also revealed significant changes in average use over time. Three types of variables were used to measure the effect of time on average use:

1. Number of months since a base period;

2. Dummy variable indicating before or after a specific point in time; and,

3. Dummy variable for a specific month or months.

The resultant models are given in Section 4. When "normal" values of HDD and CDD were used to generate forecast values through December 1994, some models revealed a decreasing trend in average

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use.   This trend is consistent with conservation efforts and improvements in energy efficiency.

2. ARIMA Models

Autoregressive integrated moving average (ARIMA) procedures have been used extensively in developing the 1993 and 1994 forecasts. For various class/rate groups, they have been used to develop customer estimates, average use estimates, and total use estimates. A complete list of the use of ARIMA models is given in Section 3.

ARIMA procedures were developed for the analysis of time series data; i.e., sets of observations generated sequentially in time. This Box-Jenkins approach is based on the assumption that the behavior of a time series is due to one or more identifiable influences. This method recognizes three effects that a particular observation may have on subsequent values in the series:

1. A decaying effect leads to the inclusion of autoregressive (AR) terms;

2. A long-term or permanent effect leads to integrated (I) terms; and,

3. A temporary or limited effect leads to moving average (MA) terms.

Seasonal factors may be explained by adding additional terms of each type (AR, I, or MA). Finally, a trend parameter may be added. A trend parameter is frequently needed when modeling a differenced series whose mean is significantly different from zero.

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The ARIMA procedure models the behavior of a variable that forms an equally spaced time series with no missing values. The mathematical model is written:

$$Z_t = u + \Psi_i(B) \, X_{i,t} + \Theta(B)/\Phi(B) \, a_t$$

This model expresses the data as a combination of past values of the random shocks and past values of the other series, where:

t   indexes time

B   is the backshift operator, that is $B \, X_t = X_{t-1}$

Z_t is the original data or a difference of the original data

$\Phi(B)$ is the autoregressive operator, $\Phi(B) = 1 - \Phi_1 B - \ldots - \Phi_p B^p$

u   is the constant term

$\Theta(B)$ is the moving average operator, $\Theta(B) = 1 - \Theta_1 B - \ldots - \Theta_q B^q$

a_t is the independent disturbance, also called the random error

$X_{i,t}$ is the ith input time series

$\Psi_i(B)$ is the transfer function weights for the ith input series (modeled as a ratio of polynomials)

$\Psi_i(B)$ is equal to $\omega_i(B)/\delta_i(B)$, where $\omega_i(B)$ and

$\delta_i(B)$ are polynomials in B.

A three-step iterative process of identification, estimation, and diagnostic checking is used to determine the order of a time series. The autocorrelation and partial autocorrelation functions are used to identify a tentative model for univariate time series. This tentative model is estimated. After the tentative model is fitted to the data, various checks are performed to see if the model is appropriate. These checks involve analysis of the residual series created by the estimation process and often lead to refinements in the tentative model. The iterative process is repeated until a satisfactory model is found.

Many computer packages perform this iterative analysis. PROC ARIMA in the Statistical Analysis System Econometric and Time Series (SAS/ETS)[4] Library was used in developing the ARIMA models for the 1993 and 1994 forecasts.

ARIMA models reflect system "inertia" and are, therefore, generally appropriate only for short-term forecasting. They can prove unreliable when factors which influence energy use differ from historical patterns. However, the availability of the SAS/ETS Library makes updating short-term models periodically a reasonable activity. Thus, it is possible to respond to changes in energy use trends as they develop.

The attractiveness of ARIMA models comes from data requirements. ARIMA models utilize data about past energy use or customers to forecast future energy use or customers. Past history on energy use and customers serves as a proxy for all the measures of factors underlying energy use and customers when other variables

were not available. Univariate ARIMA models were used to forecast average use or total usage when weather-related variables did not significantly affect energy use.

Footnotes

1. Throughout this document, the symbol '*' is used to denote multiplication.

2. The 30-year normals were based on data from 1961 to 1990 published by the National Oceanic and Atmospheric Association.

3. SAS Institute, Inc., SAS/STAT^{tm} _Guide For Personal Computers_, Version 6 Edition. Cary, NC: SAS Institute, Inc., 1987. 1028 pp.

4. SAS Institute, Inc., SAS/ETS _User's Guide_, Version 6, First Edition. Cary, NC: SAS Institute, Inc., 1988. 560 pp.

3. Electric Sales Assumptions

For short-term forecasting, 43 forecasting groups have been defined using the Company's customer class and rate structure. Industrial (Class 30) Rate 23 has been further divided using standard industrial classification (SIC) codes. The residential class was disaggregated into those customers with electric space heating and those without electric space heating and by housing type (single family, multi-family, and mobile homes). Each municipal and cooperative account represents a forecasting group. Table 1 contains the definition for each group and Table 2 identifies the methodology used and the values forecasted by forecasting groups. The specific models are shown in Section 4 with the appropriate statistics and the final forecast appears in Section 5.

The residential, commercial, and industrial class forecasts were also adjusted for each demand-side program that proved to be economical in the Integrated Resource Planning process. Those demand-side alternatives that impact the electric sales forecast were residential great appliance trade-up, residential home energy check, residential thermal storage, commercial ice storage, commercial high efficiency chillers, commercial relamping, variable speed motors, high efficiency fluorescent ballast, high efficiency motors, off-peak water heating, roof top package units, and high efficiency dual fuel heat pumps. The adjustment for the residential class was +12.5 millions of kWh and +2.5 millions of kWh for 1993 and 1994, respectively, for the commercial class it

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was -17.3 millions of kWh and -44.2 millions of kWh for 1993 and 1994 respectively, and for the industrial class it was -20.3 millions of kWh and -37.9 millions of kWh for 1993 and 1994, respectively. For all classes, the monthly adjustment was assumed to be the same. The industrial class sales were also increased for the forecast for Savannah River Plant which assumed a base load of 33.215 millions of kWh per month or 398.58 millions of kWh per year. The additional load assumes the K-reactor will operate for 8 months in 1993 from May to December. This is an additional 13.14 millions of kWh per month or 105.12 millions of kWh for 1993. The total load is 503.7 millions of kWh for 1993 and 398.58 for 1994.

Other adjustments that were made include: (1) Central Cooperative Limehouse was deleted from the forecast in February, 1993; (2) the forecast for Owen Steel was increased by 50% to account for an expansion at their plant that would not be reflected in the historical data; and (3) sales for SIC 24 were increased by 2 million kWh per month to correct for Georgia Pacific being partially shutdown for the majority of 1992.

The results of the forecast procedure show an overall increase of 1.5% in total territorial sales from 1993 to 1994 or 2.1% excluding the additional Savannah River Plant load in 1993. The estimated 3.6% growth for 1993 over 1992 is based on normal weather and two additional industrial loads in 1993, Savannah River Plant and Owen Steel.

In the residential sector, sales will increase at 2.6%, in the period 1993 to 1994, with the majority of the growth in the space

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heating sector. Residential customers are expected to increase 1.5% or approximately 6,200, with an increase of 4,770 in space heating and 1,430 in non-space heating.

As a result of the additional Savannah River Plant load in 1993, industrial sales decrease .6% in 1994. Without the additional Savannah River Plant load, industrial sales will increase at 1.6% from 1993 to 1994. Sales in the remainder of the classes are expected to increase 1993 to 1994 as follows: Commercial (1.9%); Street Lighting (0.0%); Other Public Authority (2.7%); Municipals (3.2%); and Cooperatives (4.5%).

The forecast for Company Use assumes a 3% growth rate forecast each year. Unaccounted for energy is forecasted as 5% of total territorial sales. The monthly allocations for unaccounted for were based on a regression model using normal total degree days for the current month and the previous month. The model is shown in Section 4. The monthly allocations for Company Use were based on historical data.

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TABLE 1: Short-Term Forecasting Groups, 1993-1994

CLASS NUMBER	CLASS NAME	RATE/SIC DESIGNATION		COMMENT
10	Residential Non-Space Heating	Rate 8	Single Family Multi Family	Rates 1, 2, 5, 6, 7, 8, 25, 26, 62, 64, 67, 68, 69
910	Residential Space Heating		Mobile Homes	Rates 1, 2, 7, 8
20	Commercial Non-Space Heating	Rate 9		Small General Service
		Rate 12		Churches and Schools
		Rate 20		Medium General Service
		Rate 23		Large General Service
		Rate 28		
		Other		Rates 10, 11, 14, 16, 24, 25, 26, 29, 60, 62, 64, 67, 68, 69
920	Commercial Space Heating	Rate 9		Small General Service
30	Industrial Non-Space Heating	Rate 9		Small General Service
		Rate 20		Medium General Service
		Rate 23, SIC 22		Textile Mill Products
		Rate 23, SIC 24		Lumber, Wood Products, Furniture and Fixtures (SIC Codes 24 and 25)
		Rate 23, SIC 26		Paper and Allied Products
		Rate 23, SIC 28		Chemical and Allied Products
		Rate 23, SIC 30		Rubber and Miscellaneous Products
		Rate 23, SIC 32		Stone, Clay, Glass and Concrete Products
		Rate 23, SIC 33		Primary Metal Industries; Fabricated Metal Products; Machinery; Electric and Electronic Machinery, Equipment and Supplies; and Transportation Equipment (SIC Codes 33, 34, 35, 36 and 37)
		Rate 23, SIC 91		Executive, Legislative and General Government (except Finance)
		Rate 23, SIC 99		Other or Unknown SIC Code*
		Rate 60		Large General Service
		Other		Rates 25 and 26
930	Industrial Space Heating	Rate 9		Small General Service
60	Street Lighting			Rates 3, 9, 17, 25, 26, 29, 62, 63 and 69
70	Other Public Authority	Rate 3 and 29		
		Rates 65 and 66		Formerly Rate 60
92	Municipal	Rate 92		Three Individual Accounts
97	Cooperative	Rate 61		Seven Individual Accounts

* Includes small industrial customers from all SIC classifications that were not previously forecasted individually.

Note: Industrial Rate 23 also includes Rate 24 and Rate 27.

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Table 2.

Summary of Methodologies Used to Produce
1993 and 1994 Short Range Forecast

Value Forecasted	Methodology	Forecasting Groups
Average Use	Regression	Class 10, All Groups Class 910, All Groups Class 20, Rates 9, 12, 20 Class 920, Rate 9 Class 70, Rate 3
Total Usage	ARIMA	Class 20, Rates 23, 99 Class 30, All Rates except 60, SRP and Union Camp Class 930, Rate 9 Class 60 Class 70, Rates 65, 66
	Regression	Class 92, All Accounts Class 97, All Accounts

Customers	ARIMA	Class 10, All Groups
		Class 910, All Groups
		Class 20, All Rates except 28
		Class 920, Rate 9
		Class 30, All Rates except
		     60, 99, and 23, for
		     SIC = 22, 24, 26, 28, 30,
		         32, 33, and 91
		Class 930, Rate 9
		Class 60
		Class 70, Rate 3

4. Models For The Short Range Forecasts

A. Residential Models

B. Commercial Models

C. Industrial Models

D. Street Lighting Models

E. Other Public Authority Models

F. Municipal Models

G. Cooperative Models

H. Unaccounted For Model

Note: The notation used here for the ARIMA models is consistent with the output of PROC ARIMA in the SAS/ETS Library.

Variable Definitions

Regression Models:

Variable		Definition
CDD	=	Cooling degree days for the month
LCDD1	=	Cooling degree days for the first half of the previous month
LCDD2 *	=	Cooling degree days for the second half of the previous month
CDD1	=	Cooling degree days for the first half of the month
CDD2 *	=	Cooling degree days for the second half of the month
HDD	=	Heating degree days for the month
LHDD1	=	Heating degree days for the first half of the previous month
LHDD2 *	=	Heating degree days for the second half of the previous month
HDD1	=	Heating degree days for the first half of the month
HDD2 *	=	Heating degree days for the second half of the month
TDD2	=	Total degree days for the second half of the month
LTDD2	=	Total degree days for the second half of the previous month
AVG	=	Average use in kWh
GWH	=	Millions of kWh
TIME	=	Number of months since the first historical observation.
TIME2	=	TIME if date is between January, 1991 and May, 1992 0, otherwise
TIME3	=	TIME if date is greater than September, 1990 0, otherwise
JAN	=	1, if month = January 0, otherwise

| FEB | = | 1, if month = February |
| | | 0, otherwise |

| MAR | = | 1, if month = March |
| | | 0, otherwise |

| APR | = | 1, if month = April |
| | | 0, otherwise |

| MAY | = | 1, if month = May |
| | | 0, otherwise |

| JUN | = | 1, if month = June |
| | | 0, otherwise |

| JUL | = | 1, if month = July |
| | | 0, otherwise |

| AUG | = | 1, if month = August |
| | | 0, otherwise |

| SEP | = | 1, if month = September |
| | | 0, otherwise |

| OCT | = | 1, if month = October |
| | | 0, otherwise |

| NOV | = | 1, if month = November |
| | | 0, otherwise |

| DEC | = | 1, if month = December |
| | | 0, otherwise |

| Yyrmo | = | 1, if date is equal to a specific month and year |
| | = | 0, otherwise |

| Yyrmomo | = | 1, if date is equal to two months or between two months in a specific year |
| | | 0, otherwise |

| YRGRyrmo | = | 1, if date is greater than a specific year and month |
| | | 0, otherwise |

* 15 day basis

Arima Models:

Z_t = number of customer in month t, or average use in month t in KWH, or total usage in month t in KWH or GWH

a_t = Random "shock" in month t

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A.   Residential Models

Residential Non-Space Heating

1. Single Family Homes

AVERAGE USE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: AVG = 698.998 + .215 * LHDD2 + .201 * HDD1 + .175 * HDD2
              (56.66)   (4.53)   (2.85)   (3.34)

        + 1.122 * TIME + 57.473 * JAN - 32.043 * MAR
          (3.96)   (4.84)   (-3.07)

Statistics: R^2 =   .8831
Durbin-Watson   =   1.854 with first order autocorrelation = .004
MSE   = 629.222

AVERAGE USE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: AVG = 392.443 + .344 * LCDD1 + 1.957 * LCDD2 + 1.729 * CDD1
              (12.33)   (2.51)   (9.20)   (12.65)

        + 2.422 * TIME + 59.336 * MAY - 141.913 * Y890910
          (4.35)   (2.12)   (-4.28)

Statistics: R^2 =   .9803
Durbin-Watson   =   2.314 with first order autocorrelation = -.170
MSE   = 1987.544

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)(1 - B^{12}) Z_t = (1 - \theta_1 B^1 - \theta_2 B^2)(1 - \theta_{12} B^{12}) a_t$

$$Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13} + a_t - \theta_1 a_{t-1} - \theta_2 a_{t-2} - \theta_{12} a_{t-12}$$

$$+ \theta_1 \theta_{12} a_{t-13} + \theta_2 \theta_{12} a_{t-14}$$

Parameter Values: θ_1 =   -.453

                θ_2 =   -.184

                θ_{12} =   .538

Residential Non Space-Heating

2. Multi Family Homes

AVERAGE USE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: $AVG = 391.685 + .113 * LHDD2 + .218 * HDD1 + .117 * HDD2$
          (43.22)   (2.97)   (4.03)   (2.96)

             $+ 1.361 * TIME + 79.282 * Y9001 + 82.245 * Y8911 - 22.035 * MAR$
               (6.42)   (3.81)   (4.10)   (-2.82)

Statistics: $R^2 =$ .8662
Durbin-Watson   =   1.83 with first order autocorrelation = .045
MSE   = 349.455

AVERAGE USE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: $AVG = 236.945 + .292 * LCDD1 + .981 * LCDD2 + 1.011 * CDD1$
          (17.41)   (3.64)   (7.45)   (11.78)

             $+ 2.686 * TIME - 123.223 * Y890910$
              (7.66)   (-5.92)

Statistics: $R^2 =$ .9782
Durbin-Watson   =   2.561 with first order autocorrelation = -.283
MSE   = 792.396

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B) (1 - B^{12}) Z_t = (1 - \theta_1 B^1) (1 - \theta_{12} B^{12}) a_t$

        $Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13}$

           $+ a_t - \theta_1 a_{t-1} - \theta_{12} a_{t-12} + \theta_1 \theta_{12} a_{t-13}$

Parameter Values: $\theta_1 =$ -.212

                 $\theta_{12} =$ .682

3. Mobile Homes

AVERAGE USE MODEL FOR NOVEMBER – APRIL

Historical Data Base: January 1985 – April 1992, inclusive

Model: AVG = 482.280 + .368 * LHDD2 + .495 * HDD1 + .352 * HDD2
                (29.77)   (5.38)   (5.28)   (5.09)

            + 4.866 * TIME + 150.449 * Y9001 – 28.737 * MAR
                (12.72)   (4.01)   (–2.040)

Statistics: R^2 =   .9313
Durbin-Watson   =   1.590 with first order autocorrelation = .144
MSE   = 1138.518

AVERAGE USE MODEL FOR MAY – OCTOBER

Historical Data Base: May 1985 – May 1992, inclusive

Model: AVG = 395.844 + 1.303 * LCDD2 + 1.219 * CDD1 + 3.834 * TIME
                (21.03)   (10.69)   (10.69)   (7.91)

            – 101.400 * Y890910
                (–3.53)

Statistics: R^2 =   .9664
Durbin-Watson   =   2.350 with first order autocorrelation = –.179
MSE   = 1516.383

CUSTOMER MODEL

Historical Data Base: January 1985 – May 1992, inclusive

Model: $(1 - B)(1 - B^{12}) Z_t = (1 - \Theta_1 B^1)(1 - \Theta_{12} B^{12}) a_t$

$Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13} + a_t$

$\qquad - \Theta_1 a_{t-1} - \Theta_{12} a_{t-12} + \Theta_1 \Theta_{12} a_{t-13}$

Parameter Values: Θ_1 =   –.245

$\qquad\qquad\qquad \Theta_{12}$ =   .630

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1. Single Family Homes

AVERAGE USE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: AVG = 843.320 + .458 * LHDD1 + 1.849 * LHDD2 + 1.671 * HDD1
            (30.03)   (3.02)   (10.94)   (8.20)

           + .712 * HDD2 + 106.946 * JAN
             (4.71)   (3.14)

Statistics: R^2 =   .9697
Durbin-Watson   =   1.778 with first order autocorrelation = .092
MSE   = 5277.45

AVERAGE USE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: AVG = 795.736 + .427 * LCDD1 + 2.264 * LCDD2 + 1.777 * CDD1
            (26.30)   (2.06)   (7.52)   (8.38)

           - 90.117 * OCT - 305.216 * Y8909
            (-2.46)   (-4.79)

Statistics: R^2 =   .9733
Durbin-Watson   =   2.482 with first order autocorrelation = -.284
MSE   = 3741.546

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)^2 Z_t = (1 - \Theta_1 B^1) a_t$

      $Z_t = 2Z_{t-1} - Z_{t-2} + a_t - \Theta_1 a_{t-1}$

Parameter Values: Θ_1 =   .595

2. Multi Family Homes

AVERAGE USE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: AVG = 489.609 + .316 * LHDD1 + .937 * LHDD2 + 1.046 * HDD1
        (29.91)   (3.43)   (8.71)   (8.36)

        + .321 * HDD2 + 210.885 * Y9001 + 159.130 * Y8911
          (3.52)   (4.47)   (3.36)

Statistics: R^2 =   .9645
Durbin-Watson   =   1.693 with first order autocorrelation = .142
MSE   = 1857.48

AVERAGE USE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: AVG = 439.713 + .251 * LCDD1 + 1.065 * LCDD2 + .851 * CDD1
        (27.84)   (2.70)   (6.96)   (8.54)

        + 2.501 * TIME - 132.283 * Y890910
          (6.14)   (-5.47)

Statistics: R^2 =   .9678
Durbin-Watson   =   2.195 with first order autocorrelation = -.107
MSE   = 1067.892

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)^2 \; Z_t = (1 - \theta_1 B^1) \; a_t$

$Z_t = 2Z_{t-1} - Z_{t-2} + a_t - \theta_1 a_{t-1}$

Parameter Values: θ_1 = .751

3. Mobile Homes

AVERAGE USE MODEL FOR NOVEMBER – APRIL

Historical Data Base: January 1985 – April 1992, inclusive

Model: AVG = 607.414 + 1.483 * LHDD2 + 1.254 * HDD1 + .236 * LHDD1
          (21.87)   (11.64)   (7.91)   (2.03)

          + .617 * HDD2 + 3.650 * TIME + 145.540 * JAN + 130.534 * DEC
            (5.13)   (5.93)   (5.07)   (4.28)

Statistics: R^2 =   .9761
Durbin-Watson   =   1.675 with first order autocorrelation = .108
MSE   = 2860.08

AVERAGE USE MODEL FOR MAY – OCTOBER

Historical Data Base: May 1985 – May 1992, inclusive

Model: AVG = 574.057 + 1.533 * LCDD2 + .965 * CDD1 + 3.418 * TIME
          (25.63)   (10.67)   (6.67)   (6.09)

          + 54.182 * JUL – 156.709 * Y8909
            (2.49)   (-3.34)

Statistics: R^2 =   .9573
Durbin-Watson   =   2.447 with first order autocorrelation = -.236
MSE   = 2051.545

CUSTOMER MODEL

Historical Data Base: January 1985 – May 1992, inclusive

Model: $(1 - B)(1 - B^{12}) Z_t = (1 - \theta_1 B^1)(1 - \theta_{12} B^{12}) a_t$

$$Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13} + a_t - \theta_1 a_{t-1}$$

$$- \theta_{12} a_{t-12} + \theta_1 \theta_{12} a_{t-13}$$

Parameter Values: θ_1 =   -.322

θ_{12} =   .585

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B.   Commercial Models

Commercial Rate 9, Non-Space Heating

AVERAGE USE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: AVG = 2234.016 + .321 * LHDD2 + .358 * HDD1 - 2.400 * TIME
            (50.59)   (2.05)   (2.11)   (-2.58)

               + 136.659 * NOV - 79.033 * MAR
                 (3.50)   (-2.32)

Statistics: R^2 =   .5104
Durbin-Watson   =   1.579 with first order autocorrelation = .178
MSE   = 6754.753

AVERAGE USE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: AVG = 2088.191 + .535 * LCDD1 + 2.983 * LCDD2 + 2.022 * CDD1
            (50.99)   (2.30)   (7.78)   (8.23)

          - 2.488 * TIME - 2.729 * TIME2 - 368.871 * Y890910
            (-1.85)   (-2.42)   (-5.96)

       - 129.430 * AUG
          (-3.30)

Statistics: R^2 =   .9689
Durbin-Watson   =   2.206 with first order autocorrelation = -.130
MSE   = 6481.35

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - \phi_1 B)(1 - B) Z_t = \theta_0 + (1 - \theta_{12} B^{12}) a_t$

$Z_t = Z_{t-1}(1 + \phi_1) - \phi_1 Z_{t-2} + \theta_0 - \theta_{12} a_{t-12} + a_t$

Parameter Values: $\theta_0 = 56.892$

$\phi_1 = .330$

$\theta_{12} = -.245$

26

AVERAGE USE MODEL FOR NOVEMBER – APRIL

Historical Data Base: January 1985 – April 1992, inclusive

Model: AVG = 4063.845 + 2.433 * LHDD2 + 2.389 * HDD1 – 37.809 * TIME
$\qquad$ (40.33) $\qquad$ (6.37) $\qquad$ (5.56) $\qquad$ (–15.453)

$\qquad$ + 524.923 * Y8911
$\qquad\qquad$ (2.34)

Statistics: R^2 = $\qquad$ .9155
Durbin-Watson $\qquad$ = $\qquad$ 1.405 with first order autocorrelation = .272
MSE $\qquad\qquad$ = 46948.634

AVERAGE USE MODEL FOR MAY – OCTOBER

Historical Data Base: May 1985 – May 1992, inclusive

Model: AVG = 3956.942 + 1.483 * LCDD1 + 2.197 * LCDD2 + 4.037 * CDD1
$\qquad$ (57.82) $\qquad$ (3.71) $\qquad$ (3.33) $\qquad$ (9.41)

$\qquad$ –35.166 * TIME + 637.484 * Y8509 – 632.457 * Y890910
$\qquad\qquad$ (–19.64) $\qquad\qquad$ (4.36) $\qquad\qquad$ (–6.09)

Statistics: R^2 = $\qquad$ .9726
Durbin-Watson $\qquad$ = $\qquad$ 1.786 with first order autocorrelation = .084
MSE $\qquad\qquad$ = 19696.626

CUSTOMER MODEL

Historical Data Base: January 1985 – May 1992, inclusive

Model: $(1 - B)\, Z_t = \theta_0 + (1 - \theta_1 B^1 - \theta_2 B^2 - \theta_3 B^3 - \theta_4 B^4)\, a_t$

$\qquad Z_t = Z_{t-1} + \theta_0 + a_t - \theta_1 a_{t-1} - \theta_2 a_{t-2}$

$\qquad\qquad - \theta_3 a_{t-3} - \theta_4 a_{t-4}$

Parameter Values: θ_0 = 67.30

$\qquad\qquad\qquad \theta_1$ = –.280

$\qquad\qquad\qquad \theta_2$ = –.102

$\qquad\qquad\qquad \theta_3$ = –.267

$\qquad\qquad\qquad \theta_4$ = –.481

AVERAGE USE MODEL FOR NOVEMBER – APRIL

Historical Data Base: January 1985 – April 1992, inclusive

Model: AVG = 3479.947 + 1.626 * LHDD1 + 5.103 * LHDD2 + 4.514 * HDD1
              (20.28)   (2.59)   (7.72)   (6.32)

              + 22.612 * TIME – 525.052 * APR + 963.836 * Y8911
                 (6.77)   (–3.94)   (3.07)

              – 384.097 * JAN
                  (–2.86)

Statistics: R^2 =   .9256
Durbin-Watson   =   2.143 with first order autocorrelation = –.078
MSE   =   84907.761

AVERAGE USE MODEL FOR MAY – OCTOBER

Historical Data Base: May 1985 – May 1992, inclusive

Model: AVG = 3126.812 + 2.307 * LCDD1 + 5.887 * LCDD2 + 5.422 * CDD1
              (26.64)   (3.33)   (5.62)   (6.35)

              + 45.897 * TIME – 578.407 * JUN – 2282.408 * JUL
                 (12.48)   (–4.55)   (–16.32)

              – 2253.121 * AUG – 885.488 * Y890910 – 7.753 * TIME2
                 (–17.42)   (–5.17)   (–2.52)

Statistics: R^2 =   .9595
Durbin-Watson   =   2.053 with first order autocorrelation = –.107
MSE   =   48202.502

CUSTOMER MODEL

Historical Data Base: January 1985 – May 1992, inclusive

Model: $(1 - B)\,(1 - B^{12})\;Z_t = (1 - \theta_{12}\,B^{12})\,a_t$

   $Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13} - \theta_{12}\,a_{t-12} + a_t$

Parameter Values: θ_{12} = .730

28

AVERAGE USE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: AVG = 87593 + 18.136 * HDD1 + 13.094 * HDD2 - 422.537 * TIME
             (47.46)   (2.51)   (2.15)   (-12.93)

             + 2767.795 * NOV + 4785.603 * APR
                  (1.96)   (3.09)

Statistics: R^2 =   .8478
Durbin-Watson   =   1.587 with first order autocorrelation = .191
MSE   = 8241579.

AVERAGE USE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: AVG = 88748 + 24.954 * LCDD1 + 36.962 * LCDD2 + 55.080 * CDD1
             (61.58)   (2.889)   (2.59)   (6.14)

             - 448.920 * TIME + 11458 * Y8509 - 7644.53 * Y8608
                 (-11.79)   (3.74)   (-2.41)

             - 10107 * Y8910
                 (-3.23)

Statistics: R^2 =   .9428
Durbin-Watson   =   2.134 with first order autocorrelation = -.080
MSE   = 8608753.

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)$ $Z_t = \theta_0 + (1 - \theta_1 B^1) a_t$

         $Z_t = Z_{t-1} + a_t + \theta_0 - \theta_1 a_{t-1}$

Parameter Values: θ_0 = 9.760

                  θ_1 = -.220

TOTAL USAGE MODEL (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B^{12})$ $Z_t = \theta_0 + (1 - \theta_{12} B^{12})$ a_t

$$Z_t = Z_{t-12} + \theta_0 + a_t - \theta_{12} a_{t-12}$$

Parameter Values: $\theta_0 = 2984261$

$\theta_{12} = .731$

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)$ $Z_t = (1 - \theta_1 B^1)$ a_t

$$Z_t = Z_{t-1} + a_t - \theta_1 a_{t-1}$$

Parameter Values: $\theta_1 = -.168$

NO TOTAL USAGE MODEL

Usage estimated at 160,000 kWh per month for all months but October and November. For these two months, usage is estimated at 2,800,000 kWh per month. The annual forecast is 7,200,000 kWh per year.

NO CUSTOMER MODEL

One Customer, LNG.

Total Usage Model (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - \phi_1 B^1)(1 - B^{12}) Z_t = \theta_0 + (1 - \theta_{12}B^{12}) a_t$

$Z_t = \phi_1 Z_{t-1} + Z_{t-12} - \phi_1 Z_{t-13} + a_t + \theta_0$
$\qquad - \theta_{12} a_{t-12}$

Parameter Values:
$\theta_0 = 495075$
$\phi_1 = .741$
$\theta_{12} = .774$

CUSTOMER MODEL

Historical Data Base: January 1986 - May 1992, inclusive

Model: $(1 - B)(1 - B^{12}) Z_t = (1 - \theta_1 B^1 - \theta_2 B^2)(1 - \theta_{12} B^{12}) a_t$

$Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13} + a_t - \theta_1 a_{t-1} - \theta_2 a_{t-2} - \theta_{12} a_{t-12}$
$\qquad + \theta_1 \theta_{12} a_{t-13} + \theta_2 \theta_{12} a_{t-14}$

Parameter Values:
$\theta_1 = -.275$
$\theta_2 = -.310$
$\theta_{12} = .815$

C. Industrial Models

TOTAL USAGE MODEL (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - \phi_1 B^1)(1 - B^{12}) Z_t = (1 - \theta_{12} B^{12}) a_t$

$Z_t = \phi_1 Z_{t-1} + Z_{t-12} - \phi_1 Z_{t-13} + a_t - \theta_{12} a_{t-12}$

Parameter Values: $\phi_1 = .595$

$\theta_{12} = .387$

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B) Z_t = \theta_0 + (1 - \theta_2 B^2) a_t$

$Z_t = Z_{t-1} + \theta_0 + a_t - \theta_2 a_{t-2}$

Parameter Values: $\theta_0 = -.986$

$\theta_2 = .345$

Industrial Rate 9, Space Heating

TOTAL USAGE MODEL (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)(1 - B^{12})\ Z_t = (1 - \Theta_1 B^1)(1 - \Theta_{12} B^{12})\ a_t$

$$Z_t = Z_{t-1} + Z_{t-12}$$

$$- Z_{t-13} + a_t - \Theta_1\, a_{t-1} - \Theta_{12}\, a_{t-12} + \Theta_1 \Theta_{12}\, a_{t-13}$$

Parameter Values: $\Theta 1 = .422$

$\Theta 12 = .569$

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)\ Z_t = (1 - \Theta_2 B^2)\ a_t$

$$Z_t = Z_{t-1} + a_t - \Theta_2\, a_{t-2}$$

Parameter Values: $\Theta 2 = -.291$

TOTAL USAGE MODEL (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - \phi_1 B^1)(1 - B^{12}) \; Z_t = \theta_0 + (1 - \theta_{12} B^{12}) \; a_t$

$Z_t = \phi_1 Z_{t-1} + Z_{t-12} - \phi_1 Z_{t-13} + a_t + \theta_0 - \theta_{12} a_{t-12}$

Parameter Values: $\theta_0 \; = \; 289635.4$

$\phi_1 \; = \; .584$

$\theta_{12} \; = \; .701$

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B) \; Z_t = (1 - \theta_2 B^2) \; a_t$

$Z_t = Z_{t-1} + a_t - \theta_2 a_{t-2}$

Parameter Values: $\theta_2 \; = \; -.224$

TOTAL USAGE MODEL (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - \phi_{12}B^{12})(1 - B)\ Z_t = (1 - \theta_1 B^1)\ a_t$

$Z_t = Z_{t-1} + \phi_{12}\ Z_{t-12} - \phi_{12}\ Z_{t-13} - \theta_1\ a_{t-1} + a_t$

Parameter Values: $\theta 1 = .547$

$\phi 12 = .792$

NO CUSTOMER MODEL

Nineteen customers on SIC 22

SIC Code Definition: Textile Mill Products.

TOTAL USAGE MODEL (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - \phi_1 B^1)(1 - B^{12})\ Z_t = (1 - \theta_{12}B^{12})\ a_t$

$Z_t = \phi_1 Z_{t-1} + Z_{t-12} - \phi_1 Z_{t-13} + a_t - \theta_{12} a_{t-12}$

Parameter Values: $\phi 1 = \quad .583$

$\theta 12 = \quad .399$

Note: · This forecast was increased by 2,000,000 kWh per month to correct for Georgia Pacific being partially shutdown for the majority of 1992.

NO CUSTOMER MODEL

Three Customers on SIC 24.

SIC Code Definition: Lumber, Wood, Furniture, Fixtures.

TOTAL USAGE MODEL (GWH)

Historical Data Base: January 1985 – May 1992, inclusive

Model: $(1 - B^{12})$ $Z_t = \Theta_0 + (1 - \Theta_3 B^3)(1 - \Theta_{12} B^{12}) a_t$

$$Z_t = Z_{t-12} + \Theta_0 + a_t - \Theta_3 a_{t-3} - \Theta_{12} a_{t-12} + \Theta_3 \Theta_{12} a_{t-15}$$

Parameter Values: Θ_0 =   .698

Θ_3 =   -.247

Θ_{12} =   .666

NO CUSTOMER MODEL

Four Customers on SIC 26.

SIC Code Definition: Paper and Allied Products.

TOTAL USAGE MODEL (GWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1- B) (1 - B^{12})\ Z_t = (1- \theta_1 B^1) (1 - \theta_{12} B^{12})\ a_t$

$Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13} + a_t - \theta_1 a_{t-1} - \theta_{12}\ a_{t-12} + \theta_1 \theta_{12} a_{t-13}$

Parameter Values: $\theta_1 = .747$

$\theta_{12} = .821$

NO CUSTOMER MODEL

Seven Customers on SIC 28.

SIC Code Definition: Chemical and Allied Products.

TOTAL USAGE MODEL (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - \phi_{12}B^{12})(1 - B) \ Z_t = (1 - \theta_1 B^1)(1 - \theta_6 B^6) \ a_t$

$$Z_t = Z_{t-1} + \phi_{12} \ Z_{t-12} - \phi_{12} \ Z_{t-13} + a_t - \theta_1 \ a_{t-1} - \theta_6 \ a_{t-6} + \theta_1 \theta_6 \ a_{t-7}$$

Parameter Values: $\theta 1 \ = \ .523$

$\theta 6 \ = \ .387$

$\phi 12 \ = \ .702$

NO CUSTOMER MODEL

Seven Customers on SIC 30.

SIC Code Definition: Rubber and Miscellaneous Products.

TOTAL USAGE MODEL (GWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)(1 - B^{12})$ $Z_t = (1 - \theta_1 B^1)(1 - \theta_{12} B^{12}) a_t$

$Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13} + a_t - \theta_1 a_{t-1} - \theta_{12} a_{t-12} + \theta_1 \theta_{12} a_{t-13}$

Parameter Values: θ_1 = .733

θ_{12} = .270

NO CUSTOMER MODEL

Seven Customers on SIC 32.

SIC Code Definition: Stone, Clay, Glass, and Concrete Products.

TOTAL USAGE MODEL (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)(1 - B^{12})$ $Z_t = \theta_0 + (1 - \theta_1 B^1)(1 - \theta_{12} B^{12}) a_t$

$Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13} + \theta_0 + a_t - \theta_1 a_{t-1} - \theta_{12} a_{t-12}$

$+ \theta_1 \theta_{12} a_{t-13}$

Parameter Values: θ_0 = 29664.4

θ_1 =   .410

θ_{12} =   .779

NO CUSTOMER MODEL

Twenty-five Customers on SIC 33-37

SIC Code Definition: Primary metal, fabricated metal products, electric and electronic machinery, equipment and supplies, and transportation equipment.

43

TOTAL USAGE MODEL (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B^{12})$ Z_t = θ_0 + $(1 - \theta_{12} B^{12})$ a_t

Z_t = Z_{t-12} + θ_0 + a_t - θ_{12} a_{t-12}

Parameter Values: θ_0 = 30347.5

θ_{12} = .900

NO CUSTOMER MODEL

Two Customers on SIC 91.

SIC Code Definition: Executive, Legislative and General Government, except Finance.

TOTAL USAGE MODEL (KWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)(1 - B^{12})\ Z_t = (1 - \theta_1 B)(1 - \theta_{12} B^{12})\ a_t$

$Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13} + a_t - \theta_1 a_{t-1} - \theta_{12} a_{t-12} + \theta_1 \theta_{12} a_{t-13}$

Parameter Values: $\theta_1 \quad = \ .585$

$\theta_{12} \quad = \ .719$

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)\ Z_t = \theta_0 + (1 - \theta_1 B^1 - \theta_6 B^6)\ a_t$

$Z_t = Z_{t-1} + \theta_0 + a_t - \theta_1 a_{t-1} - \theta_6 a_{t-6}$

Parameter Values: $\theta_0 \quad = \ .048$

$\theta_1 \quad = \ .250$

$\theta_6 \quad = \ .264$

SIC Code Definition: Other or Unknown.

45

Industrial Rate 60

Account Number = '0298100580'

TOTAL USAGE MODEL (GWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B^{12})\ Z_t = \theta_0 + (1 - \theta_1 B^1)(1 - \theta_{12} B^{12})\ a_t$

$Z_t = Z_{t-12} + \theta_0 + a_t - \theta_1 a_{t-1} - \theta_{12} a_{t-12} + \theta_1 \theta_{12} a_{t-13}$

Parameter Values:

$\theta_0 = .159$

$\theta_1 = .333$

$\theta_{12} = .703$

Note: This forecast was increased by 50% for an expansion that began in September 1992.

NO CUSTOMER MODEL

One Customer, Owen Electric Steel.

46

Industrial Rate 60

Account Number = '3598300055'

NO TOTAL USAGE MODEL

Usage estimated at 33.215 GWH per month for January, 1993 - April, 1993, and 46.355 GWH per month for May, 1993 - December, 1993, and 33.215 GWH per month for January, 1994 - December, 1994.

NO CUSTOMER MODEL

One Customer, U. S. Department of Energy - Savannah River Plant.

Industrial Rate 60

Account Number = '9198000655'

TOTAL USAGE MODEL (GWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)(1 - B^{12})$ $Z_t = (1 - \theta_1 B^1)(1 - \theta_{12} B^{12}) a_t$

$$Z_t = Z_{t-1} + Z_{t-12} - Z_{t-13} + a_t - \theta_1 a_{t-1} - \theta_{12} a_{t-12} + \theta_1 \theta_{12} a_{t-13}$$

Parameter Values: $\theta_1 = .628$

$\theta_{12} = .611$

NO CUSTOMER MODEL

One Customer, Westvaco.

Industrial Rate 60

Account Number = '0298300065'

NO TOTAL USAGE MODEL

Usage Estimated at 554,539 KWH Per Month.

NO CUSTOMER MODEL

One Customer, Union Camp.

TOTAL USAGE MODEL (KWH)

Historical Data Base: January, 1985 - May 1992, inclusive

Model: $(1 - B)$ $Z_t = (1 - \theta_1 B)\, a_t$

$Z_t = Z_{t-1} + a_t - \theta_1 a_{t-1}$

Parameter Values: $\theta_1 = .590$

NO CUSTOMER MODEL

50

D. Street Lighting Models

TOTAL USAGE MODEL (GWH)

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)$ $Z_t = (1 - \theta_1 B^1)(1 - \theta_{12}B^{12}) a_t$

$Z_t = Z_{t-1} + a_t - \theta_1 a_{t-1} - \theta_{12}a_{t-12}$

$+ \theta_1 \theta_{12}a_{t-13}$

Parameter Values: $\theta_1 = .608$

$\theta_{12} = -.246$

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)$ $Z_t = \theta_0 + a_t$

$Z_t = Z_{t-1} + \theta_0 + a_t$

Parameter Values: $\theta_0 = 1.2$

E. Other Public Authority Models

AVERAGE USE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: AVG = 4448.856 + 1.207 * LHDD2 + 1.126 * HDD1 - 6.31 * TIME
            (35.89)   (2.51)   (2.12)   (-2.05)

              + 541.347 * Y891101
                   (3.29)

Statistics: R^2 =   .5121
Durbin-Watson   =   .911 with first order autocorrelation =   .517
MSE   = 73060.

From autoregression:

     AVG = 4455.894 + 1.250 * LHDD2 + 1.049 * HDD1 - 7.076 * TIME

          + 621.423 * Y891101

AVERAGE USE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: AVG = 4222.026 + 2.386 * LCDD2 + 3.139 * CDD1 -4.465 * TIME
            (38.66)   (3.21)   (4.88)   (-1.64)

              - 295.896 * AUG - 630.219 * Y890910
                   (-2.80)   (-3.87)

Statistics: R^2 =   .8043
Durbin-Watson   =   1.837 with first order autocorrelation =   .075
MSE   = 48060.74

CUSTOMER MODEL

Historical Data Base: January 1985 - May 1992, inclusive

Model: $(1 - B)\ Z_t = \theta_0 + (1 - \theta_1 B^1)\ a_t$

$Z_t = Z_{t-1} + \theta_0 + a_t - \theta_1\ a_{t-1}$

Parameter Values: θ_0 = 4.279

θ_1 = -.192

TOTAL USAGE MODEL (GWH)

Historical Data Base: January 1985 – May 1992, inclusive

Model: $(1 - B^{12})\ Z_t = \theta_0 + (1 - \theta_{12}\ B^{12})\ a_t$

$Z_t = Z_{t-12} + \theta_0 + a_t - \theta_{12}\ a_{t-12}$

Parameter Values: $\theta_0 = .847$

$\theta_{12} = .705$

NO CUSTOMER MODEL

23 Customers on Rate 66.

19 Customers on Rate 65.

Spread kWh to two rates on a percentage basis:

24% to Rate 65;
76% to Rate 66.

55

F.   Municipal Models

TOTAL USAGE MODEL FOR NOVEMBER - APRIL

Historical Data Base: March 1985 - April 1992, inclusive

Model: GWH = .956 + .001009 * HDD + .00693 * TIME - .280 * Y8512
             (23.83)   (11.96)   (6.06)   (-2.81)

Statistics: R^2 = .8179
Durbin-Watson   = 1.851 with first order autocorrelation = .037
MSE   = .00881

TOTAL USAGE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: GWH = .790 + .00117 * CDD + .010019 * TIME + .250 * Y8509
             (16.57)   (12.37)   (8.25)   (2.50)

Statistics: R^2 = .8416
Durbin-Watson   = 2.220 with first order autocorrelation = -.139
MSE   = .00927

TOTAL USAGE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: GWH = 38.615 + .01017 * HDD + .27544 * TIME - 2.460 * JAN
$\qquad$ (31.40) $\qquad$ (3.98) $\qquad$ (12.00) $\qquad$ (-2.618)

$\qquad$ - 4.977 * MAR - 2.348 * APR + 4.743 * Y8502
$\qquad$ (-5.70) $\qquad$ (-2.23) $\qquad$ (2.26)

Statistics: R^2 = .8522
Durbin-Watson $\qquad$ = 2.300 with first order autocorrelation = -.154
MSE $\qquad$ = 3.90056

TOTAL USAGE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: GWH = 32.998 + .03953 * CDD + .30407 * TIME + 5.211 * Y9005
$\qquad$ (30.54) $\qquad$ (17.88) $\qquad$ (11.05) $\qquad$ (2.32)

$\qquad$ + 6.029 * Y9007
$\qquad$ (2.62)

Statistics: R^2 = .9267
Durbin-Watson $\qquad$ = 2.368 with first order autocorrelation = -.191
MSE $\qquad$ = 4.82764

Note: Output of model spread to two accounts as follows:

$\qquad$ 42% to Account Number 2098100575;
$\qquad$ 58% to Account Number 2098100576.

TOTAL USAGE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: GWH = 2.793 + .00197 * HDD + .0714 * TIME - .025 * TIME3
            (17.87)   (7.44)   (12.96)   (-6.21)

            - .890 * Y9001 + .40346 * NOV
             (-2.81)   (3.10)

Statistics: R^2 = .8519
Durbin-Watson   = 1.945 with first order autocorrelation =.013
MSE   = .09143

TOTAL USAGE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: GWH = 2.551 + .00377 * CDD + .0921 * TIME - .035 * TIME3
            (13.995)   (10.13)   (15.24)   (-6.94)

           + 1.1126 * Y8808 + 1.544 * Y9107
             (2.99)   (3.88)

Statistics: R^2 = .9217
Durbin-Watson   = 1.795 with first order autocorrelation = .091
MSE   = .13020

G.   Cooperative Models

TOTAL USAGE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: GWH = 2.216 + .00291 * HDD + .02463 * TIME + 1.231 * YRGR8802
              (16.79)   (11.85)   (3.99)   (7.35)

              - .29052 * MAR
                 (-2.56)

Statistics: R^2 = .9272
Durbin-Watson   = 2.304 with first order autocorrelation = -.177
MSE   = .08080

TOTAL USAGE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: GWH = 1.710 + .00465 * CDD + .02514 * TIME + 1.5865 * YRGR8802
               (12.16)   (14.87)   (3.97)   (9.87)

              + .8037 * Y8610 + .2631 * JUL
                 (2.85)   (2.03)

Statistics: R^2 = .9630
Durbin-Watson   = 2.439 with first order autocorrelation = -.250
MSE   = .07111

TOTAL USAGE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: GWH = .149614 + .000260 * HDD + .005087 * TIME + .163 * Y8912
                    (9.40)   (8.40)   (12.66)   (4.32)

                + .139 * Y8712
                    (3.89)

Statistics: R^2 = .8701
Durbin-Watson   = 1.535 with first order autocorrelation = .197
MSE   = .00125

TOTAL USAGE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: GWH = .100689 + .000416 * CDD + .00538 * TIME + .0677 * Y9007
                    (5.26)   (10.14)   (14.74)   (2.20)

                + .0837 * Y8807 + .0352 * OCT
                    (2.78)   (2.09)

Statistics: R^2 = .9174
Durbin-Watson   = 1.595 with first order autocorrelation = .194
MSE   = .00086

Note: Usage set to zero for February 1993 forward due to contract
           termination.

TOTAL USAGE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: GWH = .60740 + .00057 * HDD + .01101 * TIME + .2456 * Y8912
                 (15.68)   (7.74)   (11.76)   (2.803)

              - .0683 * MAR
                (-2.08)

Statistics: R^2 = .8439
Durbin-Watson   = 1.538 with first order autocorrelation = .227
MSE   = .00678

TOTAL USAGE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: GWH = .4061 + .0011 * CDD + .0137 * TIME - .404 * Y8706
                 (9.76)   (13.25)   (12.78)   (-4.71)

              + .319 * Y8508 + .273 * Y9007
                (3.66)   (3.11)

Statistics: R^2 = .9165
Durbin-Watson   = 1.851 with first order autocorrelation = .060
MSE   = .00703

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Cooperative Account No. 7098700340
Berkeley Cooperative - Jedburg

TOTAL USAGE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: $GWH = .6671 + .00146 * HDD + .0292 * TIME - .425 * Y8911$
              (7.19)   (8.17)   (12.59)   (-2.06)

              $+ .460 * Y8912 + .5905 * Y8711$
                (2.13)   (2.86)

Statistics: R^2 = .8516
Durbin-Watson   = .872 with first order autocorrelation = .507
MSE   = .04118

From autoregression:

        $GWH = .6544 + .0015 * HDD + .0293 * TIME - .5323 * Y8911$

            $+ .3590 * Y8912 + .5721 * Y8711$

TOTAL USAGE MODEL FOR MAY - OCTOBER

Historical Data Base: May, 1985 - May, 1992, inclusive

Model: $GWH = .4522 + .0024 * CDD + .0360 * TIME - .655 * Y890910$
              (4.28)   (11.17)   (13.34)   (-4.06)

Statistics: R^2 = .8889
Durbin-Watson   = .778 with first order autocorrelation = .590
MSE   = .04727

From autoregression:

        $GWH = .5109 + .0023 * CDD + .0349 * TIME - .696 * Y890910$

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TOTAL USAGE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: GWH = .3291 + .00039 * HDD + .0039 * TIME + .0401 * NOV
              (13.85)   (8.92)   (6.75)   (1.86)

              - .1532 * Y9003 + .1956 * Y9112
                  (-2.98)   (3.77)

Statistics: R^2 = .7939
Durbin-Watson   = 1.419 with first order autocorrelation = .276
MSE   = .00249

TOTAL USAGE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: GWH = .3065 + .000510 * CDD + .00406 * TIME - .0457 * MAY
              (9.55)   (8.13)   (5.40)   (-1.86)

              + .1414 * Y8508 + .1728 * Y9107
                  (2.34)   (2.81)

Statistics: R^2 = .8069
Durbin-Watson   = 1.252 with first order autocorrelation = .331
MSE   = .00337

TOTAL USAGE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: GWH = .8423 + .0017 * HDD + .0395 * TIME + .2384 * DEC
            (9.26)   (9.81)   (18.09)   (2.80)

            + .1829 * NOV
              (2.21)

Statistics: R^2 = .9098
Durbin-Watson   = 1.792 with first order autocorrelation = .068
MSE   = .03713

TOTAL USAGE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: GWH = .6935 + .00260 * CDD + .0492 * TIME - .742 * Y890910
            (6.78)   (12.10)   (18.81)   (-4.75)

            - .192 * JUN
              (-2.14)

Statistics: R^2 = .9306
Durbin-Watson   = 1.596 with first order autocorrelation = .184
MSE   = .04432

TOTAL USAGE MODEL FOR NOVEMBER - APRIL

Historical Data Base: January 1985 - April 1992, inclusive

Model: GWH = .4365 + .000576 * HDD + .00493 * TIME - .1770 * Y8911
              (17.01)   (11.80)   (7.47)   (-2.99)

          - .1853 * Y9002
              (-3.13)

Statistics: R^2 = .8255
Durbin-Watson   = 1.533 with first order autocorrelation = .232
MSE   = .00339

TOTAL USAGE MODEL FOR MAY - OCTOBER

Historical Data Base: May 1985 - May 1992, inclusive

Model: GWH = .347940 + .00056 * CDD + .007758 * TIME - .2954 * Y890910
              (12.80)   (10.36)   (11.39)   (-7.49)

          - .1556 * Y8508 + .1762 * Y8610
              (-2.82)   (3.17)

Statistics: R^2 = .8949
Durbin-Watson   = 1.725 with first order autocorrelation = .098
MSE   = .00282

H.   Unaccounted For Model

Unaccounted For

TOTAL KWH MODEL

Historical Data Base: January, 1984 - May, 1992, inclusive

Model: KWH = (30.936 + .508 * TDD2 - .274 * LTDD2 - 141.14 * SEP
$\quad\quad\quad\quad$ (2.285)$\quad\quad$(8.614)$\quad\quad\quad$(-4.354)$\quad\quad\quad\quad$(-7.784)

$\quad\quad\quad\quad\quad$ - 95.74 * FEB) * 1000000
$\quad\quad\quad\quad\quad\quad$ (-5.418)

Statistics: R^2 =   .7344
Durbin-Watson$\quad$ =   2.027 with first order autocorrelation = -.043
MSE$\quad\quad\quad\quad\quad$ =   2.0407

Note: Using normal weather values for total degree days, the monthly
allocations were based on the above model.

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5. <u>Monthly Forecast, January, 1993 – December, 1994</u>

SIC Code	Definition
22 = Textile	Textile mill products
24 = Lumber	Lumber, wood products, furniture, fixtures (24, 25)
26 = Paper	Paper and allied products
28 = Chemical	Chemicals and allied products
30 = Rubber	Rubber and miscellaneous plastic products
32 = Stone	Stone, clay, glass, and concrete products
33 = Metal	Primary metal, fabricated metal products, electric and electronic machinery, equipment and supplies, and transportation equipment (33, 34, 35, 36, and 37)
91 = Government	Executive, legislative and general government, except finance
99 = Other/Unknown	Other or Unknown

SHORT-RANGE ELECTRIC FORECAST FOR   JANUARY 1993

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,093	982	171.02
		SP HTG		83,001	2,245	186.35
	MULTI FAMILY	NON SP HTG		28,451	581	16.53
		SP HTG		63,913	1,207	77.16
	MOBILE HOMES	NON SP HTG		29,848	1,064	31.77
		SP HTG		19,511	1,923	37.51
RESIDENTIAL	TOTAL	NON SP HTG TOT		232,392	944	219.31
		SP HTG TOT		166,425	1,809	301.02
		TOTAL		398,817	1,305	520.33
COMMERCIAL		9 NON SP HTG		33,868	2,299	77.87
		9 SP HTG		15,307	3,549	54.33
			12	4,684	7,229	33.86
			20	1,578	75,768	119.56
			23	69	1,026,521	70.83
			28	1	159,410	0.16
			99	4,780	2,073	9.91
		TOTAL		60,287	6,079	366.51
INDUSTRIAL		9 NON SP HTG		440	30,184	13.28
		9 SP HTG		72	10,102	0.73
			20	68	169,807	11.55
			23	22	19	2,794,587	53.10
			23	24	3	4,703,950	14.11
			23	26	4	4,807,936	19.23
			23	28	7	9,212,265	64.49
			23	30	7	1,363,626	9.55
			23	32	7	3,598,725	25.19
			23	33	25	1,522,356	38.06
			23	91	2	6,286,154	12.57
			23	99	35	1,120,745	39.23
			28	1	16,035,188	16.04
			60	3	17,647,996	52.94
			99	0	81,047	0.08
		TOTAL		693	534,106	370.14
STREET LIGHTING		TOTAL		731	5,608	4.10
OTHER PUBLIC AUTHORITY			3	1,881	4,704	8.85
			65	19	337,991	6.42
			66	23	884,164	20.34
		TOTAL		1,923	18,516	35.61
SUB-TOTAL				462,451	2,804	1,296.69
MUNICIPAL		TOTAL		3	21,222,274	63.67
COOPERATIVE		TOTAL		8	2,106,227	16.85
TOTAL TERRITORIAL SALES				462,462	2,978	1,377.20
COMPANY USE						8.59
UNACCOUNTED FOR						133.97
TOTAL TERRITORIAL LOAD						1,519.76

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SHORT-RANGE ELECTRIC FORECAST FOR   FEBRUARY 1993

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,143	915	159.30
		SP HTG		83,265	2,122	176.68
	MULTI FAMILY	NON SP HTG		28,412	572	16.24
		SP HTG		63,940	1,201	76.79
	MOBILE HOMES	NON SP HTG		29,835	1,043	31.11
		SP HTG		19,596	1,759	34.46
RESIDENTIAL	TOTAL	NON SP HTG TOT		232,390	889	206.65
		SP HTG TOT		166,801	1,726	287.93
		TOTAL		399,191	1,239	494.58
COMMERCIAL		9 NON SP HTG		33,905	2,292	77.72
		9 SP HTG		15,374	3,488	53.63
		12		4,684	7,723	36.18
		20		1,588	74,067	117.62
		23		69	1,040,845	71.82
		28		1	159,410	0.16
		99		4,780	2,064	9.87
		TOTAL		60,401	6,076	366.98
INDUSTRIAL		9 NON SP HTG		439	33,606	14.75
		9 SP HTG		72	10,097	0.73
		20		68	178,229	12.12
		23	22	19	2,958,012	56.20
		23	24	3	4,279,787	12.84
		23	26	4	5,073,644	20.29
		23	28	7	9,297,735	65.08
		23	30	7	1,702,528	11.92
		23	32	7	3,888,930	27.22
		23	33	25	1,616,916	40.42
		23	91	2	5,781,689	11.56
		23	99	35	1,188,280	41.59
		28		1	17,591,439	17.59
		60		3	17,825,151	53.48
		99		0	81,047	0.08
		TOTAL		692	557,636	385.88
STREET LIGHTING		TOTAL		732	5,618	4.11
OTHER PUBLIC AUTHORITY			3	1,886	4,713	8.89
			65	19	342,020	6.50
			66	23	894,705	20.58
		TOTAL		1,928	18,654	35.96
SUB-TOTAL				462,944	2,781	1,287.53
MUNICIPAL		TOTAL		3	21,777,669	65.33
COOPERATIVE		TOTAL		7	2,254,014	15.78
TOTAL TERRITORIAL SALES		TOTAL		462,954	2,956	1,368.64
COMPANY USE						8.59
UNACCOUNTED FOR						-55.41
TOTAL TERRITORIAL LOAD						1,321.81

SHORT-RANGE ELECTRIC FORECAST FOR   MARCH 1993

CLASS	RATE		SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,160	831	144.70
		SP HTG		83,530	1,749	146.10
	MULTI FAMILY	NON SP HTG		28,405	509	14.46
		SP HTG		63,968	993	63.55
	MOBILE HOMES	NON SP HTG		29,833	907	27.06
		SP HTG		19,715	1,472	29.03
RESIDENTIAL	TOTAL	NON SP HTG TOT		232,398	801	186.21
		SP HTG TOT		167,213	1,427	238.68
		TOTAL		399,611	1,063	424.89
COMMERCIAL		9 NON SP HTG		33,958	2,156	73.21
		9 SP HTG		15,441	3,068	47.37
			12	4,694	6,943	32.59
			20	1,598	70,235	112.24
			23	69	1,005,154	69.36
			28	1	159,410	0.16
			99	4,820	2,086	10.05
		TOTAL		60,581	5,694	344.98
INDUSTRIAL		9 NON SP HTG		438	31,726	13.90
		9 SP HTG		72	9,290	0.67
			20	68	177,414	12.06
			23	22	19	3,077,183	58.47
			23	24	3	4,205,796	12.62
			23	26	4	4,969,101	19.88
			23	28	7	9,054,673	63.38
			23	30	7	1,528,920	10.70
			23	32	7	3,611,405	25.28
			23	33	25	1,570,559	39.26
			23	91	2	5,512,692	11.03
			23	99	35	1,167,528	40.86
			28	1	16,840,672	16.84
			60	3	18,615,031	55.85
			99	0	81,047	0.08
		TOTAL		691	551,192	380.87
STREET LIGHTING		TOTAL		733	5,611	4.11
OTHER PUBLIC AUTHORITY			3	1,890	4,539	8.58
			65	19	313,739	5.96
			66	23	820,724	18.88
		TOTAL		1,932	17,296	33.42
SUB-TOTAL				463,548	2,563	1,188.27
MUNICIPAL		TOTAL		3	19,263,663	57.79
COOPERATIVE		TOTAL		7	1,979,555	13.86
TOTAL TERRITORIAL SALES		TOTAL		463,558	2,718	1,259.92
COMPANY USE						8.59
UNACCOUNTED FOR						56.24
TOTAL TERRITORIAL LOAD						1,324.74

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SHORT-RANGE ELECTRIC FORECAST FOR   APRIL 1993

CLASS	RATE		SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,280	808	140.90
		SP HTG		83,795	1,291	108.18
	MULTI FAMILY	NON SP HTG		28,447	492	13.99
		SP HTG		63,995	740	47.35
	MOBILE HOMES	NON SP HTG		29,853	829	24.74
		SP HTG		19,833	1,127	22.36
RESIDENTIAL	TOTAL	NON SP HTG TOT		232,580	772	179.63
		SP HTG TOT		167,623	1,061	177.90
		TOTAL		400,203	893	357.52
COMMERCIAL		9 NON SP HTG		34,024	2,166	73.70
		9 SP HTG		15,509	2,556	39.64
		12		4,702	5,315	24.99
		20		1,607	71,993	115.69
		23		69	1,064,015	73.42
		28		1	159,410	0.16
		99		4,889	2,170	10.61
		TOTAL		60,801	5,563	338.21
INDUSTRIAL		9 NON SP HTG		437	31,643	13.83
		9 SP HTG		72	8,811	0.63
		20		68	181,581	12.35
		23	22	19	2,999,885	57.00
		23	24	3	4,640,213	13.92
		23	26	4	5,125,267	20.50
		23	28	7	9,472,804	66.31
		23	30	7	1,598,431	11.19
		23	32	7	4,268,691	29.88
		23	33	25	1,623,800	40.59
		23	91	2	5,578,369	11.16
		23	99	35	1,201,194	42.04
		28		1	16,359,270	16.36
		60		3	18,559,850	55.68
		99		0	81,047	0.08
		TOTAL		690	567,423	391.52
STREET LIGHTING		TOTAL		734	5,615	4.12
OTHER PUBLIC AUTHORITY		3		1,894	4,308	8.16
		65		19	340,405	6.47
		66		23	890,481	20.48
		TOTAL		1,936	18,135	35.11
SUB-TOTAL				464,364	2,426	1,126.48
MUNICIPAL		TOTAL		3	19,522,963	58.57
COOPERATIVE		TOTAL		7	1,866,302	13.06
TOTAL TERRITORIAL SALES		TOTAL		464,374	2,580	1,198.12
COMPANY USE						8.08
UNACCOUNTED FOR						48.79
TOTAL TERRITORIAL LOAD						1,254.99

SHORT-RANGE ELECTRIC FORECAST FOR   MAY 1993

CLASS	RATE		SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,348	831	144.92
		SP HTG		84,060	1,078	90.64
	MULTI FAMILY	NON SP HTG		28,465	507	14.43
		SP HTG		64,022	695	44.47
	MOBILE HOMES	NON SP HTG		29,875	754	22.51
		SP HTG		19,943	904	18.02
RESIDENTIAL	TOTAL	NON SP HTG TOT		232,688	782	181.87
		SP HTG TOT		168,025	911	153.13
		TOTAL		400,713	836	334.99
COMMERCIAL		9 NON SP HTG		34,086	2,299	78.36
		9 SP HTG		15,576	2,710	42.22
		12		4,708	6,175	29.07
		20		1,617	73,622	119.05
		23		69	1,123,147	77.50
		28		1	159,410	0.16
		99		4,970	2,286	11.36
		TOTAL		61,027	5,862	357.72
INDUSTRIAL		9 NON SP HTG		436	31,619	13.79
		9 SP HTG		72	7,953	0.57
		20		68	188,742	12.83
		23	22	19	3,112,880	59.14
		23	24	3	4,403,482	13.21
		23	26	4	5,224,791	20.90
		23	28	7	9,597,004	67.18
		23	30	7	1,514,468	10.60
		23	32	7	4,067,777	28.47
		23	33	25	1,632,401	40.81
		23	91	2	5,931,303	11.86
		23	99	35	1,229,150	43.02
		28		1	15,236,174	15.24
		60		3	22,993,929	68.98
		99		0	81,047	0.08
		TOTAL		689	590,267	406.69
STREET LIGHTING		TOTAL		735	5,582	4.10
OTHER PUBLIC AUTHORITY		3		1,899	4,389	8.33
		65		19	343,583	6.53
		66		23	898,793	20.67
		TOTAL		1,941	18,308	35.53
SUB-TOTAL				465,105	2,449	1,139.04
MUNICIPAL		TOTAL		3	21,401,339	64.20
COOPERATIVE		TOTAL		7	2,094,917	14.66
TOTAL TERRITORIAL SALES		TOTAL		465,115	2,619	1,217.91
COMPANY USE						8.08
UNACCOUNTED FOR						100.89
TOTAL TERRITORIAL LOAD						1,326.89

SHORT-RANGE ELECTRIC FORECAST FOR   JUNE 1993

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,422	1,133	197.61
		SP HTG		84,324	1,471	124.06
	MULTI FAMILY	NON SP HTG		28,422	708	20.13
		SP HTG		64,050	885	56.70
	MOBILE HOMES	NON SP HTG		29,947	989	29.63
		SP HTG		20,082	1,132	22.73
RESIDENTIAL	TOTAL	NON SP HTG TOT		232,791	1,063	247.37
		SP HTG TOT		168,456	1,208	203.49
		TOTAL		401,247	1,124	450.86
COMMERCIAL		9 NON SP HTG		34,145	2,777	94.81
		9 SP HTG		15,643	3,350	52.40
			12	4,698	6,808	31.98
			20	1,627	83,211	135.38
			23	69	1,280,494	88.35
			28	1	159,410	0.16
			99	4,972	2,771	13.78
		TOTAL		61,155	6,817	416.87
INDUSTRIAL		9 NON SP HTG		435	34,854	15.16
		9 SP HTG		72	9,522	0.69
			20	68	203,247	13.82
			23	22	19	3,248,571	61.72
			23	24	3	4,501,950	13.51
			23	26	4	5,411,573	21.65
			23	28	7	10,136,754	70.96
			23	30	7	1,613,144	11.29
			23	32	7	4,090,882	28.64
			23	33	25	1,731,355	43.28
			23	91	2	6,527,554	13.06
			23	99	35	1,337,003	46.80
			28	1	15,316,555	15.32
			60	3	23,783,869	71.35
			99	0	81,047	0.08
		TOTAL		688	621,092	427.31
STREET LIGHTING		TOTAL		737	5,577	4.11
OTHER PUBLIC AUTHORITY			3	1,903	4,902	9.33
			65	19	395,833	7.52
			66	23	1,035,475	23.82
		TOTAL		1,945	20,908	40.67
SUB-TOTAL				465,772	2,877	1,339.82
MUNICIPAL		TOTAL		3	24,139,092	72.42
COOPERATIVE		TOTAL		7	2,389,552	16.73
TOTAL TERRITORIAL SALES		TOTAL		465,782	3,068	1,428.96
COMPANY USE						8.59
UNACCOUNTED FOR						119.09
TOTAL TERRITORIAL LOAD						1,556.63

Note: In the INDUSTRIAL rows above, the SIC column shows two values for rate 23 entries (e.g. "23 22"); the first is the rate (23) and the second the SIC code.

SHORT-RANGE ELECTRIC FORECAST FOR   JULY 1993

CLASS	RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL SINGLE FAMILY	NON SP HTG		174,566	1,416	247.11
	SP HTG		84,589	1,785	150.97
MULTI FAMILY	NON SP HTG		28,424	870	24.72
	SP HTG		64,077	1,040	66.67
MOBILE HOMES	NON SP HTG		29,980	1,159	34.74
	SP HTG		20,220	1,358	27.45
RESIDENTIAL TOTAL	NON SP HTG TOT		232,970	1,316	306.58
	SP HTG TOT		168,886	1,451	245.10
	TOTAL		401,856	1,373	551.67
COMMERCIAL	9 NON SP HTG		34,203	3,163	108.20
	9 SP HTG		15,710	3,859	60.62
		12	4,688	6,134	28.76
		20	1,637	91,178	149.26
		23	69	1,395,148	96.27
		28	1	159,410	0.16
		99	4,950	2,902	14.36
	TOTAL		61,258	7,470	457.62
INDUSTRIAL	9 NON SP HTG		434	35,029	15.20
	9 SP HTG		72	9,867	0.71
		20	68	209,221	14.23
		23	22	19	3,066,515	58.26
		23	24	3	4,627,175	13.88
		23	26	4	5,649,548	22.60
		23	28	7	10,529,398	73.71
		23	30	7	1,682,522	11.78
		23	32	7	4,377,572	30.64
		23	33	25	1,692,716	42.32
		23	91	2	7,436,816	14.87
		23	99	35	1,302,211	45.58
		28	1	14,546,178	14.55
		60	3	23,385,821	70.16
		99	0	81,047	0.08
	TOTAL		687	623,819	428.56
STREET LIGHTING	TOTAL		738	5,569	4.11
OTHER PUBLIC AUTHORITY		3	1,907	5,254	10.02
		65	19	437,403	8.31
		66	23	1,144,222	26.32
	TOTAL		1,949	22,908	44.65
SUB-TOTAL			466,488	3,187	1,486.62
MUNICIPAL	TOTAL		3	25,706,029	77.12
COOPERATIVE	TOTAL		7	2,637,362	18.46
TOTAL TERRITORIAL SALES	TOTAL		466,498	3,392	1,582.20
COMPANY USE					8.59
UNACCOUNTED FOR					134.80
TOTAL TERRITORIAL LOAD					1,725.58

SHORT-RANGE ELECTRIC FORECAST FOR   AUGUST 1993

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,714	1,510	263.78
		SP HTG		84,854	1,893	160.64
	MULTI FAMILY	NON SP HTG		28,480	924	26.31
		SP HTG		64,104	1,097	70.29
	MOBILE HOMES	NON SP HTG		29,965	1,210	36.26
		SP HTG		20,315	1,365	27.72
RESIDENTIAL	TOTAL	NON SP HTG TOT		233,159	1,400	326.36
		SP HTG TOT		169,273	1,528	258.66
		TOTAL		402,432	1,454	585.01
COMMERCIAL		9 NON SP HTG		34,260	3,174	108.73
		9 SP HTG		15,778	3,980	62.80
			12	4,701	6,554	30.81
			20	1,646	93,416	153.76
			23	69	1,324,349	91.38
			28	1	159,410	0.16
			99	4,946	2,549	12.61
		TOTAL		61,401	7,496	460.25
INDUSTRIAL		9 NON SP HTG		433	35,917	15.55
		9 SP HTG		72	10,655	0.77
			20	68	204,504	13.91
			23 22	19	3,304,534	62.79
			23 24	3	4,607,337	13.82
			23 26	4	5,456,432	21.83
			23 28	7	9,882,447	69.18
			23 30	7	1,550,654	10.85
			23 32	7	4,213,368	29.49
			23 33	25	1,783,560	44.59
			23 91	2	7,120,706	14.24
			23 99	35	1,375,733	48.15
			28	1	15,715,033	15.72
			60	3	22,734,334	68.20
			99	0	81,047	0.08
		TOTAL		686	625,605	429.16
STREET LIGHTING		TOTAL		739	5,562	4.11
OTHER PUBLIC AUTHORITY			3	1,911	5,037	9.62
			65	19	413,175	7.85
			66	23	1,080,843	24.86
		TOTAL		1,953	21,677	42.33
SUB-TOTAL				467,211	3,255	1,520.87
MUNICIPAL		TOTAL		3	25,401,242	76.20
COOPERATIVE		TOTAL		7	2,570,828	18.00
TOTAL TERRITORIAL SALES		TOTAL		467,221	3,457	1,615.07
COMPANY USE						8.59
UNACCOUNTED FOR						98.41
TOTAL TERRITORIAL LOAD						1,722.07

SHORT-RANGE ELECTRIC FORECAST FOR   SEPTEMBER 1993

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,819	1,371	239.68
		SP HTG		85,118	1,742	148.25
	MULTI FAMILY	NON SP HTG		28,589	849	24.27
		SP HTG		64,132	1,027	65.87
	MOBILE HOMES	NON SP HTG		29,890	1,118	33.41
		SP HTG		20,435	1,279	26.14
RESIDENTIAL	TOTAL	NON SP HTG TOT		233,298	1,275	297.36
		SP HTG TOT		169,685	1,416	240.27
		TOTAL		402,983	1,334	537.63
COMMERCIAL		9 NON SP HTG		34,317	3,119	107.02
		9 SP HTG		15,845	3,675	58.23
		12		4,732	8,407	39.78
		20		1,656	89,088	147.53
		23		69	1,329,260	91.72
		28		1	159,410	0.16
		99		4,909	2,466	12.11
		TOTAL		61,529	7,420	456.55
INDUSTRIAL		9 NON SP HTG		432	37,291	16.11
		9 SP HTG		72	10,814	0.78
		20		68	213,801	14.54
		23	22	19	3,055,411	58.05
		23	24	3	4,806,904	14.42
		23	26	4	5,656,831	22.63
		23	28	7	10,555,422	73.89
		23	30	7	1,697,761	11.88
		23	32	7	4,381,527	30.67
		23	33	25	1,847,858	46.20
		23	91	2	7,371,160	14.74
		23	99	35	1,443,543	50.52
		28		1	17,105,072	17.11
		60		3	22,796,538	68.39
		99		0	81,047	0.08
		TOTAL		685	642,349	440.01
STREET LIGHTING		TOTAL		740	5,554	4.11
OTHER PUBLIC AUTHORITY		3		1,916	5,105	9.78
		65		19	432,475	8.22
		66		23	1,131,330	26.02
		TOTAL		1,958	22,481	44.02
SUB-TOTAL				467,895	3,168	1,482.32
MUNICIPAL		TOTAL		3	23,353,452	70.06
COOPERATIVE		TOTAL		7	2,344,700	16.41
TOTAL TERRITORIAL SALES		TOTAL		467,905	3,353	1,568.79
COMPANY USE						8.59
UNACCOUNTED FOR						-132.32
TOTAL TERRITORIAL LOAD						1,445.05

SHORT-RANGE ELECTRIC FORECAST FOR   OCTOBER 1993

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,849	965	168.65
		SP HTG		85,383	1,204	102.83
	MULTI FAMILY	NON SP HTG		28,587	627	17.91
		SP HTG		64,159	816	52.36
	MOBILE HOMES	NON SP HTG		29,878	855	25.54
		SP HTG		20,515	1,024	21.01
RESIDENTIAL	TOTAL	NON SP HTG TOT		233,314	909	212.11
		SP HTG TOT		170,057	1,036	176.20
		TOTAL		403,371	963	388.31
COMMERCIAL		9 NON SP HTG		34,374	2,570	88.34
		9 SP HTG		15,912	2,881	45.84
			12	4,741	7,142	33.86
			20	1,666	77,387	128.93
			23	69	1,206,815	83.27
			28	1	2,789,679	2.79
			99	4,942	2,274	11.24
		TOTAL		61,705	6,390	394.28
INDUSTRIAL		9 NON SP HTG		431	35,214	15.18
		9 SP HTG		72	7,894	0.57
			20	68	191,549	13.03
			23	22	19	3,314,432	62.97
			23	24	3	4,769,683	14.31
			23	26	4	5,311,947	21.25
			23	28	7	9,908,192	69.36
			23	30	7	1,530,681	10.71
			23	32	7	4,119,286	28.84
			23	33	25	1,644,992	41.12
			23	91	2	5,971,608	11.94
			23	99	35	1,305,825	45.70
			28	1	17,318,478	17.32
			60	3	22,462,094	67.39
			99	0	81,047	0.08
		TOTAL		684	613,694	419.77
STREET LIGHTING		TOTAL		741	5,547	4.11
OTHER PUBLIC AUTHORITY			3	1,920	4,504	8.65
			65	19	372,581	7.08
			66	23	974,649	22.42
		TOTAL		1,962	19,442	38.14
SUB-TOTAL				468,463	2,657	1,244.61
MUNICIPAL		TOTAL		3	20,236,140	60.71
COOPERATIVE		TOTAL		7	1,997,589	13.98
TOTAL TERRITORIAL SALES		TOTAL		468,473	2,816	1,319.30
COMPANY USE						8.08
UNACCOUNTED FOR						57.06
TOTAL TERRITORIAL LOAD						1,384.44

Note: The INDUSTRIAL rows for SIC codes 22 through 99 are under rate class "23" (with the "23" note appearing alongside each SIC value in the original).

SHORT-RANGE ELECTRIC FORECAST FOR   NOVEMBER 1993

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,894	829	144.91
		SP HTG		85,648	1,292	110.63
	MULTI FAMILY	NON SP HTG		28,649	511	14.63
		SP HTG		64,187	732	47.00
	MOBILE HOMES	NON SP HTG		29,859	878	26.23
		SP HTG		20,573	1,151	23.68
RESIDENTIAL	TOTAL	NON SP HTG TOT		233,402	796	185.77
		SP HTG TOT		170,408	1,064	181.31
		TOTAL		403,810	909	367.09
COMMERCIAL		9 NON SP HTG		34,430	2,298	79.13
		9 SP HTG		15,980	2,491	39.81
			12	4,735	5,568	26.36
			20	1,676	71,922	120.54
			23	69	1,118,485	77.18
			28	1	2,789,679	2.79
			99	4,919	2,234	10.99
		TOTAL		61,810	5,772	356.80
INDUSTRIAL		9 NON SP HTG		430	35,671	15.34
		9 SP HTG		72	7,433	0.54
			20	68	186,124	12.66
			23 22	19	3,194,301	60.69
			23 24	3	4,944,720	14.83
			23 26	4	5,414,410	21.66
			23 28	7	9,770,553	68.39
			23 30	7	1,598,562	11.19
			23 32	7	4,192,602	29.35
			23 33	25	1,665,094	41.63
			23 91	2	5,820,186	11.64
			23 99	35	1,337,136	46.80
			28	1	19,717,542	19.72
			60	3	22,909,798	68.73
			99	0	81,047	0.08
		TOTAL		683	619,679	423.24
STREET LIGHTING		TOTAL		742	5,539	4.11
OTHER PUBLIC AUTHORITY			3	1,924	4,283	8.24
			65	19	342,618	6.51
			66	23	896,268	20.61
		TOTAL		1,966	17,988	35.36
SUB-TOTAL				469,011	2,530	1,186.60
MUNICIPAL		TOTAL		3	21,272,872	63.82
COOPERATIVE		TOTAL		7	2,095,264	14.67
TOTAL TERRITORIAL SALES		TOTAL		469,021	2,697	1,265.09
COMPANY USE						8.08
UNACCOUNTED FOR						108.34
TOTAL TERRITORIAL LOAD						1,381.50

SHORT-RANGE ELECTRIC FORECAST FOR   DECEMBER 1993

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		175,019	890	155.69
		SP HTG		85,913	1,762	151.34
	MULTI FAMILY	NON SP HTG		28,706	558	16.01
		SP HTG		64,214	994	63.85
	MOBILE HOMES	NON SP HTG		29,902	1,007	30.11
		SP HTG		20,700	1,644	34.04
RESIDENTIAL	TOTAL	NON SP HTG TOT		233,627	864	201.81
		SP HTG TOT		170,827	1,459	249.24
		TOTAL		404,454	1,115	451.05
COMMERCIAL		9 NON SP HTG		34,487	2,229	76.86
		9 SP HTG		16,047	2,942	47.20
		12		4,736	6,706	31.76
		20		1,685	72,013	121.34
		23		69	1,076,770	74.30
		28		1	159,410	0.16
		99		4,846	2,192	10.62
		TOTAL		61,871	5,855	362.24
INDUSTRIAL		9 NON SP HTG		429	35,783	15.35
		9 SP HTG		72	8,078	0.58
		20		68	183,627	12.49
		23	22	19	2,786,710	52.95
		23	24	3	4,513,657	13.54
		23	26	4	5,111,956	20.45
		23	28	7	9,597,955	67.19
		23	30	7	1,557,326	10.90
		23	32	7	4,203,758	29.43
		23	33	25	1,633,097	40.83
		23	91	2	5,819,323	11.64
		23	99	35	1,225,299	42.89
		28		1	15,076,084	15.08
		60		3	22,940,104	68.82
		99		0	81,047	0.08
		TOTAL		682	589,733	402.20
STREET LIGHTING		TOTAL		744	5,524	4.11
OTHER PUBLIC AUTHORITY		3		1,928	4,510	8.69
		65		19	341,310	6.48
		66		23	892,848	20.54
		TOTAL		1,970	18,129	35.71
SUB-TOTAL				469,721	2,672	1,255.31
MUNICIPAL		TOTAL		3	22,162,016	66.49
COOPERATIVE		TOTAL		7	2,342,076	16.39
TOTAL TERRITORIAL SALES		TOTAL		469,731	2,849	1,338.19
COMPANY USE						8.59
UNACCOUNTED FOR						157.13
TOTAL TERRITORIAL LOAD						1,503.91

SHORT-RANGE ELECTRIC FORECAST FOR JANUARY-DECEMBER, 1993

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		174,526	12,481	2,178.28
		SP HTG		84,457	19,616	1,656.69
	MULTI FAMILY	NON SP HTG		28,503	7,706	219.64
		SP HTG		64,063	11,427	732.07
	MOBILE HOMES	NON SP HTG		29,889	11,814	353.11
		SP HTG		20,120	16,112	324.16
RESIDENTIAL	TOTAL	NON SP HTG TOT		232,918	11,811	2,751.03
		SP HTG TOT		168,640	16,087	2,712.92
		TOTAL		401,558	13,607	5,463.95
COMMERCIAL		9 NON SP HTG		34,171	30,551	1,043.95
		9 SP HTG		15,677	38,533	604.09
			12	4,709	80,697	380.00
			20	1,632	944,181	1,540.90
			23	69	13,991,003	965.38
			28	1	7,173,458	7.17
			99	4,894	28,097	137.51
		TOTAL		61,153	76,513	4,679.00
INDUSTRIAL		9 NON SP HTG		435	407,898	177.44
		9 SP HTG		72	110,516	7.96
			20	68	2,287,845	155.57
			23	22	19	36,913,022	701.35
			23	24	3	55,004,654	165.01
			23	26	4	63,213,433	252.85
			23	28	7	117,015,202	819.11
			23	30	7	18,938,622	132.57
			23	32	7	49,014,523	343.10
			23	33	25	19,964,704	499.12
			23	91	2	75,157,558	150.32
			23	99	35	15,233,647	533.18
			28	1	196,857,685	196.86
			60	3	256,654,515	769.96
			99	0	972,565	0.97
		TOTAL		688	7,129,890	4,905.36
STREET LIGHTING		TOTAL		737	66,919	49.32
OTHER PUBLIC AUTHORITY		3		1,905	56,245	107.15
		65		19	4,413,133	83.85
		66		23	11,544,501	265.52
		TOTAL		1,947	234,473	456.52
SUB-TOTAL				466,083	33,372	15,554.15
MUNICIPAL		TOTAL		3	265,458,751	796.38
COOPERATIVE		TOTAL		7	26,979,276	188.85
TOTAL TERRITORIAL SALES		TOTAL		466,093	35,485	16,539.38
COMPANY USE						101.00
UNACCOUNTED FOR						827.00
TOTAL TERRITORIAL LOAD						17,467.38

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CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		175,108	987	172.88
		SP HTG		86,177	2,239	192.94
	MULTI FAMILY	NON SP HTG		28,814	586	16.89
		SP HTG		64,241	1,206	77.51
	MOBILE HOMES	NON SP HTG		29,900	1,094	32.70
		SP HTG		20,776	1,944	40.40
RESIDENTIAL	TOTAL	NON SP HTG TOT		233,822	951	222.47
		SP HTG TOT		171,194	1,816	310.85
		TOTAL		405,016	1,317	533.31
COMMERCIAL		9 NON SP HTG		34,544	2,272	78.49
		9 SP HTG		16,114	3,305	53.25
			12	4,733	7,324	34.66
			20	1,695	72,839	123.46
			23	69	1,063,715	73.40
			28	1	158,531	0.16
			99	4,805	2,172	10.44
		TOTAL		61,961	6,034	373.86
INDUSTRIAL		9 NON SP HTG		428	31,042	13.29
		9 SP HTG		72	8,209	0.59
			20	68	174,208	11.85
			23	22	19	2,860,079	54.34
			23	24	3	4,692,467	14.08
			23	26	4	4,962,570	19.85
			23	28	7	9,304,548	65.13
			23	30	7	1,355,858	9.49
			23	32	7	3,696,430	25.88
			23	33	25	1,603,601	40.09
			23	91	2	6,277,291	12.55
			23	99	36	1,146,482	41.27
			28	1	16,211,053	16.21
			60	3	17,779,746	53.34
			99	0	81,047	0.08
		TOTAL		682	554,310	378.04
STREET LIGHTING		TOTAL		745	5,517	4.11
OTHER PUBLIC AUTHORITY			3	1,933	4,706	9.10
			65	19	348,684	6.62
			66	23	912,137	20.98
		TOTAL		1,975	18,583	36.70
SUB-TOTAL				470,379	2,819	1,326.02
MUNICIPAL		TOTAL		3	21,879,635	65.64
COOPERATIVE		TOTAL		7	2,431,168	17.02
TOTAL TERRITORIAL SALES		TOTAL		470,389	2,995	1,408.68
COMPANY USE						8.84
UNACCOUNTED FOR						135.92
TOTAL TERRITORIAL LOAD						1,553.44

SHORT-RANGE ELECTRIC FORECAST FOR   FEBRUARY 1994

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		175,158	920	161.11
		SP HTG		86,442	2,116	182.91
	MULTI FAMILY	NON SP HTG		28,775	577	16.60
		SP HTG		64,269	1,200	77.14
	MOBILE HOMES	NON SP HTG		29,887	1,072	32.04
		SP HTG		20,862	1,780	37.14
RESIDENTIAL	TOTAL	NON SP HTG TOT		233,820	897	209.76
		SP HTG TOT		171,573	1,732	297.19
		TOTAL		405,393	1,251	506.95
COMMERCIAL		9 NON SP HTG		34,601	2,265	78.38
		9 SP HTG		16,182	3,244	52.50
		12		4,733	7,815	36.99
		20		1,705	71,147	121.31
		23		69	1,077,960	74.38
		28		1	158,531	0.16
		99		4,805	2,159	10.37
		TOTAL		62,096	6,024	374.08
INDUSTRIAL		9 NON SP HTG		427	34,558	14.76
		9 SP HTG		72	8,205	0.59
		20		68	182,571	12.41
		23	22	19	2,988,962	56.79
		23	24	3	4,267,243	12.80
		23	26	4	5,227,268	20.91
		23	28	7	9,389,692	65.73
		23	30	7	1,592,911	11.15
		23	32	7	3,985,531	27.90
		23	33	25	1,698,978	42.47
		23	91	2	5,774,745	11.55
		23	99	36	1,211,745	43.62
		28		1	17,761,385	17.76
		60		3	17,956,228	53.87
		99		0	81,047	0.08
		TOTAL		681	576,208	392.40
STREET LIGHTING		TOTAL		746	5,509	4.11
OTHER PUBLIC AUTHORITY		3		1,937	4,693	9.09
		65		19	352,714	6.70
		66		23	922,678	21.22
		TOTAL		1,979	18,704	37.01
SUB-TOTAL				470,895	2,792	1,314.55
MUNICIPAL		TOTAL		3	22,435,030	67.31
COOPERATIVE		TOTAL		7	2,353,992	16.48
TOTAL TERRITORIAL SALES		TOTAL		470,905	2,969	1,398.34
COMPANY USE						8.84
UNACCOUNTED FOR						-56.21
TOTAL TERRITORIAL LOAD						1,350.96

SHORT-RANGE ELECTRIC FORECAST FOR   MARCH 1994

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		175,175	836	146.46
		SP HTG		86,707	1,744	151.24
	MULTI FAMILY	NON SP HTG		28,768	515	14.81
		SP HTG		64,296	993	63.83
	MOBILE HOMES	NON SP HTG		29,885	936	27.98
		SP HTG		20,980	1,494	31.35
RESIDENTIAL	TOTAL	NON SP HTG TOT		233,828	809	189.24
		SP HTG TOT		171,983	1,433	246.42
		TOTAL		405,811	1,074	435.66
COMMERCIAL		9 NON SP HTG		34,658	2,130	73.82
		9 SP HTG		16,249	2,826	45.92
		12		4,743	7,039	33.39
		20		1,715	67,336	115.48
		23		69	1,042,466	71.93
		28		1	158,531	0.16
		99		4,845	2,175	10.54
		TOTAL		62,280	5,640	351.23
INDUSTRIAL		9 NON SP HTG		426	32,624	13.90
		9 SP HTG		72	7,397	0.53
		20		68	181,722	12.36
		23	22	19	3,082,945	58.58
		23	24	3	4,191,976	12.58
		23	26	4	5,123,122	20.49
		23	28	7	9,147,555	64.03
		23	30	7	1,471,477	10.30
		23	32	7	3,709,061	25.96
		23	33	25	1,653,974	41.35
		23	91	2	5,506,771	11.01
		23	99	36	1,191,691	42.90
		28		1	17,013,474	17.01
		60		3	18,743,103	56.23
		99		0	81,047	0.08
		TOTAL		680	569,582	387.32
STREET LIGHTING		TOTAL		747	5,502	4.11
OTHER PUBLIC AUTHORITY		3		1,941	4,508	8.75
		65		19	324,433	6.16
		66		23	848,697	19.52
		TOTAL		1,983	17,365	34.44
SUB-TOTAL				471,501	2,572	1,212.75
MUNICIPAL		TOTAL		3	19,921,024	59.76
COOPERATIVE		TOTAL		7	2,078,128	14.55
TOTAL TERRITORIAL SALES		TOTAL		471,511	2,730	1,287.06
COMPANY USE						8.84
UNACCOUNTED FOR						57.05
TOTAL TERRITORIAL LOAD						1,352.95

SHORT-RANGE ELECTRIC FORECAST FOR   APRIL 1994

CLASS			RATE		SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY		NON SP HTG			175,295	814	142.64
			SP HTG			86,971	1,287	111.97
	MULTI FAMILY		NON SP HTG			28,810	498	14.34
			SP HTG			64,323	740	47.57
	MOBILE HOMES		NON SP HTG			29,905	858	25.65
			SP HTG			21,099	1,149	24.25
RESIDENTIAL	TOTAL		NON SP HTG TOT			234,010	780	182.63
			SP HTG TOT			172,393	1,066	183.79
			TOTAL			406,403	902	366.42
COMMERCIAL			9 NON SP HTG			34,715	2,140	74.29
			9 SP HTG			16,316	2,317	37.80
				12		4,751	5,420	25.75
				20		1,724	69,084	119.10
				23		69	1,101,002	75.97
				28		1	158,531	0.16
				99		4,914	2,255	11.08
			TOTAL			62,490	5,507	344.15
INDUSTRIAL			9 NON SP HTG			425	32,539	13.83
			9 SP HTG			72	6,919	0.50
				20		68	185,869	12.64
				23	22	19	3,021,985	57.42
				23	24	3	4,623,832	13.87
				23	26	4	5,278,695	21.11
				23	28	7	9,564,096	66.95
				23	30	7	1,520,098	10.64
				23	32	7	4,363,848	30.55
				23	33	25	1,708,189	42.70
				23	91	2	5,572,198	11.14
				23	99	36	1,224,224	44.07
				28		1	16,533,902	16.53
				60		3	18,688,132	56.06
				99		0	81,047	0.08
			TOTAL			679	586,314	398.11
STREET LIGHTING			TOTAL			748	5,495	4.11
OTHER PUBLIC AUTHORITY				3		1,946	4,272	8.31
				65		19	351,099	6.67
				66		23	918,454	21.12
			TOTAL			1,988	18,163	36.11
SUB-TOTAL						472,308	2,433	1,148.89
MUNICIPAL			TOTAL			3	20,180,325	60.54
COOPERATIVE			TOTAL			7	1,964,163	13.75
TOTAL TERRITORIAL SALES			TOTAL			472,318	2,590	1,223.18
COMPANY USE								8.32
UNACCOUNTED FOR								49.50
TOTAL TERRITORIAL LOAD								1,281.00

SHORT-RANGE ELECTRIC FORECAST FOR   MAY 1994

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		175,363	844	148.05
		SP HTG		87,236	1,075	93.80
	MULTI FAMILY	NON SP HTG		28,828	521	15.01
		SP HTG		64,351	709	45.63
	MOBILE HOMES	NON SP HTG		29,927	777	23.24
		SP HTG		21,209	924	19.60
RESIDENTIAL	TOTAL	NON SP HTG TOT		234,118	796	186.30
		SP HTG TOT		172,796	920	159.03
		TOTAL		406,914	849	345.33
COMMERCIAL		9 NON SP HTG		34,772	2,272	78.98
		9 SP HTG		16,383	2,486	40.74
		12		4,757	6,414	30.51
		20		1,734	70,548	122.33
		23		69	1,159,808	80.03
		28		1	158,531	0.16
		99		4,995	2,366	11.82
		TOTAL		62,711	5,813	364.56
INDUSTRIAL		9 NON SP HTG		424	32,515	13.79
		9 SP HTG		72	6,060	0.44
		20		68	193,018	13.13
		23	22	19	3,111,097	59.11
		23	24	3	4,387,472	13.16
		23	26	4	5,377,840	21.51
		23	28	7	9,687,824	67.81
		23	30	7	1,461,368	10.23
		23	32	7	4,163,698	29.15
		23	33	25	1,717,934	42.95
		23	91	2	5,923,790	11.85
		23	99	36	1,251,239	45.04
		28		1	15,415,078	15.42
		60		3	18,742,005	56.23
		99		0	81,047	0.08
		TOTAL		678	589,802	399.89
STREET LIGHTING		TOTAL		750	5,480	4.11
OTHER PUBLIC AUTHORITY			3	1,950	4,362	8.51
			65	19	354,276	6.73
			66	23	926,766	21.32
		TOTAL		1,992	18,350	36.55
SUB-TOTAL				473,045	2,432	1,150.44
MUNICIPAL		TOTAL		3	22,143,031	66.43
COOPERATIVE		TOTAL		7	2,211,981	15.48
TOTAL TERRITORIAL SALES		TOTAL		473,055	2,605	1,232.36
COMPANY USE						8.32
UNACCOUNTED FOR						102.36
TOTAL TERRITORIAL LOAD						1,343.03

SHORT-RANGE ELECTRIC FORECAST FOR   JUNE 1994

CLASS		RATE		SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG			175,437	1,145	200.95
		SP HTG			87,501	1,467	128.37
	MULTI FAMILY	NON SP HTG			28,785	721	20.75
		SP HTG			64,378	900	57.92
	MOBILE HOMES	NON SP HTG			29,998	1,012	30.37
		SP HTG			21,348	1,152	24.60
RESIDENTIAL	TOTAL	NON SP HTG TOT			234,220	1,076	252.07
		SP HTG TOT			173,227	1,217	210.90
		TOTAL			407,447	1,136	462.96
COMMERCIAL		9 NON SP HTG			34,829	2,747	95.66
		9 SP HTG			16,451	3,122	51.37
			12		4,747	7,043	33.43
			20		1,744	80,084	139.67
			23		69	1,316,287	90.82
			28		1	158,531	0.16
			99		4,997	2,845	14.21
		TOTAL			62,838	6,769	425.32
INDUSTRIAL		9 NON SP HTG			423	35,844	15.16
		9 SP HTG			72	7,629	0.55
			20		68	207,516	14.11
			23	22	19	3,218,107	61.14
			23	24	3	4,485,257	13.46
			23	26	4	5,563,911	22.26
			23	28	7	10,225,521	71.58
			23	30	7	1,530,390	10.71
			23	32	7	4,186,715	29.31
			23	33	25	1,817,688	45.44
			23	91	2	6,517,773	13.04
			23	99	36	1,355,462	48.80
			28		1	15,495,153	15.50
			60		3	19,528,941	58.59
			99		0	81,047	0.08
		TOTAL			677	619,961	419.71
STREET LIGHTING		TOTAL			751	5,473	4.11
OTHER PUBLIC AUTHORITY			3		1,954	4,876	9.53
			65		19	406,526	7.72
			66		23	1,063,448	24.46
		TOTAL			1,996	20,897	41.71
SUB-TOTAL					473,709	2,858	1,353.82
MUNICIPAL		TOTAL			3	24,880,783	74.64
COOPERATIVE		TOTAL			7	2,505,973	17.54
TOTAL TERRITORIAL SALES		TOTAL			473,719	3,052	1,446.00
COMPANY USE							8.84
UNACCOUNTED FOR							120.82
TOTAL TERRITORIAL LOAD							1,575.66

SHORT-RANGE ELECTRIC FORECAST FOR   JULY 1994

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		175,581	1,428	250.65
		SP HTG		87,766	1,780	156.20
	MULTI FAMILY	NON SP HTG		28,787	881	25.37
		SP HTG		64,405	1,055	67.94
	MOBILE HOMES	NON SP HTG		30,032	1,182	35.50
		SP HTG		21,486	1,378	29.61
RESIDENTIAL	TOTAL	NON SP HTG TOT		234,400	1,329	311.52
		SP HTG TOT		173,657	1,461	253.75
		TOTAL		408,057	1,385	565.27
COMMERCIAL		9 NON SP HTG		34,886	3,131	109.24
		9 SP HTG		16,518	3,628	59.93
		12		4,737	6,373	30.19
		20		1,754	88,007	154.36
		23		69	1,430,309	98.69
		28		1	158,531	0.16
		99		4,975	2,973	14.79
		TOTAL		62,940	7,426	467.36
INDUSTRIAL		9 NON SP HTG		422	36,025	15.20
		9 SP HTG		72	7,974	0.57
		20		68	213,486	14.52
		23	22	19	3,074,532	58.42
		23	24	3	4,609,826	13.83
		23	26	4	5,800,981	23.20
		23	28	7	10,616,671	74.32
		23	30	7	1,578,918	11.05
		23	32	7	4,472,315	31.31
		23	33	25	1,780,372	44.51
		23	91	2	7,423,576	14.85
		23	99	36	1,321,842	47.59
		28		1	14,727,707	14.73
		60		3	19,132,408	57.40
		99		0	81,047	0.08
		TOTAL		676	623,620	421.57
STREET LIGHTING		TOTAL		752	5,466	4.11
OTHER PUBLIC AUTHORITY		3		1,958	5,227	10.23
		65		19	448,097	8.51
		66		23	1,172,195	26.96
		TOTAL		2,000	22,854	45.71
SUB-TOTAL				474,425	3,170	1,504.02
MUNICIPAL		TOTAL		3	26,447,720	79.34
COOPERATIVE		TOTAL		7	2,753,404	19.27
TOTAL TERRITORIAL SALES		TOTAL		474,435	3,378	1,602.64
COMPANY USE						8.84
UNACCOUNTED FOR						136.76
TOTAL TERRITORIAL LOAD						1,748.24

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CLASS			RATE		SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY		NON SP HTG			175,730	1,522	267.38
			SP HTG			88,030	1,888	166.19
	MULTI FAMILY		NON SP HTG			28,843	935	26.98
			SP HTG			64,433	1,111	71.58
	MOBILE HOMES		NON SP HTG			30,017	1,233	37.02
			SP HTG			21,580	1,385	29.89
RESIDENTIAL	TOTAL		NON SP HTG TOT			234,590	1,413	331.38
			SP HTG TOT			174,043	1,538	267.66
			TOTAL			408,633	1,466	599.04
COMMERCIAL			9 NON SP HTG			34,942	3,141	109.77
			9 SP HTG			16,585	3,749	62.18
				12		4,750	6,791	32.26
				20		1,763	90,232	159.08
				23		69	1,359,901	93.83
				28		1	158,531	0.16
				99		4,971	2,623	13.04
			TOTAL			63,081	7,456	470.31
INDUSTRIAL			9 NON SP HTG			421	36,941	15.55
			9 SP HTG			72	8,763	0.63
				20		68	208,767	14.20
				23	22	19	3,262,242	61.98
				23	24	3	4,589,960	13.77
				23	26	4	5,608,600	22.43
				23	28	7	9,972,180	69.81
				23	30	7	1,486,680	10.41
				23	32	7	4,308,736	30.16
				23	33	25	1,872,048	46.80
				23	91	2	7,108,669	14.22
				23	99	36	1,392,889	50.14
				28		1	15,892,117	15.89
				60		3	18,483,398	55.45
				99		0	81,047	0.08
			TOTAL			675	624,482	421.53
STREET LIGHTING			TOTAL			753	5,458	4.11
OTHER PUBLIC AUTHORITY				3		1,963	5,010	9.83
				65		19	423,869	8.05
				66		23	1,108,816	25.50
			TOTAL			2,005	21,641	43.39
SUB-TOTAL						475,147	3,238	1,538.38
MUNICIPAL			TOTAL			3	26,142,934	78.43
COOPERATIVE			TOTAL			7	2,686,646	18.81
TOTAL TERRITORIAL SALES			TOTAL			475,157	3,442	1,635.61
COMPANY USE								8.84
UNACCOUNTED FOR								99.84
TOTAL TERRITORIAL LOAD								1,744.29

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SHORT-RANGE ELECTRIC FORECAST FOR SEPTEMBER 1994

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		175,834	1,383	243.19
		SP HTG		88,295	1,737	153.36
	MULTI FAMILY	NON SP HTG		28,952	861	24.92
		SP HTG		64,460	1,042	67.14
	MOBILE HOMES	NON SP HTG		29,942	1,141	34.16
		SP HTG		21,700	1,300	28.21
RESIDENTIAL	TOTAL	NON SP HTG TOT		234,728	1,288	302.27
		SP HTG TOT		174,455	1,426	248.70
		TOTAL		409,183	1,347	550.97
COMMERCIAL		9 NON SP HTG		34,999	3,087	108.03
		9 SP HTG		16,653	3,445	57.38
		12		4,781	8,634	41.28
		20		1,773	85,928	152.35
		23		69	1,364,784	94.17
		28		1	158,531	0.16
		99		4,934	2,542	12.54
		TOTAL		63,210	7,371	465.90
INDUSTRIAL		9 NON SP HTG		420	38,356	16.11
		9 SP HTG		72	8,921	0.64
		20		68	218,063	14.83
		23	22	19	3,065,775	58.25
		23	24	3	4,788,706	14.37
		23	26	4	5,808,236	23.23
		23	28	7	10,642,596	74.50
		23	30	7	1,589,577	11.13
		23	32	7	4,476,254	31.33
		23	33	25	1,937,278	48.43
		23	91	2	7,358,170	14.72
		23	99	36	1,458,417	52.50
		28		1	17,276,867	17.28
		60		3	18,545,366	55.64
		99		0	81,047	0.08
		TOTAL		674	642,483	433.03
STREET LIGHTING		TOTAL		754	5,451	4.11
OTHER PUBLIC AUTHORITY			3	1,967	5,078	9.99
			65	19	443,169	8.42
			66	23	1,159,304	26.66
		TOTAL		2,009	22,435	45.07
SUB-TOTAL				475,830	3,150	1,499.09
MUNICIPAL		TOTAL		3	24,095,144	72.29
COOPERATIVE		TOTAL		7	2,460,387	17.22
TOTAL TERRITORIAL SALES		TOTAL		475,840	3,339	1,588.60
COMPANY USE						8.84
UNACCOUNTED FOR						-134.24
TOTAL TERRITORIAL LOAD						1,463.20

CLASS	RATE		SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		175,865	977	171.88
		SP HTG		88,560	1,201	106.36
	MULTI FAMILY	NON SP HTG		28,950	639	18.51
		SP HTG		64,487	831	53.56
	MOBILE HOMES	NON SP HTG		29,930	878	26.28
		SP HTG		21,780	1,045	22.75
RESIDENTIAL	TOTAL	NON SP HTG TOT		234,745	923	216.68
		SP HTG TOT		174,827	1,045	182.67
		TOTAL		409,572	975	399.35
COMMERCIAL		9 NON SP HTG		35,056	2,541	89.08
		9 SP HTG		16,720	2,656	44.41
			12	4,790	7,375	35.33
			20	1,783	74,292	132.46
			23	69	1,243,014	85.77
			28	1	2,774,299	2.77
			99	4,967	2,350	11.67
		TOTAL		63,386	6,334	401.50
INDUSTRIAL		9 NON SP HTG		419	36,223	15.18
		9 SP HTG		72	6,002	0.43
			20	68	195,809	13.32
			23	22	19	3,270,048	62.13
			23	24	3	4,751,591	14.25
			23	26	4	5,464,664	21.86
			23	28	7	9,997,828	69.98
			23	30	7	1,472,709	10.31
			23	32	7	4,215,011	29.51
			23	33	25	1,736,360	43.41
			23	91	2	5,963,941	11.93
			23	99	36	1,325,334	47.71
			28	1	17,489,464	17.49
			60	3	18,212,193	54.64
			99	0	81,047	0.08
		TOTAL		673	612,517	412.22
STREET LIGHTING		TOTAL		756	5,437	4.11
OTHER PUBLIC AUTHORITY			3	1,971	4,478	8.83
			65	19	383,274	7.28
			66	23	1,002,623	23.06
		TOTAL		2,013	19,457	39.17
SUB-TOTAL				476,400	2,637	1,256.35
MUNICIPAL		TOTAL		3	20,977,832	62.93
COOPERATIVE		TOTAL		7	2,113,198	14.79
TOTAL TERRITORIAL SALES		TOTAL		476,410	2,800	1,334.08
COMPANY USE						8.32
UNACCOUNTED FOR						57.89
TOTAL TERRITORIAL LOAD						1,400.29

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SHORT-RANGE ELECTRIC FORECAST FOR NOVEMBER 1994

CLASS		RATE		SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG			175,909	834	146.67
		SP HTG			88,824	1,288	114.41
	MULTI FAMILY	NON SP HTG			29,012	516	14.98
		SP HTG			64,515	732	47.22
	MOBILE HOMES	NON SP HTG			29,911	908	27.15
		SP HTG			21,838	1,173	25.62
RESIDENTIAL	TOTAL	NON SP HTG TOT			234,832	804	188.80
		SP HTG TOT			175,177	1,069	187.24
		TOTAL			410,009	917	376.04
COMMERCIAL		9 NON SP HTG			35,113	2,271	79.75
		9 SP HTG			16,787	2,253	37.82
			12		4,784	5,671	27.13
			20		1,793	69,014	123.74
			23		69	1,155,171	79.71
			28		1	2,774,299	2.77
			99		4,944	2,310	11.42
		TOTAL			63,491	5,707	362.35
INDUSTRIAL		9 NON SP HTG			418	36,695	15.34
		9 SP HTG			72	5,541	0.40
			20		68	190,384	12.95
			23	22	19	3,175,309	60.33
			23	24	3	4,925,941	14.78
			23	26	4	5,566,738	22.27
			23	28	7	9,860,712	69.02
			23	30	7	1,520,190	10.64
			23	32	7	4,288,049	30.02
			23	33	25	1,757,562	43.94
			23	91	2	5,813,096	11.63
			23	99	36	1,355,591	48.80
			28		1	19,879,401	19.88
			60		3	18,658,195	55.97
			99		0	81,047	0.08
		TOTAL			672	619,112	416.04
STREET LIGHTING		TOTAL			757	5,429	4.11
OTHER PUBLIC AUTHORITY			3		1,976	4,244	8.39
			65		19	353,311	6.71
			66		23	924,241	21.26
		TOTAL			2,018	18,016	36.36
SUB-TOTAL					476,947	2,505	1,194.90
MUNICIPAL		TOTAL			3	21,930,233	65.79
COOPERATIVE		TOTAL			7	2,192,763	15.35
TOTAL TERRITORIAL SALES		TOTAL			476,957	2,675	1,276.04
COMPANY USE							8.32
UNACCOUNTED FOR							109.91
TOTAL TERRITORIAL LOAD							1,394.27

SHORT-RANGE ELECTRIC FORECAST FOR   DECEMBER 1994

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		176,034	895	157.49
		SP HTG		89,089	1,757	156.50
	MULTI FAMILY	NON SP HTG		29,069	563	16.37
		SP HTG		64,542	994	64.14
	MOBILE HOMES	NON SP HTG		29,954	1,036	31.04
		SP HTG		21,965	1,666	36.60
RESIDENTIAL	TOTAL	NON SP HTG TOT		235,057	872	204.90
		SP HTG TOT		175,596	1,465	257.24
		TOTAL		410,653	1,125	462.14
COMMERCIAL		9 NON SP HTG		35,170	2,202	77.45
		9 SP HTG		16,855	2,701	45.52
			12	4,785	6,803	32.55
			20	1,803	69,105	124.60
			23	69	1,113,686	76.84
			28	1	158,531	0.16
			99	4,871	2,270	11.06
		TOTAL		63,554	5,793	368.17
INDUSTRIAL		9 NON SP HTG		417	36,813	15.35
		9 SP HTG		72	6,186	0.45
			20	68	187,887	12.78
			23	22	19	2,853,867	54.22
			23	24	3	4,496,506	13.49
			23	26	4	5,265,433	21.06
			23	28	7	9,688,771	67.82
			23	30	7	1,491,346	10.44
			23	32	7	4,299,162	30.09
			23	33	25	1,726,864	43.17
			23	91	2	5,812,236	11.62
			23	99	36	1,247,517	44.91
			28	1	15,255,599	15.26
			60	3	18,688,386	56.07
			99	0	81,047	0.08
		TOTAL		671	591,372	396.81
STREET LIGHTING		TOTAL		758	5,422	4.11
OTHER PUBLIC AUTHORITY			3	1,980	4,469	8.85
			65	19	352,004	6.69
			66	23	920,821	21.18
		TOTAL		2,022	18,158	36.72
SUB-TOTAL				477,658	2,655	1,267.95
MUNICIPAL		TOTAL		3	22,819,378	68.46
COOPERATIVE		TOTAL		7	2,439,391	17.08
TOTAL TERRITORIAL SALES		TOTAL		477,668	2,834	1,353.49
COMPANY USE						8.84
UNACCOUNTED FOR						159.41
TOTAL TERRITORIAL LOAD						1,521.74

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SHORT-RANGE ELECTRIC FORECAST FOR JANUARY-DECEMBER, 1994

CLASS		RATE	SIC	CUSTOMERS	AVERAGE USE	TOTAL GWH
RESIDENTIAL	SINGLE FAMILY	NON SP HTG		175,541	12,586	2,209.35
		SP HTG		87,633	19,562	1,714.26
	MULTI FAMILY	NON SP HTG		28,866	7,813	225.54
		SP HTG		64,392	11,510	741.17
	MOBILE HOMES	NON SP HTG		29,941	12,128	363.12
		SP HTG		21,385	16,368	350.02
RESIDENTIAL	TOTAL	NON SP HTG TOT		234,348	11,940	2,798.00
		SP HTG TOT		173,410	16,178	2,805.45
		TOTAL		407,758	13,742	5,603.45
COMMERCIAL		9 NON SP HTG		34,857	30,207	1,052.93
		9 SP HTG		16,484	35,720	588.81
		12		4,758	82,696	393.47
		20		1,749	907,911	1,587.94
		23		69	14,428,104	995.54
		28		1	7,133,908	7.13
		99		4,919	29,068	142.98
		TOTAL		62,837	75,892	4,768.81
INDUSTRIAL		9 NON SP HTG		423	419,500	177.45
		9 SP HTG		72	87,805	6.32
		20		68	2,339,298	159.07
		23	22	19	36,984,948	702.71
		23	24	3	54,810,779	164.43
		23	26	4	65,048,056	260.19
		23	28	7	118,097,993	826.69
		23	30	7	18,071,521	126.50
		23	32	7	50,164,812	351.15
		23	33	25	21,010,847	525.27
		23	91	2	75,052,253	150.10
		23	99	36	15,482,433	557.37
		28		1	198,951,200	198.95
		60		3	223,158,101	669.47
		99		0	972,565	0.97
		TOTAL		677	7,203,343	4,876.66
STREET LIGHTING		TOTAL		751	65,674	49.32
OTHER PUBLIC AUTHORITY		3		1,956	55,931	109.40
		65		19	4,541,455	86.29
		66		23	11,880,182	273.24
		TOTAL		1,998	234,701	468.93
SUB-TOTAL				474,021	33,263	15,767.18
MUNICIPAL		TOTAL		3	273,853,069	821.56
COOPERATIVE		TOTAL		7	28,191,195	197.34
TOTAL TERRITORIAL SALES		TOTAL		474,031	35,411	16,786.08
COMPANY USE						104.00
UNACCOUNTED FOR						839.00
TOTAL TERRITORIAL LOAD						17,729.08

Long Range Methodology and Forecasts

For

Electric Customers and Sales

1995 - 2012

TABLE OF CONTENTS

II.   LONG RANGE METHODOLOGY AND FORECASTS

This chapter presents the development of the long-range electric sales forecast for the Company.   The electric sales forecast is developed in two stages.   The first stage of development incorporates economic analysis, econometric techniques, an evaluation of statistical measures and an analysis of the historical electric sales trends.   This stage of the process produces a preliminary or "base" case electric sales forecast.   In the second stage the base case electric forecast is adjusted for the selected demand side management programs.   This produces the final electric sales forecast.

The long range electric sales forecast is developed for each of our seven classes of service: residential, commercial, industrial, street lighting, other public authorities, municipal and cooperatives.   These classes were disaggregated into appropriate subgroups where data was available and there were notable differences in the data patterns. The residential, commercial, and industrial classes are considered the "major" classes of service and account for 90% of total territorial sales.   A customer forecast was developed for each major class of service. For the residential class, forecasts are produced for those customers with electric space heating and for those without electric space heating and disaggregated into housing type (single family, multi-family and mobile homes).   In addition, two residential marketing classifications--Good Cents customers [Rate 1] and Conservation Rate customers [Rate 7]--were evaluated separately.   Residential sales attributed to the street lighting rates were also evaluated

separately. These subgroups were chosen based on available data and differences in the average usage levels and/or data patterns. The industrial class was disaggregated into two digit SIC code classification for the large general service customers and the smaller industrial customers were grouped into an "other" category. These subgroups were chosen to account for the differences in the industrial mix in the service territory. With the exception of the residential and small industrial group, the forecast for sales was estimated based on total usage in that class of service. For the residential and small industrial group, customers and average usage per customer were estimated and total sales were calculated as a product of the two.

The forecast for each class of service is developed utilizing an econometric approach. The structure of the econometric model is based upon the relationships between the variable to be forecasted and the economic environment, weather, conservation, or price. The following analysis examines the methodology, economic assumptions, customer and sales assumptions, forecast equations and the demand side management programs that were used to develop the forecast.

1. Econometric Methodology

Development of the models for long-term forecasting is econometric in approach and uses the technique of regression analysis. Regression analysis is a method of developing an equation which relates one variable (such as sales or customers) to one or more other variables which should explain the first (such as

weather, personal income or population growth). This method is mathematically contrived so that the resulting combination of explanatory variables produces the smallest error between the historic actual values and those estimated by the regression. The output of the regression analysis provides an equation for the variable being explained. In the equation, the variable being explained equals the sum of the explanatory variables multiplied by an estimated coefficient. Several statistics which indicate the success of the regression analysis fit are shown in Section 8 for each model. The indicators are R-SQUARE, mean squared Error of the Regression, Durbin-Watson Statistic and the T-Statistics of the Coefficient. The T-Statistics are shown in parenthesis under each variable in the equation. PROC STEPWISE, PROC REG, and PROC AUTOREG of the Statistical Analysis System (SAS) were used to estimate all regression models. PROC STEPWISE was used for preliminary model specification and elimination of insignificant variables. PROC REG was used for the final model specifications. Model development also included residual analysis for incorporating dummy variables and an analysis of how well the models fit the historical data, and checks for any statistical problems such as autocorrelation or multicollinearity. PROC AUTOREG was used if autocorrelation was present as indicated by the Durbin-Watson statistic.

Prior to developing the long-range models, certain design decisions were made:

1. The multiplicative or double log model form was chosen. This form allows forecasting based on growth rates since

elasticities with respect to each explanatory variable are given directly by their respective regression coefficients. Elasticity explains the responsiveness of changes in one variable (e.g. sales) to changes in any other variable (e.g. price). Thus, the elasticity coefficient can be applied to the forecasted growth rate of the explanatory variable to obtain a forecasted growth rate for sales. These forecasted growth rates are then applied to the last year of the short range forecast to obtain the forecast level for customers or sales for the long range forecast. This is a constant elasticity model. Therefore, it is very important to evaluate the reasonableness of the model coefficients.

2. One way to incorporate the effects of "conservation", was to incorporate the real price of electricity. Models selected for the major classes would include this variable, if significant.

3. The remaining variables to be included in the models for the major classes would come from four categories:

    A. Demographic variables - Population.

    B. Measures of economic well-being or activity - real personal income, real per capita income, employment variables, and industrial production indices.

    C. Weather variables - average summer/winter temperature.

    D. Variables identified through residual analysis or knowledge of political changes, major economic events, etc. - such as the foreign oil price increases in 1979 and recession versus non-recession years, etc.

Standard statistical procedures (all possible regressions, stepwise regression) were used to obtain preliminary specifications for the models. Model parameters were then estimated using historical data through 1991 and competitive models were evaluated on the basis of:

    1. Residual analysis and traditional "goodness of fit" measures to determine how well these models fit the historical data and whether there were any statistical problems such as autocorrelation or multicollinearity.

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2.   An examination of the model results for 1992.   1992
     historical sales data was the basis for this evaluation.

3.   An analysis of the reasonableness of the long-term trend
     generated by the models.   The evaluative criteria was
     whether there were any obvious problems such as the
     forecasts exceeding all rational expectations based on
     historical trends and current industry expectations.

4.   An analysis of the reasonableness of the elasticity
     coefficient for each explanatory variable.

As a result of the evaluative procedure, final models were obtained for each class.   The equations and selected statistical measures for each class of service in the electric sector are provided in Section 8.

The drivers for the long-range electric forecast included the following variables.

1.   Service Area population;
2.   Service Area real per capita income;
3.   Service Area real personal income;
4.   State industrial production indices;
5.   The real price of electricity;
6.   Average summer temperature; and,
7.   Average winter temperature.

The service area data included Richland, Lexington, Berkeley, Dorchester, Charleston, Aiken and Beaufort counties which account for 88% of total territorial electric sales.   Service area data was used for all classes with the exception of the industrial class. The industrial or manufacturing sector is generally considered an "export" industry whose activity is more dependent on national and international factors rather than on regional specifics. Therefore, State data was used for the industrial class.

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2. Economic Assumptions

In order to generate the electric sales forecast, forecasts must be available for the exogenous variables. The forecasts for the economic and demographic variables were obtained from Data Resources, Inc., (DRI) and the forecasts for the price and weather variables were based on historical data. Three forecasts of the economic and demographic variables for the United States were obtained, (1) a trend or most probable growth case, (2) a more optimistic case with higher growth and lower inflation and (3) a pessimistic case with lower growth and higher inflation. The three economic scenarios for the SCE&G Service Area and the State of South Carolina were then developed by taking a ratio between the trend projection of GDP and the optimistic or pessimistic scenario. This ratio was used to lower or increase State and Service Area variables to provide upper and lower bounds. DRI assumes a 50% probability that the economy will closely resemble the trend, a 25% chance that it will resemble the optimistic scenario, and a 25% chance that it will be closest to the pessimistic case.

The exogenous trend projection by DRI is characterized by slow, steady growth, representing the mean of all possible paths that the economy could follow if subject to no major disruptions, such as substantial oil price shocks, untoward swings in policy, or excessively rapid increases in demand. Increases in real GDP average 2.1% between 1992 and 2012 with consumer prices averaging 4.3% annually over the same time frame. In the 1990's, growth in real output is constrained by slower population growth, averaging

.7% from 1992 to 2002 and .5% thereafter, a marked deceleration from the 1.0% average since 1966. Slower population growth leads to a period of softening in housing and other consumer goods markets. Real interest rates remain high by pre-1979 standards and the civilian unemployment rate deviates only slightly from its 5.8% average levels. Although energy prices eventually rise faster than overall inflation, crisis of the magnitude of OPEC I and OPEC II are not projected in the trend scenario.

The optimistic and pessimistic scenarios begin from the central trend projection and explore the implications of higher and lower underlying growth paths of the economy. These bandwidth projections depart from the trend in both their supply-side assumptions and their inflation outlooks. In the optimistic scenario for instance, the labor force, capital stock and exogenous technological change grow at a faster pace than in the trend. The pessimistic scenario makes the opposite assumptions: higher inflation which rises steadily through the first half of the forecast, and slower economic growth. In the pessimistic case, growth is reduced by 0.5% annually relative to the trend and in the optimistic case, potential output grows almost .5% per year more rapidly. Because output is primarily supply determined in the long run, the difference in real GDP growth is very similar.

The growth in the nominal price of electricity is expected to average about 4.5% annually from 1993 to 2012. This expectation is based on the Company's most recent Integrated Resource Plan. With inflation projected at a rate close to 4.3% over this time period,

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the real price of electricity should remain fairly flat over the forecast horizon. This projection for real price is consistent with historical experience. Since 1975, the mean growth in the real price of electricity has been -.7% with a high of 12.8% and a low of -9.4%. For forecasting, growth in the real price of electricity is assumed to be zero which is consistent with the historical data and expectations for future policy decisions. Average summer temperature (Average of June, July and August temperature) and average winter temperature (Average of December (previous year), January and February temperature) are assumed to be equal to the normal values used in the short range forecast. In other words, there is no change projected for the weather variables in the long term forecast. The tables in Section 4 show the historical data and the tables in Section 5 show the forecast for the exogenous variables.

3.   Forecast Ranges

    ' The sales forecast presented in this documentation is based on the trend economic scenario, zero growth in real price and the normal values for the weather variables used in the short range forecast. However, in reality the values of the exogenous variables may differ from these. It would be unrealistic to expect weather to be normal in every year or to expect economic growth to be exactly as projected. Therefore, ranges around the consensus sales forecast can be developed based on assumptions about changes in the exogenous variables.

The impact that a change in any of the exogenous variables can have on sales can be described in terms of elasticity. As noted earlier, elasticity explains the responsiveness of changes in one variable (e.g. sales) to changes in any other variable (e. g. price). The elasticity coefficient for economic activity (as measured by real personal income), the real price of electricity, average summer temperature and average winter temperature with respect to total territorial sales were estimated. The coefficients were estimated based on the three economic scenarios presented earlier, average summer temperature ranging from 82.6 degrees to 77.9 degrees, average winter temperature ranging from 52.0 degrees to 42.7 degrees and the growth in the real price of electricity ranging from +12.83% to -9.35%. These values were based on the high and the low value occurring since 1975. A uniform distribution was used to generate a value for summer temperature, winter temperature and the real price of electricity for each of the economic scenarios and each year of the forecast. Regression analysis was used to estimate the coefficients over the forecast period. Using a logarithmic transformation, the elasticities are given directly by the regression coefficients. The elasticity coefficients resulting are shown in Table 1.

The interpretation of the coefficients is fairly straight forward and can be described in terms of percent change. For example, price elasticity can be defined as the percent of change in the level of sales as a result of a given percent change in price. Since the coefficient of the real price of electricity is

-.1, a 1% increase in the real price of electricity would result in a .1% decline in total territorial sales. Similarly, a 1% increase in real personal income would result in a .8% increase in total territorial sales. In terms of temperature, if the average summer temperature is 81.1 degrees instead of the mean value of 80.3 degrees, a 1.0% increase, sales would be expected to be .7% higher. If the average winter temperature is 46.8 degrees instead of the mean value of 47.8 degrees, a 2% decline, then total territorial sales would be expected to be .6% higher. Using the trend sales forecast and assumptions as the base level, ranges can be developed using a similar type of analysis. Table 2 shows a scenario based on the pessimistic and optimistic economic data presented in Section 2. In the trend scenario, real personal income in the service area grows at a 2.4% annual rate from 1995 to 2012. In the pessimistic and optimistic scenarios, the growth is 2.0% and 2.9%, respectively. Although temperature and price can also affect electricity sales, as noted above, our assumption for the long term was that temperature would be close to normal although any particular year may vary and that the price of electricity would grow close to inflation in all three scenarios resulting in zero real growth. Based on the alternative economic scenarios, total territorial sales grow at an annual rate of 1.7% and 2.6% in the pessimistic and optimistic scenarios respectively, compared to the trend of 2.1%. As noted earlier, the trend scenario has a 50% probability of occurring compared to 25% for the pessimistic and 25% for the optimistic.

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TABLE 1

ELASTICITY COEFFICIENTS

Variable	Coefficient
Real Personal Income	.8
Real Price of Electricity	-.1
Average Summer Temperature	.7
Average Winter Temperature	-.3

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TABLE 2

A FORECAST SCENARIO FOR 2012

	Base Case	Pessimistic	Optimistic
SCE&G Real Personal Income	27.222	24.745	29.945
% Change to Base		-9.1	+10.00
Elasticity		.80	.80
% Change in Sales *		-7.28	+8.00
Total Territorial Sales	24.761	22.958	26.742
Annual % Change (1995 - 2012)	2.10	1.70	2.60

*Calculated based on the following formula:

((Alternate scenario value / Base case value) - 1)
    * Elasticity coefficient) * 100

4. <u>Historical Economic Data</u>

SOUTH CAROLINA ELECTRIC AND GAS COMPANY
HISTORICAL DATA
FOR ELECTRIC SERVICE AREA
ECONOMIC VARIABLES

YEAR	POPULATION (THOUS)	REAL PER CAPITA INCOME ($) 1	REAL PERSONAL INCOME (MILL$) 1	AVERAGE WINTER TEMPERATURE	AVERAGE SUMMER TEMPERATURE	REAL PRICE OF RES SPHT ELEC ($/KWH) 1	REAL PRICE OF RES NONSPHT ELEC ($/KWH) 1	REAL PRICE OF COMM ELEC ($/KWH) 1	REAL PRICE OF COOP ELEC ($/KWH) 1
1976	949.6	10610	10075.3	49.3	77.9	0.06235	0.07238	0.05726	0.03934
1977	963.6	10765	10373.6	43.3	81.0	0.06722	0.07800	0.06235	0.04024
1978	984.0	11081	10904.0	42.7	79.7	0.06667	0.07690	0.06186	0.04225
1979	1002.1	11282	11306.0	46.8	78.5	0.06681	0.07614	0.06128	0.04287
1980	1018.8	11342	11554.6	45.7	80.2	0.06674	0.07339	0.06075	0.04215
1981	1037.1	11553	11982.0	45.1	80.8	0.07072	0.07886	0.06540	0.04663
1982	1051.0	11581	12171.5	46.1	79.3	0.07764	0.08294	0.06818	0.04822
1983	1065.5	11804	12576.6	48.2	80.7	0.07949	0.08454	0.06854	0.05276
1984	1078.5	12362	13332.6	46.8	79.5	0.08012	0.08589	0.06946	0.05692
1985	1085.5	12779	13872.2	48.4	79.5	0.08084	0.08476	0.06808	0.05541
1986	1105.8	13062	14444.8	47.5	82.6	0.07731	0.08046	0.06461	0.05200
1987	1120.5	13314	14919.0	47.5	82.1	0.07083	0.07376	0.05878	0.04195
1988	1134.1	13746	15590.2	46.6	80.3	0.06482	0.06766	0.05360	0.04051
1989	1152.7	13697	15789.2	51.1	80.9	0.06265	0.06538	0.05167	0.03989
1990	1183.4	14078	16660.0	51.2	82.1	0.06036	0.06278	0.04942	0.03725
1991	1220.0	13771	16800.5	52.0	81.1	0.05728	0.05999	0.04701	0.03700

1   1987 DOLLARS

SOUTH CAROLINA ELECTRIC AND GAS COMPANY
HISTORICAL DATA
FOR SOUTH CAROLINA
INDUSTRIAL PRODUCTION INDICES 1

YEAR	TOTAL MFG PRODUCTION INDEX	SIC 22 PRODUCTION INDEX	SIC 24-25 PRODUCTION INDEX	SIC 26 PRODUCTION INDEX	SIC 28 PRODUCTION INDEX	SIC 30 PRODUCTION INDEX	SIC 32 PRODUCTION INDEX	SIC 33-37 PRODUCTION INDEX
1976	1.070	1.016	0.915	1.114	1.090	1.481	0.988	1.221
1977	1.157	1.059	0.975	1.159	1.171	1.919	1.083	1.408
1978	1.209	1.050	1.039	1.203	1.253	2.175	1.144	1.570
1979	1.267	1.097	1.039	1.242	1.320	2.416	1.140	1.677
1980	1.265	1.093	1.034	1.249	1.257	2.539	1.028	1.748
1981	1.283	1.072	1.038	1.269	1.251	3.113	1.053	1.878
1982	1.210	0.939	0.981	1.253	1.153	3.197	0.953	1.757
1983	1.343	1.057	1.110	1.488	1.370	3.381	1.041	1.984
1984	1.417	1.051	1.171	1.595	1.413	3.578	1.107	2.423
1985	1.397	0.997	1.167	1.625	1.400	3.659	1.107	2.488
1986	1.492	1.056	1.184	1.839	1.558	3.950	1.197	2.592
1987	1.641	1.166	1.275	1.916	1.727	4.328	1.201	3.050
1988	1.712	1.106	1.314	1.969	1.939	4.554	1.268	3.543
1989	1.795	1.151	1.297	1.982	2.143	4.787	1.268	3.689
1990	1.810	1.117	1.301	2.040	2.275	5.059	1.201	3.763
1991	1.787	1.118	1.228	2.119	2.331	5.009	1.118	3.595

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1 1973:1=1.000

5. <u>Forecast Economic Data</u>

SOUTH CAROLINA ELECTRIC AND GAS COMPANY
FORECAST DATA
FOR ELECTRIC SERVICE AREA
ECONOMIC VARIABLES

LOWER BOUND

YEAR	POPULATION (THOUS)	REAL PER CAPITA INCOME ($) 1	REAL PERSONAL INCOME (MILL $) 1
1993	1260.4	13521	17042
1994	1272.8	13749	17500
1995	1287.0	13842	17815
1996	1300.0	13944	18127
1997	1315.0	14086	18523
1998	1331.0	14215	18920
1999	1347.0	14389	19383
2000	1363.8	14558	19854
2001	1380.4	14723	20324
2002	1396.8	14869	20769
2003	1412.8	14990	21178
2004	1428.6	15151	21645
2005	1444.4	15296	22094
2006	1460.1	15372	22444
2007	1476.5	15437	22793
2008	1493.6	15527	23192
2009	1510.7	15604	23572
2010	1527.9	15679	23957
2011	1545.7	15752	24347
2012	1563.6	15826	24745

1 1987 DOLLARS

SOUTH CAROLINA ELECTRIC AND GAS COMPANY
FORECAST DATA
FOR ELECTRIC SERVICE AREA
ECONOMIC VARIABLES

TREND

YEAR	POPULATION (THOUS)	REAL PER CAPITA INCOME ($) 1	REAL PERSONAL INCOME (MILL $) 1
1993	1260.4	13797	17390.0
1994	1272.8	13931	17730.4
1995	1287.0	14095	18141.1
1996	1300.0	14331	18630.3
1997	1315.0	14552	19135.7
1998	1331.0	14761	19647.0
1999	1347.0	14989	20190.5
2000	1363.8	15180	20702.4
2001	1380.4	15369	21215.3
2002	1396.8	15537	21702.7
2003	1412.8	15729	22222.3
2004	1428.6	15948	22784.2
2005	1444.4	16170	23354.9
2006	1460.1	16353	23876.8
2007	1476.5	16528	24403.9
2008	1493.6	16714	24964.3
2009	1510.7	16887	25511.2
2010	1527.9	17061	26068.6
2011	1545.7	17234	26638.0
2012	1563.6	17410	27222.3

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1   1987 DOLLARS

SOUTH CAROLINA ELECTRIC AND GAS COMPANY
FORECAST DATA
FOR ELECTRIC SERVICE AREA
ECONOMIC VARIABLES

UPPER BOUND

YEAR	POPULATION (THOUS)	REAL PER CAPITA INCOME ($) 1	REAL PERSONAL INCOME (MILL $) 1
1993	1260.4	14018	17668
1994	1272.8	14195	18067
1995	1287.0	14406	18540
1996	1300.0	14747	19171
1997	1315.0	15032	19767
1998	1331.0	15293	20354
1999	1347.0	15618	21038
2000	1363.8	15893	21675
2001	1380.4	16137	22276
2002	1396.8	16376	22875
2003	1412.8	16642	23511
2004	1428.6	16937	24197
2005	1444.4	17253	24920
2006	1460.1	17514	25572
2007	1476.5	17784	26259
2008	1493.6	18068	26986
2009	1510.7	18356	27731
2010	1527.9	18631	28467
2011	1545.7	18888	29195
2012	1563.6	19151	29945

1   1987 DOLLARS

SOUTH CAROLINA ELECTRIC AND GAS COMPANY
FORECAST DATA
FOR SOUTH CAROLINA
INDUSTRIAL PRODUCTION INDICES 1

LOWER BOUND

YEAR	TOTAL MFG PRODUCTION INDEX	SIC 22 PRODUCTION INDEX	SIC 24-25 PRODUCTION INDEX	SIC 26 PRODUCTION INDEX	SIC 28 PRODUCTION INDEX	SIC 30 PRODUCTION INDEX	SIC 32 PRODUCTION INDEX	SIC 33-37 PRODUCTION INDEX
1993	1.896	1.161	1.342	2.253	2.547	5.415	1.150	3.821
1994	1.967	1.170	1.441	2.338	2.638	5.655	1.245	4.023
1995	1.994	1.152	1.496	2.382	2.674	5.828	1.311	4.132
1996	2.017	1.139	1.524	2.411	2.692	5.969	1.348	4.247
1997	2.067	1.149	1.559	2.455	2.745	6.238	1.381	4.406
1998	2.123	1.159	1.602	2.513	2.817	6.573	1.419	4.590
1999	2.169	1.164	1.638	2.555	2.877	6.852	1.441	4.752
2000	2.219	1.170	1.673	2.604	2.945	7.149	1.462	4.916
2001	2.277	1.178	1.710	2.661	3.018	7.511	1.489	5.104
2002	2.333	1.184	1.741	2.712	3.082	7.878	1.510	5.295
2003	2.383	1.184	1.764	2.760	3.144	8.222	1.520	5.488
2004	2.435	1.187	1.797	2.813	3.211	8.568	1.530	5.670
2005	2.479	1.187	1.832	2.861	3.266	8.904	1.540	5.818
2006	2.515	1.184	1.850	2.904	3.316	9.206	1.540	5.954
2007	2.553	1.182	1.884	2.943	3.368	9.510	1.551	6.082
2008	2.587	1.182	1.915	2.978	3.417	9.833	1.565	6.204
2009	2.621	1.181	1.948	3.013	3.461	10.149	1.579	6.317
2010	2.653	1.178	1.979	3.048	3.503	10.466	1.591	6.435
2011	2.682	1.169	2.009	3.082	3.544	10.782	1.600	6.560
2012	2.707	1.160	2.040	3.099	3.577	11.070	1.609	6.673

1 1973:1=1.000

SOUTH CAROLINA ELECTRIC AND GAS COMPANY
HISTORICAL DATA
TREND

YEAR	TOTAL MFG. PRODUCTION INDEX	SIC 22 PRODUCTION INDEX	SIC 24-25 PRODUCTION INDEX	SIC 26 PRODUCTION INDEX	SIC 28 PRODUCTION INDEX	SIC 30 PRODUCTION INDEX	SIC 32 PRODUCTION INDEX	SIC 33-37 PRODUCTION INDEX
1993	1.935	1.185	1.369	2.299	2.599	5.525	1.173	3.899
1994	1.993	1.185	1.460	2.369	2.673	5.729	1.261	4.076
1995	2.031	1.173	1.523	2.426	2.723	5.935	1.335	4.208
1996	2.073	1.171	1.566	2.478	2.767	6.135	1.385	4.365
1997	2.135	1.187	1.611	2.536	2.836	6.444	1.427	4.552
1998	2.205	1.204	1.664	2.61	2.925	6.826	1.474	4.767
1999	2.259	1.212	1.707	2.661	2.997	7.137	1.501	4.950
2000	2.314	1.22	1.744	2.715	3.071	7.455	1.525	5.126
2001	2.377	1.23	1.785	2.778	3.15	7.84	1.554	5.328
2002	2.438	1.237	1.819	2.834	3.22	8.232	1.578	5.533
2003	2.501	1.242	1.851	2.896	3.299	8.628	1.595	5.759
2004	2.563	1.249	1.892	2.961	3.38	9.019	1.61	5.968
2005	2.62	1.255	1.937	3.024	3.452	9.412	1.628	6.150
2006	2.676	1.26	1.968	3.089	3.528	9.794	1.638	6.334
2007	2.733	1.266	2.017	3.151	3.606	10.182	1.661	6.511
2008	2.785	1.272	2.062	3.206	3.678	10.585	1.685	6.679
2009	2.837	1.278	2.108	3.261	3.746	10.984	1.709	6.837
2010	2.887	1.282	2.153	3.317	3.812	11.389	1.731	7.002
2011	2.934	1.279	2.198	3.372	3.877	11.797	1.751	7.177
2012	2.978	1.276	2.245	3.409	3.935	12.178	1.77	7.341

1   1973:1=1.000

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SOUTH CAROLINA ELECTRIC AND GAS COMPANY
FORECAST DATA
FOR SOUTH CAROLINA
INDUSTRIAL PRODUCTION INDICES 1

UPPER BOUND

YEAR	TOTAL MFG. PRODUCTION INDEX	SIC 22 PRODUCTION INDEX	SIC 24-25 PRODUCTION INDEX	SIC 26 PRODUCTION INDEX	SIC 28 PRODUCTION INDEX	SIC 30 PRODUCTION INDEX	SIC 32 PRODUCTION INDEX	SIC 33-37 PRODUCTION INDEX
1993	1.966	1.204	1.391	2.336	2.641	5.613	1.192	3.961
1994	2.031	1.208	1.488	2.414	2.724	5.838	1.285	4.153
1995	2.076	1.199	1.557	2.479	2.783	6.066	1.364	4.301
1996	2.133	1.205	1.611	2.550	2.847	6.313	1.425	4.492
1997	2.205	1.226	1.664	2.620	2.930	6.657	1.474	4.702
1998	2.284	1.247	1.724	2.704	3.030	7.072	1.527	4.938
1999	2.354	1.263	1.778	2.773	3.123	7.437	1.564	5.158
2000	2.423	1.277	1.826	2.843	3.215	7.805	1.597	5.367
2001	2.496	1.292	1.874	2.917	3.308	8.232	1.632	5.594
2002	2.570	1.304	1.917	2.987	3.394	8.677	1.663	5.832
2003	2.646	1.314	1.959	3.064	3.490	9.128	1.688	6.093
2004	2.722	1.326	2.009	3.145	3.590	9.578	1.710	6.338
2005	2.796	1.339	2.066	3.227	3.683	10.043	1.737	6.562
2006	2.866	1.349	2.108	3.308	3.778	10.489	1.754	6.784
2007	2.941	1.362	2.170	3.390	3.880	10.956	1.787	7.006
2008	3.011	1.375	2.229	3.466	3.976	11.442	1.821	7.220
2009	3.084	1.389	2.292	3.545	4.072	11.940	1.858	7.432
2010	3.153	1.400	2.351	3.622	4.163	12.437	1.890	7.647
2011	3.216	1.402	2.409	3.696	4.249	12.930	1.919	7.866
2012	3.276	1.404	2.469	3.750	4.329	13.396	1.947	8.075

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1 1973:1=1.000

6.   Electric Sales Assumptions

The results of the long-range forecast process along with the short range numbers are shown in the tables in Section 10. Total territorial sales are expected to increase at an annual rate of 2.1% from 1995 to 2012. Most of the growth over the forecast period is expected to be concentrated in the commercial sector. This trend reflects the economic assumptions which show the economy moving away from a manufacturing emphasis to a more services-oriented economy. In addition, population growth slows over the forecast period, which results in a general slowdown in the economic demand for goods and services.

An analysis for the major classes of service follows with an explanation of the assumptions which were incorporated into the long-range electric customer and sales forecasts.

Residential

In the residential sector, sales will increase at 2.0% over the 17 year period. In the past several years, we have seen a reversal in the declining trend in customers in the non-space heating sector, therefore, our forecast incorporates some growth in non-space heating customers with most of the growth in the space heating segment. Sales in the space heating sector increase at an annual rate of 2.9% and in the non-space heating sector, sales increase at 1.0%.

Residential customers are expected to increase at a 1.7% annual rate, averaging 8,175 per year. The customer forecast for

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each subgroup was based on assumptions regarding what percent of the new customers would fall within each category. An evaluation of the historical data and current expectations provided the basis for the allocations. From 1970 to 1974 an average of 50% of our new customers were non-space heating; however, with the oil embargo of 1973 we saw a dramatic change in this trend. From 1975 to 1981 we actually saw a net decline in these customers. In other words over 100% of our new customer growth was attributable to electric heating customers. Since 1981, on average 10% of new customer growth has been non electric heating. However, from 1989 to 1991 this percent increased to 19 and this is attributed to the current gas marketing programs of the Company. Based on this information and current Company policy regarding extending residential gas mains we assumed 20% of new customers would be non-electric heating for the long term. The remainder of the new customers would be electric heating customers. The assumptions for dwelling type were based on a similar analysis. An evaluation of the fifteen years of historical data and taking into account that the current tax laws do not support rapid growth in the multi-family market, we assumed for the long term that, for the electric heating group 50% of new customers would be single family, 30% multi-family and 20% mobile homes. The respective percentages for non-electric heating are 70%, 15% and 15%.

In addition, Good Cents customers [Rate 1] and Conservation Rate customers [Rate 7] were forecasted separately. The number of customers forecasted for each rate was based on information

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provided by the Marketing department. The number of customers falling in each of the housing-type groups, (i.e., space heating single family) was based on three years of available historical data.

For Rate 1, we assumed 83% would be single family homes with 33% non-electric heating and 50% electric heating. The remainder would be multi-family homes with 7% non-electric heating and 10% electric heating. For Rate 7, we assumed 38% would non-space heating with 24% single family, 13% multi-family and 1% mobile homes. The remaining 62% would be electric heating with the housing type percentages 46%, 14%, and 2%, respectively. Average use for these customers was based on 1991 historical data. Rate 7 average use was calculated as a percent of Rate 8 for each of the six subgroups and Rate 1 was calculated as a percent of Rate 7. The percentages for Rate 7 for non-electric heating were 1.37%, .83%, and 1.38% for single family, multi-family, and mobile homes, respectively. The respective percentages for space heating were 1.02%, .87%, and 1.02%. Rate 1 average use was forecasted as 90% of Rate 7 for each subgroup.

Overall, average use per customer remains fairly constant over the forecast period, with a slight decrease in space heating, -.01%, and a slight increase in non-space heating of .3%. As expected, average use for the non-electric heating customers was a function of summer temperature, real electric price (a proxy for conservation in the market), and real per capita income, (a measure of the standard of living in a region) with winter temperature

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included for single-family homes. Average use for electric heating customers was a function of winter temperature and real electric price with summer temperature included for mobile homes. Summer temperature was not significant for the single family and multi-family subgroups. Real per capita income had a negative sign which is not consistent with economic expectations therefore was not included in these equations. In all cases, the price elasticities were negative as expected and consistent with reported industry data. Total sales for each subgroup was calculated from customers and average use and summed to arrive at total residential sales. Demand-side management adjustments were then applied and average use for each subgroup was recalculated.

Commercial

The forecast for commercial sales is a compound annual rate of 2.8% over the 17 year period. Commercial customers are expected to increase about 1,996 per year. As indicated by the model specification the main factor influencing commercial sales over the forecast will be economic activity, although summer temperature and price explain some variation in the sales data.

Industrial

The long-range annual rate of growth forecast for industrial sales is 1.4%. This incorporates a base load of 399 GWH for 1995-2012 for the Savannah River Project forecast. This is 72% of the expected contract amount of 70 MW from 1995-2012. This Forecast

was based on information supplied by Industrial Relations. The industrial forecast was produced by standard industrial classification (SIC) as noted earlier. In each subgroup, sales were estimated as a function of the respective industrial production index for that industry. The major assumption underlying the specification was that industrial electric sales should grow at about the same rate as or less than economic activity in that industry. Therefore, a coefficient close to or less than 1.0 would support this assumption. The exceptions were the chemical products (SIC 28) which tend to be textile related, and lumber and wood products both of which have, historically, grown slower than the industry average and other large industries or unclassified which have historically grown much faster than the overall manufacturing sector.

Street Lighting and Other Public Authorities

Street lighting sales are expected to grow at 1.7%. The consensus averages about a 1.0 GWH a year increase. The forecast for OPA sales is a 2.6% annual rate.

Municipal and Cooperatives

Municipal sales are expected to increase 2.3% which includes the addition of the City of Camden in 1995 and cooperative sales are expected to increase 2.0% from 1995 to 2012.

Company Use and Unaccounted For Energy

Company use is forecasted to grow at 3% annually throughout the forecast period. Unaccounted for energy is forecasted as 5% of total territorial sales.

7.   Demand-Side Management Adjustments

The Company's long term electric sales forecast is also adjusted for the impact of each demand side program that proved to be economical in the Integrated Resource Planning process. The forecast was adjusted for both existing programs and new programs. The existing demand side programs that impact the electric sales forecast were great appliance trade-up, home energy check, residential thermal storage, commercial ice storage, commercial high efficiency chillers and commercial relamping. The new programs that impact the electric sales forecast were variable speed motor drives, high efficiency fluorescent ballasts, high efficiency motors, off-peak water heating, roof-top package units, and high efficiency duel fuel heat pumps. The adjustments for these demand side programs were provided by the Marketing Department. For the existing programs, the long-term impact of the program was reduced by the 1993 amount based on the assumption that this was already reflected in the short-range forecast data.

The adjustments to the forecast are shown in Tables 3 and 4. Table 3 shows the existing programs and Table 4 shows the new programs with the total for both shown in Table 5. In 1995, these programs reduce the electric sales forecast by 100.1 GWH. By the year 2012, the adjustment was -488.9 GWH.

TABLE 3

DEMAND SIDE MANAGEMENT
ADJUSTMENTS TO ELECTRIC SALES FOR EXISTING PROGRAMS

(GWH)

YEAR	RESIDENTIAL GREAT APPL TRADE UP	RESIDENTIAL HOME ENERGY CHECK	RESIDENTIAL THERMAL STORAGE	COMMERCIAL ICE STORAGE	COMMERCIAL HIGH EFF. CHILLER	COMMERCIAL RELAMPING	TOTAL EXISTING PROGRAMS ADJUSTMENT
1993	0.0	0.0	0.8	0.0	0.0	0.0	0.8
1994	-5.3	-10.8	1.5	0.8	-0.5	-14.0	-28.3
1995	-10.5	-13.4	2.3	1.5	-0.8	-15.4	-36.2
1996	-15.8	-16.0	3.2	2.3	-1.1	-16.8	-44.2
1997	-21.0	-18.6	4.1	3.0	-1.3	-18.2	-52.0
1998	-26.3	-21.3	5.0	3.8	-1.6	-19.6	-59.9
1999	-31.5	-23.9	6.0	4.5	-1.8	-21.0	-67.7
2000	-36.8	-26.5	6.9	5.3	-2.1	-22.4	-75.6
2001	-42.0	-28.3	7.8	6.0	-2.4	-23.8	-82.6
2002	-47.3	-30.0	8.6	6.8	-2.6	-25.2	-89.6
2003	-52.5	-31.8	9.5	7.5	-2.9	-26.6	-96.6
2004	-57.8	-33.5	10.5	8.3	-3.1	-28.0	-103.7
2005	-63.0	-35.2	11.4	9.0	-3.4	-29.4	-110.6
2006	-68.3	-37.0	12.3	9.8	-3.7	-30.8	-117.6
2007	-73.5	-38.7	13.2	10.6	-3.9	-32.2	-124.6
2008	-78.8	-40.5	14.1	11.3	-4.2	-33.6	-131.6
2009	-84.0	-42.2	15.1	12.1	-4.5	-35.0	-138.6
2010	-89.3	-44.0	16.0	12.8	-4.7	-36.4	-145.6
2011	-94.5	-45.7	16.9	13.6	-5.0	-37.8	-152.5
2012	-99.8	-47.5	17.9	14.3	-5.2	-39.2	-159.4

TABLE 4

DEMAND SIDE MANAGEMENT
ADJUSTMENTS TO ELECTRIC SALES   FOR NEW PROGRAMS

(GWH)

YEAR	VARIABLE SPEED MOTOR DRIVES	HIGH EFF FLUOR BALLASTS	HIGH EFF MOTORS	OFF-PEAK WATER HEATING	ROOFTOP PACKAGE UNITS	HIGH EFF DUEL FUEL HP	TOTAL NEW PROGRAMS ADJUSTMENTS
1993	-2.6	-21.0	-11.4	3.2	-2.6	8.5	-26.0
1994	-5.2	-36.8	-21.7	4.8	-4.7	12.1	-51.3
1995	-7.8	-38.3	-32.4	6.2	-6.2	14.7	-63.9
1996	-10.6	-39.9	-43.4	7.5	-7.8	17.5	-76.7
1997	-13.4	-41.5	-54.7	9.0	-9.5	20.3	-89.7
1998	-16.3	-43.1	-66.2	10.4	-11.1	23.2	-103.1
1999	-19.3	-44.6	-78.1	11.9	-12.8	26.1	-116.8
2000	-22.3	-46.2	-90.3	13.4	-14.5	29.0	-130.9
2001	-25.4	-47.8	-102.8	14.9	-15.4	31.9	-144.7
2002	-28.6	-49.4	-115.6	16.4	-17.1	34.7	-159.6
2003	-31.9	-50.9	-128.6	17.9	-18.9	37.5	-174.9
2004	-35.2	-52.5	-142.0	19.5	-20.8	40.6	-190.5
2005	-38.7	-54.1	-155.7	21.1	-22.7	43.6	-206.5
2006	-42.2	-55.7	-169.7	22.6	-24.6	46.5	-223.1
2007	-45.7	-57.2	-184.0	24.2	-26.5	49.4	-240.0
2008	-49.4	-58.8	-198.7	25.8	-28.5	52.4	-257.2
2009	-53.1	-60.4	-213.6	27.5	-30.6	55.4	-274.8
2010	-56.9	-62.0	-228.8	29.1	-32.6	58.4	-292.8
2011	-60.8	-63.5	-244.4	30.8	-34.7	61.5	-311.2
2012	-64.7	-65.1	-260.0	32.5	-36.8	64.6	-329.5

TABLE 5

DEMAND SIDE MANAGEMENT
TOTAL ADJUSTMENTS TO ELECTRIC SALES

(GWH)

YEAR	TOTAL EXISTING PROGRAMS ADJUSTMENT	TOTAL NEW PROGRAMS ADJUSTMENT	TOTAL ALL PROGRAMS ADJUSTMENT
1993	0.8	-26.0	-25.2
1994	-28.3	-51.3	-79.6
1995	-36.2	-63.9	-100.1
1996	-44.2	-76.7	-120.9
1997	-52.0	-89.7	-141.7
1998	-59.9	-103.1	-163.0
1999	-67.7	-116.8	-184.5
2000	-75.6	-130.9	-206.5
2001	-82.6	-144.7	-227.3
2002	-89.6	-159.6	-249.2
2003	-96.6	-174.9	-271.5
2004	-103.7	-190.5	-294.2
2005	-110.6	-206.5	-317.1
2006	-117.6	-223.1	-340.7
2007	-124.6	-240.0	-364.6
2008	-131.6	-257.2	-388.8
2009	-138.6	-274.8	-413.4
2010	-145.6	-292.8	-438.4
2011	-152.5	-311.2	-463.7
2012	-159.4	-329.5	-488.9

8.   Electric Forecast Equations

Variable Definitions

Variable	Definition
AVG	Average usage per customer
CUST	Number of customers
JQIND	State industrial production index-all manufacturing
JQIND22	State industrial production index - SIC 22
JQIND245	State industrial production index - average of SIC 24 and SIC 25
JQIND26	State industrial production index - SIC 26
JQIND28	State industrial production index - SIC 28
JQIND30	State industrial production index - SIC 30
JQIND32	State industrial production index - SIC 32
JQIND337	State industrial production index - average of SIC 33-37
POP	Service area population
PRICE	Real price per kwh.
RPCI	Service area real per capita income
RYPI	Service area real personal income
SALES	Electric sales in kwh
STMP	Average summer (June, July, August) temperature
SUM2	Sum of SCE&G's residential, commercial, and non-SRP industrial sales
WTMP	Average winter (December (previous year), January, February) temperature
*	Indicates multiplication
ln	Natural Logarithm
LAG1	One year lag in data

<u>Long-Range Equations</u>

I. Residential Class

      A. Total Customers

$$\ln(CUST) = 7.5929 + .7101*\ln(RYPI) + .0090 * YR89 - .0091 * YR90$$
t-statistic: (115.792)   (77.414)   (1.570)   (-1.548)

$$R^2 = .9985$$
Mean Square Error = .00003
Durbin-Watson = 1.673 with first order autocorrelation = .104
Number of Observations = 16, 1976-1991

      Where YR89 = 1, if year is equal to 1989
                = 0, otherwise
            YR90 = 1, if year is equal to 1990
                = 0, otherwise

Customers - space heating and non-space heating by housing type

```
CHCUST   = CUST - LAG1(CUST)
CUSTSH   = LAG1(CUSTSH) + CHCUST * X
CUSTO    = CUST - CUSTSH
CHCUSTSH = CUSTSH - LAG1 (CUSTSH)
CUSTSFS  = LAG1 (CUSTSFS) + CHCUSTSH * Y
CUSTAPS  = LAG1 (CUSTAPS) + CHCUSTSH * Z
CUSTMHS  = CUSTSH - CUSTSFS - CUSTAPS
CHCUSTO  = CUSTO - LAG1 (CUSTO)
CUSTSFO  = LAG1 (CUSTSFO) + CHCUSTO * P
CUSTAPO  = LAG1 (CUSTAPO) + CHCUSTO * Q
CUSTMHO  = CUSTO - CUSTSFO - CUSTAPO
```

      Where:

```
CHCUST   = Growth in Residential Customers
CUSTSH   = Space Heating Residential Customers
CUSTO    = Non-Space Heating Residential Customers
CHCUSTSH = Growth in Space Heating Residential Customers
CHCUSTO  = Growth in Non-Space Heating Residential Customers
CUSTSFS  = Single Family Space Heating Homes
CUSTAPS  = Multi-Family Space Heating Units
CUSTMHS  = Mobile Homes with Space Heating
CUSTSFO  = Single Family Non-Space Heating Homes
CUSTAPO  = Multi-Family Non-Space Heating Units
CUSTMHO  = Mobile Homes with Non-Space Heating
```

      and

If Year is Greater than 1994, X = .80, Y = .50, Z = .30, P = .70 and Q = .15

B. Space Heating Average Use

   1. Single Family Homes

$$\ln(\text{AVG}) = 13.3670 - .2851 * \ln(\text{Price}) - 1.0922 * \ln(\text{WTMP})$$
t-statistic: (32.590)   (-4.798)   (-9.998)

$$-.0670 * \text{YR88}$$
(-2.841)

where YR88 = 1, if year is equal to 1988
        = 0, otherwise

R^2 = .9070
Mean Square Error = .00050
        Durbin-Watson = 1.945 with first order autocorrelation = -.041
Number of Observations = 15, 1977 - 1991

   2. Multi-Family Homes

$$\ln(\text{AVG}) = 11.7343 - .3062 * \ln(\text{Price}) - .8299 * \ln(\text{WTMP})$$
t-statistic: (31.494)   (-5.468)   (-7.766)

$$-.0613 * \text{YR88}$$
(-2.800)

where YR88 = 1, if year is equal to 1988
        = 0, otherwise

R^2 = .8586
Mean Square Error = .00041
        Durbin-Watson = 1.721, with first order autocorrelation = .070
Number of Observations = 15, 1977-1991

   3. Mobile Homes

$$\ln(\text{AVG}) = 10.8390 - .5054 * \ln(\text{Price}) - 1.044 * \ln(\text{WTMP})$$
t-statistic: (7.815)   (-11.416)   (-12.117)

$$+.3338 * \ln(\text{STMP}) - .0644 * \text{YR88}$$
(1.000)   (-3.653)

where YR88 = 1, is equal to 1988
        = 0, otherwise

R^2 = .9566
Mean Square Error = .00027
        Durbin-Watson = 2.501, with first order autocorrelation = -.299
Number of Observations = 15, 1977-1991

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C. Non-Space Heating Average Use

   1. Single Family Homes

ln(AVG) = -1.0216 + .1501 * ln(RPCI) + 1.9168 * ln(STMP)
t-statistic: (-.709)   (1.576)   (5.220)

        -.1588 * ln(Price) - .1453 * ln(WTMP)
             (-3.196)   (-1.045)

              R^2 = .9070
   Mean Square Error = .00027
        Durbin-Watson = 2.288, with first order autocorrelation = -.155
Number of Observations = 15, 1977-1991

   2. Multi-Family Homes

ln(AVG) = -4.9985 + .3907 * ln(RPCI) + 1.7798 * ln(STMP)
t-statistic: (-2.760)   (4.589)   (4.018)

        -.2076 * ln(Price)
             (-3.562)

              R^2 = .9437
   Mean Square Error = .00041
        Durbin-Watson = 1.543 with first order autocorrelation = .104
Number of Observations = 15, 1977-1991

   3. Mobile Homes

ln(AVG) = -8.1170 + .5738 * ln(RPCI) + 1.9079 * ln(STMP)
t-statistic: (-4.903)   (7.460)   (4.671)

        -.3226 * ln(Price)
             (-5.988)

              R^2 = .9739
   Mean Square Error = .00035
        Durbin-Watson = 1.618 with first order autocorrelation = .040
Number of Observations = 15, 1977-1991

D.   Residential Street Lighting

$$\ln(SALES) = 9.06608 + .8438 * \ln(RYPI) - .0749 * YRL80 + .3474 * YR91$$
$$(12.568) \qquad (11.151) \qquad\qquad (-2.805) \qquad\quad (10.008)$$

where YRL80 = 1, if year is less than 1980
            = 0, otherwise
where YR91 = 1, if year is equal to 1991
            = 0, otherwise

$R^2 =$ .9837
Mean Square Error = .00090
Durbin-Watson = 1.417 with first order autocorrelation = .240
Number of Observations = 15, 1977-1991

II. COMMERCIAL CLASS

A. Total Customers

$$\ln(CUST) = 3.2105 + 1.0441 * \ln(RYPI)$$
t-statistic: (17.796)   (42.045)

$R^2 =$ .9949
Mean Square Error = .00009
Durbin-Watson = 2.442, with first order autocorrelation = -.243
Number of Observations = 11, 1981-1991

B. Total Sales

$$\ln(SALES) = 3.705267 + 1.169747 * \ln(RYPI) + .726851 * \ln(STMP)$$
t-statistic: (3.126)   (35.646)   (2.448)

$$-.176634 * \ln(Price)$$
$$(-4.739)$$

$R^2 =$ .9964
Mean Square Error = .00021
Durbin-Watson = 2.278, with first order autocorrelation = -.156
Number of Observations = 16, 1976-1991

III. INDUSTRIAL CLASS (EXCLUDING SAVANNAH RIVER PROJECT)

    A. Total Sales

        1. Textile Mill Products (SIC=22)

$$\ln(SALES) = 20.3270 + .7721 * \ln(JQIND22)$$
t-statistic: (1201.561)   (4.346)

$$R^2 = .7025$$
Mean Square Error = .00127
Durbin-Watson = .822, with first order autocorrelation = .368
Number of Observations = 10, 1982-1991

From autocorrelation:

$$\ln(SALES) = 20.3293 + .6798 * \ln(JQIND22)$$

        2. Lumber, Wood Products, Furniture and Fixtures (SIC=24,25)

$$\ln(SALES) = 18.7724 + .2749 * \ln(JQIND245) - .8156 * YRL80$$
t-statistic: (451.396)   (1.283)   (-15.676)

where YRL80 = 1, if year less than or equal to 1980
        = 0, otherwise

$$R^2 = .9762$$
Mean Square Error = .0048
Durbin-Watson = 1.238, with first order autocorrelation = .265
Number of Observations = 16, 1976-1991

        3. Paper and Allied Products (SIC=26)

$$\ln(SALES) = 18.6094 + .9035 * \ln(JQIND26) - .1032 * YR87$$
t-statistic: (989.395)   (22.372)   (-2.758)

where YR87 = 1, if year is equal to 1987
        = 0, otherwise

$$R^2 = .9752$$
Mean Square Error = .00122
Durbin-Watson = 2.219, with first order autocorrelation = -.123
Number of Observations = 16, 1976-1991

4. Chemical and Allied Products (SIC=28)

$$\ln(SALES) = 20.3746 + .2581 * \ln(JQIND28) - .1046 * YR9091$$

t-statistic: (939.471)   (5.282)   (-3.355)

where YR9091 = 1, if year is equal to 1990 or 1991
= 0, otherwise

$$R^2 = .7568$$

Mean Square Error = .00087

Durbin-Watson = 1.562, with first order autocorrelation = .180

Number of Observations = 12, 1980-1991

5. Rubber and Miscellaneous plastic products (SIC=30)

$$\ln(SALES) = 17.9887 + .5785 * \ln(JQIND30) + .2083 * YR8184$$

t-statistic: (334.819)   (13.918)   (7.417)

where YR8184 = 1, if year is equal to 1981, 1982, 1983, or 1984
= 0, otherwise

$$R^2 = .9515$$

Mean Square Error = .00230

Durbin-Watson = 1.440, with first order autocorrelation = .111

Number of Observations = 15, 1977-1991

6. Stone, clay, glass and concrete products (SIC=32)

$$\ln(SALES) = 19.4239 + 1.0310 * \ln(JQIND32)$$

t-statistic: (1022.424)   (7.875)

$$R^2 = .8611$$

Mean Square Error = .00150

Durbin-Watson = 1.782, with first order autocorrelation = -.002

Number of Observations = 12, 1980-1991

7. Primary metal, Fabricated metal products, electric and non-electronic machinery, equipment and supplies and transportation equipment (SIC=33, 34, 35, 36 and 37)

$$\ln(SALES) = 19.4016 + .6165 * \ln(JQIND337) - .0526 * YR90$$

t-statistic: (1169.343)   (34.706)   (-2.642)

$$R^2 = .9926$$

Mean Square Error = .00031

Durbin-Watson = 1.529, with first order autocorrelation = .102

Number of Observations = 13, 1979-1991

where YR90 = 1, if year is equal to 1990
= 0, otherwise

8. Governmental (SIC=91)

$\ln(\text{SALES}) = 17.9462 + .6534 * \ln(\text{JQIND30}) - .1290 * \text{YRGR86}$
t-statistic: (410.582)   (15.177)   (-4.103)

where YRGR86 = 1, if year is greater than or equal to 1986
             = 0, otherwise

$R^2 = .9650$
Mean Square Error = .00158
Durbin-Watson = 2.256, with first order autocorrelation = -.168
Number of Observations = 16, 1976-1991

9. Other large industrials or Unclassified

$\ln(\text{SALES}) = 18.81491 + 1.8986 * \ln(\text{JQIND})$
t-statistic: (253.462)   (11.293)

$R^2 = .9341$
Mean Square Error = .00602
Durbin-Watson = 1.561, with first order autocorrelation = .153
Number of Observations = 11, 1981-1991

10. Westvaco (Rate = 60, SIC = 26)

$\ln(\text{SALES}) = 18.2821 + 1.4487 * \ln(\text{JQIND26})$
t-statistic: (89.891)   (4.860)

$R^2 = .8552$
Mean Square Error = .00107
Durbin-Watson = 2.549, with first order autocorrelation = -.467
Number of Observations = 6, 1986-1991

From autocorrelation:

$\ln(\text{SALES}) = 18.2056 + 1.5565 * \ln(\text{JQIND26})$

B. Average Use

1. Small Industrial Customers

$\ln(\text{AVG}) = 12.9365 + .5612 * \ln(\text{JQIND})$
t-statistic: (353.982)   (6.780)

$R^2 = .8363$
Mean Square Error = .00146
Durbin-Watson = 1.355, with first order autocorrelation = .236
Number of Observations = 11, 1981-1991

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C. Customers

Small industrial customers decrease by 7 per year.
Large industrial customers were set equal to there 1994
Forecast value for the Forecast interval – at 114 per year.

IV. Street Lighting Class – Total Sales

$\ln(SALES) = 5.4775 + .7214 * \ln(RYPI) + .1122 * \ln(YR8486)$
t-statistic: (45.465)   (42.913)   (15.989)

where YR8486 = 1, if year is equal to 1984, 1985, or 1986
= 0, otherwise

$R^2 = .9946$
Mean Square Error = .00012
Durbin-Watson = 1.631, with first order autocorrelation = .108
Number of Observations = 16, 1976-1991

V. Other Public Authority Class – Total Sales

$\ln(SALES) = 4.9301 + 1.0835 * \ln(RYPI)$
t-statistic: (41.083)   (64.824)

$R^2 = .9967$
Mean Square Error = .00012
Durbin-Watson = 2.296, with first order autocorrelation = -.180
Number of Observations = 16, 1976-1991

VI. Municipal Class – Total Sales

$\ln(SALES) = -2.4576 + .97174 * \ln(SUM2)$
t-statistic: (-4.553)   (29.303)

$R^2 = .9896$
Mean Square Error   = .00017
Durbin-Watson   = .797, with first order autocorrelation = .513
Number of Observations   = 11, 1981-1991

From autocorrelation:

$\ln(SALES) = -2.66475 + .984493 * \ln(SUM2)$

VII. Cooperative Class – Total Sales

$\ln(SALES) = 5.10912 + .882783 * \ln(SUM2) - .557240 * \ln(Price)$
t-statistic: (2.824)   (8.083)   (-4.327)

$R^2 = .8823$
Mean Square Error = .00473
Durbin-Watson = 1.288, with first order autocorrelation = .251
Number of Observations   = 16, 1976-1991

9. <u>Historical Electric Sales Data</u>

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RATE 1

ACTUAL RESIDENTIAL SPACE HEATING DETAIL BY HOUSING TYPE
1987 -- 1991

YEAR	SINGLE FAMILY SP.HT. CUSTOMERS	SINGLE FAMILY SP.HT. AVG USE (KWH)	SINGLE FAMILY SP.HT SALES (GWH)	MULIT FAMILY SP.HT. CUSTOMERS	MULTI FAMILY SP.HT. AVG USE (KWH)	MULTI FAMILY SP.HT SALES (GWH)
1987	108	15096.39	2	2	6993.50	0
1988	741	16225.93	12	42	8886.24	0
1989	1589	17134.56	27	191	11632.90	2
1990	2544	17430.60	44	479	9436.18	5
1991	3539	17186.63	61	581	9661.66	6

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RATE 7

ACTUAL RESIDENTIAL SPACE HEATING DETAIL BY HOUSING TYPE
1982 -- 1991

YEAR	SINGLE FAMILY SP.HT. CUSTOMERS	SINGLE FAMILY SP.HT. AVG USE (KWH)	SINGLE FAMILY SP.HT SALES (GWH)	MULIT FAMILY SP.HT. CUSTOMERS	MULTI FAMILY SP.HT. AVG USE (KWH)	MULTI FAMILY SP.HT SALES (GWH)	MOBILE HOMES SP.HT. CUSTOMERS	MOBILE HOMES SP.HT. AVG USE (KWH)	MOBILE HOMES SP.HT SALES (GWH)
1982	64	17524.20	1	1	18262.00	0	1	16894.00	0
1983	355	20404.21	7	13	12500.77	0	5	14582.20	0
1984	799	19948.41	16	126	10164.49	1	9	14153.33	0
1985	1509	18685.24	28	726	8249.45	6	12	16068.42	0
1986	2471	19353.86	48	1516	8665.10	13	24	15494.58	0
1987	3982	19464.79	78	2066	9310.06	19	54	15581.35	1
1988	5372	19206.99	103	2857	9358.84	27	81	15823.85	1
1989	6308	19232.84	121	3446	9764.24	34	110	15524.81	2
1990	7006	19516.91	137	3536	9823.15	35	142	15543.70	2
1991	7684	19324.04	148	3664	9701.52	36	167	15362.13	3

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SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RATE 8 AND OTHER NON STREET LIGHTING RATES

ACTUAL RESIDENTIAL SPACE HEATING DETAIL BY HOUSING TYPE
1977 -- 1991

YEAR	SINGLE FAMILY SP.HT. CUSTOMERS	SINGLE FAMILY SP.HT. AVG USE (KWH)	SINGLE FAMILY SP.HT SALES (GWH)	MULIT FAMILY SP.HT. CUSTOMERS	MULTI FAMILY SP.HT. AVG USE (KWH)	MULTI FAMILY SP.HT SALES (GWH)	MOBILE HOMES SP.HT. CUSTOMERS	MOBILE HOMES SP.HT. AVG USE (KWH)	MOBILE HOMES SP.HT SALES (GWH)
1977	28416	23239.35	660	21473	12536.94	269	2975	17123.50	51
1978	33633	22980.67	773	23730	12332.85	293	3661	16877.27	62
1979	38520	21073.80	812	25998	11420.59	297	4329	15616.04	68
1980	43141	21675.42	935	28343	11907.65	337	4997	16212.05	81
1981	46957	20652.77	970	30458	11582.99	353	5733	15700.97	90
1982	47583	19325.03	920	33579	10981.09	369	6360	14201.21	90
1983	48030	19741.97	948	37355	11184.94	418	7253	14243.40	103
1984	51266	19763.68	1013	40753	11203.45	457	8414	14179.90	119
1985	54091	18974.57	1026	45553	10485.19	478	9721	13485.76	131
1986	57469	19884.57	1143	50799	10753.72	546	11166	14326.35	160
1987	60536	20154.37	1220	53322	11065.58	590	12555	14934.88	188
1988	62581	19663.82	1231	55198	11092.70	612	13769	14911.67	205
1989	64144	19278.42	1237	56375	11125.02	627	14877	14920.78	222
1990	65400	19297.00	1262	58033	11249.70	653	16179	14876.88	241
1991	66977	19038.46	1275	59120	11101.59	656	17480	15005.88	262

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RATE 1

ACTUAL RESIDENTIAL NON-SPACE HEATING DETAIL   BY HOUSING TYPE
1987 -- 1991

YEAR	SINGLE FAMILY NON-SP.HT. CUSTOMERS	SINGLE FAMILY NON-SP.HT. AVG USE (KWH)	SINGLE FAMILY NON-SP.HT SALES (GWH)	MULIT FAMILY NON-SP.HT. CUSTOMERS	MULTI FAMILY NON-SP.HT. AVG USE (KWH)	MULTI FAMILY NON-SP.HT SALES (GWH)
1987	18	11680.72	0	1	8136.00	0
1988	203	14303.69	3	5	9310.00	0
1989	666	14696.95	10	24	11453.79	0
1990	1300	15072.64	20	155	7473.05	1
1991	2055	14688.58	30	448	5818.01	3

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RATE 7

ACTUAL RESIDENTIAL NON-SPACE HEATING DETAIL   BY HOUSING TYPE
1982 -- 1991

YEAR	SINGLE FAMILY NON-SP.HT. CUSTOMERS	SINGLE FAMILY NON-SP.HT. AVG USE (KWH)	SINGLE FAMILY NON-SP.HT SALES (GWH)	MULIT FAMILY NON-SP.HT. CUSTOMERS	MULTI FAMILY NON-SP.HT. AVG USE (KWH)	MULTI FAMILY NON-SP.HT SALES (GWH)	MOBILE HOMES NON-SP.HT. CUSTOMERS	MOBILE HOMES NON-SP.HT. AVG USE (KWH)	MOBILE HOMES NON-SP.HT SALES (GWH)
1982	13	16414.00	0	0	.	0	0	.	0
1983	94	16984.35	2	7	7900.71	0	4	12103.75	0
1984	207	17204.19	4	64	5714.83	0	9	12781.00	0
1985	363	17087.06	6	279	4781.68	1	17	13473.76	0
1986	531	17839.55	9	324	5382.23	2	25	14676.76	0
1987	809	17518.35	14	334	5706.89	2	36	15416.72	1
1988	1118	16609.33	19	355	5989.65	2	46	14874.98	1
1989	1493	16675.21	25	545	6696.60	4	56	14815.39	1
1990	1870	16908.02	32	725	7287.87	5	69	15398.93	1
1991	2268	16632.64	38	991	6446.18	6	86	15411.74	1

YEAR	SINGLE FAMILY NON-SP.HT. CUSTOMERS	SINGLE FAMILY NON-SP.HT. AVG USE (KWH)	SINGLE FAMILY NON-SP.HT SALES (GWH)	MULIT FAMILY NON-SP.HT. CUSTOMERS	MULTI FAMILY NON-SP.HT. AVG USE (KWH)	MULTI FAMILY NON-SP.HT SALES (GWH)	MOBILE HOMES NON-SP.HT. CUSTOMERS	MOBILE HOMES NON-SP.HT. AVG USE (KWH)	MOBILE HOMES NON-SP.HT SALES (GWH)
1977	171899	11452.80	1967	26463	6426.76	170	25172	8755.52	220
1978	171042	11381.18	1947	26097	6398.03	167	25571	8593.50	220
1979	170303	10665.18	1816	25632	6053.65	155	25903	8108.76	210
1980	169747	11603.79	1970	25238	6582.46	166	26116	8838.52	231
1981	169103	11104.23	1878	25482	6387.12	163	26391	8616.04	227
1982	168910	10816.07	1827	25358	6315.93	160	27177	8377.24	228
1983	168705	11101.69	1873	25516	6530.66	167	28003	8701.45	244
1984	168749	11016.00	1859	25884	6525.92	169	28633	8900.26	255
1985	168734	11211.85	1892	26062	6657.07	173	29186	9023.50	263
1986	168536	12113.93	2042	26072	7152.41	186	29448	9825.67	289
1987	168308	12013.80	2022	26309	7136.44	188	29467	10071.95	297
1988	168210	11666.76	1962	26028	7003.30	182	29593	10112.66	299
1989	168181	11771.96	1980	26089	7225.84	189	29676	10397.61	309
1990	167877	12399.04	2082	26263	7746.20	203	29741	11016.96	328
1991	168078	12183.05	2048	26144	7791.59	204	29789	11146.01	332

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL STREET LIGHTING SALES

1977 -- 1991

YEAR	STREET LIGHTING SALES (GWH)
1977	19
1978	20
1979	22
1980	23
1981	24
1982	24
1983	25
1984	25
1985	26
1986	27
1987	28
1988	29
1989	29
1990	33
1991	45

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

ACTUAL INDUSTRIAL DETAIL (NON-SRP) BY STANDARD INDUSTRIAL CLASSIFICATION
SALES ARE IN MILLIONS OF KWH (GWH)

YEAR	SIC 22 CUSTOMERS	SIC 22 SALES	SIC 24 CUSTOMERS	SIC 24 SALES	SIC 26 CUSTOMERS	SIC 26 SALES	SIC 28 CUSTOMERS	SIC 28 SALES	SIC 30 CUSTOMERS	SIC 30 SALES	SIC 32 CUSTOMERS
1976	21	756	3	54	2	133	4	404	2	73	4
1977	22	781	3	61	2	137	5	592	3	88	4
1978	22	771	4	69	2	146	6	624	4	103	4
1979	23	775	4	68	2	144	7	722	4	109	6
1980	23	758	5	63	2	145	8	735	6	117	6
1981	24	730	7	132	2	145	8	754	7	148	6
1982	21	636	7	146	2	157	7	706	7	155	6
1983	21	676	7	159	2	173	7	767	7	164	6
1984	22	689	6	152	2	184	7	758	7	173	6
1985	21	689	6	157	3	192	7	802	6	153	6
1986	21	732	5	160	3	197	7	820	6	144	6
1987	21	779	5	143	3	196	6	832	6	153	7
1988	21	748	4	144	4	212	6	838	6	151	7
1989	21	754	3	144	5	226	5	825	6	160	7
1990	21	732	3	154	5	243	5	773	6	164	6
1991	18	686	3	148	5	243	5	804	6	155	6

YEAR	SIC 32 SALES	SIC 33 CUSTOMERS	SIC 33 SALES	SIC 91 CUSTOMERS	SIC 91 SALES	OTHER LARGE CUSTOMERS	OTHER LARGE SALES	WESTVACO SALES	OTHER SMALL CUSTOMERS	OTHER SMALL AVG USE (KWH)	OTHER SMALL SALES
1976	226	11	246	2	78	27	215	181	705	478768.1	338
1977	237	12	253	2	97	27	252	196	704	530069.8	373
1978	256	13	303	2	101	30	295	173	684	530396.6	363
1979	277	15	360	2	109	30	312	224	674	506253.6	341
1980	269	18	369	2	118	31	308	233	669	502603.4	336
1981	290	20	407	2	129	27	236	267	683	494483.8	338
1982	246	21	379	2	138	28	219	219	711	440587.4	313
1983	296	23	411	2	138	29	231	245	702	464642.3	326
1984	324	24	462	2	138	29	269	260	683	506360.4	346
1985	309	24	470	2	149	31	317	230	658	524768.4	345
1986	318	23	475	2	147	31	345	219	637	546736.1	348
1987	333	25	521	2	138	34	373	212	622	555549.3	346
1988	340	26	575	2	147	33	386	233	610	558761.8	341
1989	343	26	596	2	148	33	434	232	608	562248.1	342
1990	323	25	573	2	148	33	455	246	605	587678.7	356
1991	319	26	600	2	161	37	486	262	603	556805.6	336

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SOUTH CAROLINA ELECTRIC AND GAS COMPANY

ACTUAL SALES DATA BY CLASS
1976 -- 1991

YEAR	TOTAL RESIDENTIAL CUSTOMERS	TOTAL RESIDENTIAL SALES (GWH)	SP HEATING RESIDENTIAL CUSTOMERS	SP HEATING RESIDENTIAL AVG USE (KWH)	SP HEATING RESIDENTIAL SALES (GWH)	NON SP HEATING RESIDENTIAL CUSTOMERS	NON SP HEATING RESIDENTIAL AVG USE (KWH)	NON SP HEATING RESIDENTIAL SALES (GWH)
1976	270235	3059	46452	17731	824	223783	9989	2235
1977	276398	3357	52865	18548	980	223533	10632	2377
1978	283732	3481	61024	18474	1127	222708	10569	2354
1979	290684	3380	68847	17085	1177	221837	9933	2203
1980	297580	3744	76480	17699	1354	221100	10809	2390
1981	304124	3705	83148	16989	1413	220976	10374	2292
1982	309047	3620	87588	15753	1380	221459	10114	2240
1983	315341	3787	93012	15878	1477	222329	10390	2310
1984	324912	3919	101366	15848	1607	223546	10344	2312
1985	336252	4032	111612	14958	1669	224640	10518	2363
1986	348379	4467	123444	15475	1910	224935	11365	2557
1987	357906	4649	132625	15810	2097	225281	11327	2552
1988	366199	4689	140641	15584	2192	225558	11072	2497
1989	373769	4818	147039	15451	2272	226730	11230	2546
1990	381320	5083	153320	15511	2378	228000	11863	2705
1991	389069	5154	159212	15368	2447	229857	11776	2707

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

ACTUAL SALES DATA BY CLASS
1976 -- 1991

YEAR	TOTAL COMMERCIAL CUSTOMERS	TOTAL COMMERCIAL SALES (GWH)	NON SRP INDUSTRIAL SALES (GWH)	TOTAL INDUSTRIAL SALES (GWH)	STREET LIGHTING SALES (GWH)	OTHER PUBLIC AUTHORITY SALES (GWH)	TOTAL ULTIMATE CUSTOMER SALES (GWH)
1976	35827	2291	2705	3390	35	247	9022
1977	37116	2454	3068	3665	36	256	9768
1978	38242	2608	3204	3826	37	274	10226
1979	39322	2582	3441	4005	38	281	10286
1980	39980	2706	3451	4072	39	290	10851
1981	40807	2784	3575	4163	40	296	10988
1982	41408	2855	3314	3898	41	306	10720
1983	42869	2949	3586	4151	42	316	11245
1984	44680	3130	3754	4332	48	331	11760
1985	46953	3351	3814	4398	50	352	12183
1986	49237	3585	3905	4428	51	374	12905
1987	51372	3777	4025	4611	47	385	13469
1988	53242	3951	4114	4569	48	394	13651
1989	55094	4150	4204	4607	49	409	14033
1990	56709	4384	4167	4540	50	425	14482
1991	57956	4501	4200	4635	50	429	14769

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

ACTUAL SALES DATA BY CLASS
1976 -- 1991

YEAR	TOTAL ULTIMATE CUSTOMER SALES (GWH)	MUNICIPAL SALES (GWH)	COOPERATIVE SALES (GWH) 1	TOTAL TERRITORIAL SALES (GWH) 1	UNACCOUNTED FOR ENERGY (GWH)	COMPANY USE (GWH)	TOTAL TERRITORIAL LOAD (GWH) 1
1976	9022	431	164	9617	556	41	10214
1977	9768	457	196	10421	681	43	11145
1978	10226	468	209	10903	602	47	11552
1979	10286	471	208	10965	595	43	11603
1980	10851	520	225	11596	705	131	12432
1981	10988	542	233	11763	731	105	12599
1982	10720	535	236	11491	563	147	12201
1983	11245	565	253	12063	671	111	12845
1984	11760	592	238	12590	489	131	13210
1985	12183	606	255	13044	724	119	13887
1986	12905	640	163	13708	645	101	14454
1987	13469	662	124	14255	703	126	15084
1988	13651	674	147	14472	741	113	15326
1989	14033	707	155	14895	639	100	15634
1990	14482	747	165	15394	527	84	16005
1991	14769	756	177	15702	691	96	16489

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1 DOES NOT INCLUDE SALES TO OTHER UTILITIES

NOTE: COOPERATIVE SALES WERE ADJUSTED TO REFLECT CURRENT ACTIVE
CUSTOMERS AND ANY FUTURE KNOWN CONTRACT TERMINATIONS.
FROM 1976 TO 1991 THE SALES WOULD BE AS FOLLOWS:
87 , 106 , 107 , 106 , 111 , 112 , 109 , 116 , 96 , 103,
110 , 120 , 143 , 150 , 160 , 170

10. Final Electric Sales Forecast

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL ELECTRIC SPACE HEATING SALES FORECAST SUMMARY

TOTAL

YEAR	SINGLE FAMILY HOMES			MULTI FAMILY HOMES			MOBILE HOMES		
	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH
1993	84,457	19,616	1,657	64,063	11,427	732	20,120	16,112	324
1994	87,633	19,562	1,714	64,392	11,510	741	21,385	16,368	350
1995	90,320	19,546	1,765	66,004	11,505	759	22,460	16,368	368
1996	93,499	19,531	1,826	67,912	11,500	781	23,731	16,368	388
1997	96,750	19,516	1,888	69,862	11,495	803	25,032	16,368	410
1998	100,015	19,500	1,950	71,822	11,491	825	26,338	16,368	431
1999	103,467	19,486	2,016	73,892	11,487	849	27,719	16,368	454
2000	106,694	19,469	2,077	75,828	11,482	871	29,009	16,368	475
2001	109,903	19,456	2,138	77,753	11,479	892	30,293	16,368	496
2002	112,931	19,441	2,195	79,570	11,475	913	31,504	16,368	516
2003	116,127	19,427	2,256	81,489	11,472	935	32,783	16,368	537
2004	119,570	19,414	2,321	83,555	11,468	958	34,160	16,368	559
2005	123,033	19,400	2,387	85,632	11,465	982	35,545	16,368	582
2006	126,177	19,384	2,446	87,517	11,462	1,003	36,802	16,368	602
2007	129,341	19,370	2,505	89,417	11,459	1,025	38,068	16,368	623
2008	132,685	19,354	2,568	91,424	11,456	1,047	39,406	16,368	645
2009	135,923	19,340	2,629	93,366	11,453	1,069	40,701	16,368	666
2010	139,194	19,324	2,690	95,328	11,451	1,092	42,010	16,368	688
2011	142,518	19,308	2,752	97,323	11,448	1,114	43,339	16,368	709
2012	145,908	19,293	2,815	99,358	11,445	1,137	44,695	16,368	732

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL ELECTRIC SPACE HEATING SALES FORECAST SUMMARY

RATE 1

YEAR	--------SINGLE FAMILY HOMES--------			--------MULTI FAMILY HOMES--------		
	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH
1993	6,066	18,004	109	862	9,044	8
1994	7,488	18,005	135	1,019	9,115	9
1995	8,298	18,005	149	1,181	9,115	11
1996	9,162	18,005	165	1,354	9,115	12
1997	10,060	18,005	181	1,533	9,115	14
1998	10,964	18,005	197	1,714	9,115	16
1999	11,897	18,005	214	1,901	9,115	17
2000	12,795	18,005	230	2,080	9,115	19
2001	13,688	18,005	246	2,259	9,115	21
2002	14,540	18,005	262	2,429	9,115	22
2003	15,421	18,005	278	2,606	9,115	24
2004	16,361	18,005	295	2,794	9,115	25
2005	17,301	18,005	312	2,982	9,115	27
2006	18,180	18,005	327	3,157	9,115	29
2007	19,067	18,005	343	3,335	9,115	30
2008	19,987	18,005	360	3,519	9,115	32
2009	20,902	18,005	376	3,702	9,115	34
2010	21,824	18,005	393	3,886	9,115	35
2011	22,769	18,005	410	4,075	9,115	37
2012	23,736	18,005	427	4,269	9,115	39

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL ELECTRIC SPACE HEATING SALES FORECAST SUMMARY

RATE 7

YEAR	SINGLE FAMILY HOMES			MULTI FAMILY HOMES			MOBILE HOMES		
	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH
1993	8,620	20,005	172	3,830	10,049	38	209	16,430	3
1994	8,933	20,006	179	3,886	10,128	39	223	16,692	4
1995	9,272	20,006	185	3,989	10,128	40	238	16,692	4
1996	9,597	20,006	192	4,088	10,128	41	252	16,692	4
1997	9,934	20,006	199	4,191	10,128	42	267	16,692	4
1998	10,275	20,006	206	4,295	10,128	44	281	16,692	5
1999	10,626	20,006	213	4,401	10,128	45	297	16,692	5
2000	10,964	20,006	219	4,504	10,128	46	311	16,692	5
2001	11,300	20,006	226	4,606	10,128	47	326	16,692	5
2002	11,621	20,006	232	4,704	10,128	48	340	16,692	6
2003	11,952	20,006	239	4,805	10,128	49	354	16,692	6
2004	12,306	20,006	246	4,913	10,128	50	370	16,692	6
2005	12,660	20,006	253	5,020	10,128	51	385	16,692	6
2006	12,991	20,006	260	5,121	10,128	52	399	16,692	7
2007	13,325	20,006	267	5,223	10,128	53	414	16,692	7
2008	13,671	20,006	273	5,328	10,128	54	429	16,692	7
2009	14,016	20,006	280	5,433	10,128	55	444	16,692	7
2010	14,362	20,006	287	5,538	10,128	56	459	16,692	8
2011	14,718	20,006	294	5,647	10,128	57	475	16,692	8
2012	15,082	20,006	302	5,758	10,128	58	490	16,692	8

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL ELECTRIC SPACE HEATING SALES FORECAST SUMMARY

RATE 8 AND OTHER NON STREET LIGHTING RATES

YEAR	SINGLE FAMILY HOMES			MULTI FAMILY HOMES			MOBILE HOMES		
	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH
1993	69,771	19,708	1,375	59,371	11,551	686	19,911	16,108	321
1994	71,212	19,670	1,401	59,487	11,642	693	21,162	16,364	346
1995	72,750	19,664	1,431	60,834	11,642	708	22,222	16,364	364
1996	74,740	19,657	1,469	62,470	11,642	727	23,479	16,364	384
1997	76,756	19,651	1,508	64,138	11,642	747	24,765	16,364	405
1998	78,776	19,642	1,547	65,813	11,642	766	26,057	16,364	426
1999	80,944	19,635	1,589	67,590	11,642	787	27,422	16,364	449
2000	82,935	19,624	1,628	69,244	11,642	806	28,698	16,364	470
2001	84,915	19,617	1,666	70,888	11,642	825	29,967	16,364	490
2002	86,770	19,606	1,701	72,437	11,642	843	31,164	16,364	510
2003	88,754	19,596	1,739	74,078	11,642	862	32,429	16,364	531
2004	90,903	19,587	1,781	75,848	11,642	883	33,790	16,364	553
2005	93,072	19,577	1,822	77,630	11,642	904	35,160	16,364	575
2006	95,006	19,563	1,859	79,239	11,642	922	36,403	16,364	596
2007	96,949	19,550	1,895	80,859	11,642	941	37,654	16,364	616
2008	99,027	19,536	1,935	82,577	11,642	961	38,977	16,364	638
2009	101,005	19,523	1,972	84,231	11,642	981	40,257	16,364	659
2010	103,008	19,508	2,009	85,904	11,642	1,000	41,551	16,364	680
2011	105,031	19,493	2,047	87,601	11,642	1,020	42,864	16,364	701
2012	107,090	19,477	2,086	89,331	11,642	1,040	44,205	16,364	723

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL ELECTRIC NON-SPACE HEATING SALES FORECAST SUMMARY

TOTAL

YEAR		--------SINGLE FAMILY HOMES--------				--------MULTI FAMILY HOMES--------				-----------MOBILE HOMES -----------	
	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH
1993	174,526	12,242	2,137	28,503	7,706	220	29,889	11,814	353
1994	175,541	12,346	2,167	28,866	7,813	226	29,941	12,128	363
1995	176,482	12,365	2,182	29,067	7,838	228	30,142	12,211	368
1996	177,594	12,394	2,201	29,306	7,878	231	30,380	12,329	375
1997	178,731	12,423	2,220	29,550	7,914	234	30,625	12,439	381
1998	179,874	12,452	2,240	29,795	7,947	237	30,870	12,543	387
1999	181,083	12,484	2,261	30,054	7,984	240	31,129	12,655	394
2000	182,213	12,511	2,280	30,296	8,013	243	31,370	12,748	400
2001	183,335	12,541	2,299	30,536	8,040	246	31,611	12,840	406
2002	184,394	12,569	2,318	30,763	8,065	248	31,838	12,922	411
2003	185,514	12,600	2,337	31,003	8,093	251	32,078	13,015	417
2004	186,719	12,637	2,359	31,261	8,126	254	32,336	13,120	424
2005	187,930	12,674	2,382	31,521	8,159	257	32,596	13,225	431
2006	189,031	12,705	2,402	31,757	8,185	260	32,831	13,312	437
2007	190,138	12,737	2,422	31,994	8,209	263	33,069	13,394	443
2008	191,309	12,771	2,443	32,245	8,235	266	33,320	13,482	449
2009	192,442	12,804	2,464	32,487	8,258	268	33,562	13,564	455
2010	193,588	12,838	2,485	32,733	8,281	271	33,808	13,645	461
2011	194,750	12,872	2,507	32,982	8,304	274	34,058	13,725	467
2012	195,936	12,908	2,529	33,237	8,326	277	34,312	13,806	474

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL ELECTRIC NON-SPACE HEATING SALES FORECAST SUMMARY

RATE 1

YEAR	SINGLE FAMILY HOMES			MULTI FAMILY HOMES		
	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH
1993	4,021	14,884	60	1,290	5,871	8
1994	5,126	15,037	77	1,763	5,981	11
1995	5,661	15,064	85	1,876	6,009	11
1996	6,231	15,102	94	1,997	6,048	12
1997	6,823	15,137	103	2,123	6,085	13
1998	7,420	15,169	113	2,250	6,119	14
1999	8,036	15,204	122	2,380	6,156	15
2000	8,629	15,234	131	2,506	6,186	16
2001	9,218	15,262	141	2,631	6,216	16
2002	9,780	15,287	150	2,750	6,243	17
2003	10,362	15,315	159	2,874	6,273	18
2004	10,982	15,347	169	3,005	6,308	19
2005	11,602	15,379	178	3,137	6,342	20
2006	12,182	15,406	188	3,260	6,370	21
2007	12,768	15,430	197	3,384	6,396	22
2008	13,375	15,456	207	3,513	6,425	23
2009	13,979	15,481	216	3,641	6,451	23
2010	14,588	15,504	226	3,770	6,477	24
2011	15,211	15,528	236	3,902	6,502	25
2012	15,849	15,552	246	4,038	6,528	26

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL ELECTRIC NON-SPACE HEATING SALES FORECAST SUMMARY

RATE 7

YEAR	SINGLE FAMILY HOMES			MULTI FAMILY HOMES			MOBILE HOMES		
	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH
1993	2,809	16,538	46	1,365	6,524	9	107	16,281	2
1994	2,989	16,708	50	1,490	6,646	10	114	16,712	2
1995	3,166	16,738	53	1,586	6,677	11	121	16,826	2
1996	3,335	16,780	56	1,678	6,720	11	128	16,987	2
1997	3,511	16,818	59	1,773	6,761	12	136	17,137	2
1998	3,689	16,855	62	1,869	6,799	13	143	17,278	2
1999	3,872	16,894	65	1,969	6,840	13	151	17,431	3
2000	4,049	16,926	69	2,064	6,874	14	158	17,559	3
2001	4,224	16,958	72	2,159	6,907	15	165	17,684	3
2002	4,391	16,986	75	2,250	6,937	16	172	17,796	3
2003	4,564	17,017	78	2,343	6,970	16	180	17,922	3
2004	4,749	17,053	81	2,443	7,008	17	187	18,065	3
2005	4,933	17,088	84	2,543	7,046	18	195	18,209	4
2006	5,106	17,117	87	2,637	7,078	19	202	18,328	4
2007	5,280	17,145	91	2,731	7,107	19	209	18,440	4
2008	5,461	17,174	94	2,829	7,138	20	217	18,560	4
2009	5,641	17,201	97	2,926	7,167	21	224	18,670	4
2010	5,822	17,227	100	3,024	7,196	22	232	18,781	4
2011	6,007	17,253	104	3,125	7,225	23	240	18,890	5
2012	6,197	17,280	107	3,228	7,254	23	248	19,000	5

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL ELECTRIC NON-SPACE HEATING SALES FORECAST SUMMARY

RATE 8 AND OTHER NON STREET LIGHTING RATES

YEAR	SINGLE FAMILY HOMES			MULTI FAMILY HOMES			MOBILE HOMES		
	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH
1993	167,696	12,106	2,030	25,848	7,860	203	29,782	11,798	351
1994	167,426	12,186	2,040	25,613	8,007	205	29,827	12,110	361
1995	167,655	12,191	2,044	25,605	8,044	206	30,021	12,192	366
1996	168,028	12,207	2,051	25,631	8,097	208	30,252	12,309	372
1997	168,397	12,222	2,058	25,654	8,145	209	30,489	12,418	379
1998	168,765	12,236	2,065	25,676	8,191	210	30,727	12,521	385
1999	169,175	12,254	2,073	25,705	8,241	212	30,978	12,631	391
2000	169,535	12,267	2,080	25,726	8,282	213	31,212	12,724	397
2001	169,893	12,284	2,087	25,746	8,322	214	31,446	12,815	403
2002	170,223	12,298	2,093	25,763	8,358	215	31,666	12,896	408
2003	170,588	12,317	2,101	25,786	8,398	217	31,898	12,987	414
2004	170,988	12,340	2,110	25,813	8,444	218	32,149	13,091	421
2005	171,395	12,364	2,119	25,841	8,490	219	32,401	13,195	428
2006	171,743	12,383	2,127	25,860	8,527	221	32,629	13,281	433
2007	172,090	12,402	2,134	25,879	8,563	222	32,860	13,362	439
2008	172,473	12,423	2,143	25,903	8,601	223	33,103	13,449	445
2009	172,822	12,444	2,151	25,920	8,636	224	33,338	13,529	451
2010	173,178	12,466	2,159	25,939	8,670	225	33,576	13,609	457
2011	173,532	12,488	2,167	25,955	8,705	226	33,818	13,688	463
2012	173,890	12,511	2,176	25,971	8,739	227	34,064	13,768	469

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL STREET LIGHTING SALES FORECAST SUMMARY

YEAR	TOTAL GWH
1993	42
1994	42
1995	43
1996	44
1997	45
1998	46
1999	47
2000	48
2001	49
2002	50
2003	51
2004	52
2005	53
2006	54
2007	55
2008	56
2009	57
2010	58
2011	59
2012	61

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

RESIDENTIAL ELECTRIC SALES FORECAST SUMMARY

BY HEATING TYPE

YEAR	--------NON SPACE HEATING 1 ------			----------SPACE HEATING----------			--------TOTAL RESIDENTIAL--------		
	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH	AVERAGE CUSTOMERS	AVERAGE USE IN KWH	TOTAL GWH
1993	232,918	11,811	2,751	168,640	16,087	2,713	401,558	13,607	5,464
1994	234,348	11,940	2,798	173,410	16,178	2,805	407,758	13,742	5,603
1995	235,691	11,969	2,821	178,784	16,178	2,892	414,475	13,785	5,713
1996	237,280	12,013	2,850	185,142	16,180	2,996	422,422	13,839	5,846
1997	238,906	12,056	2,880	191,644	16,181	3,101	430,550	13,892	5,981
1998	240,539	12,096	2,910	198,175	16,181	3,207	438,714	13,942	6,116
1999	242,266	12,142	2,941	205,078	16,182	3,319	447,344	13,994	6,260
2000	243,879	12,180	2,970	211,531	16,181	3,423	455,410	14,038	6,393
2001	245,482	12,220	3,000	217,949	16,181	3,527	463,431	14,083	6,526
2002	246,995	12,255	3,027	224,005	16,179	3,624	471,000	14,122	6,651
2003	248,595	12,297	3,057	230,399	16,178	3,727	478,994	14,164	6,784
2004	250,316	12,344	3,090	237,285	16,177	3,839	487,601	14,209	6,928
2005	252,047	12,392	3,123	244,210	16,176	3,950	496,257	14,254	7,074
2006	253,619	12,432	3,153	250,496	16,173	4,051	504,115	14,291	7,204
2007	255,201	12,471	3,183	256,826	16,170	4,153	512,027	14,327	7,336
2008	256,874	12,513	3,214	263,515	16,167	4,260	520,389	14,364	7,475
2009	258,491	12,553	3,245	269,990	16,164	4,364	528,481	14,398	7,609
2010	260,129	12,594	3,276	276,532	16,161	4,469	536,661	14,432	7,745
2011	261,790	12,635	3,308	283,180	16,157	4,575	544,970	14,465	7,883
2012	263,485	12,676	3,340	289,961	16,153	4,684	553,446	14,498	8,024

1 INCLUDES STREET LIGHTING SALES

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

COMMERCIAL AND INDUSTRIAL CUSTOMERS FORECAST SUMMARY

YEAR	COMMERCIAL FORECAST	INDUSTRIAL FORECAST
1993	61,153	688
1994	62,837	677
1995	64,359	670
1996	66,173	663
1997	68,046	656
1998	69,943	649
1999	71,965	642
2000	73,874	635
2001	75,787	628
2002	77,607	621
2003	79,543	614
2004	81,644	607
2005	83,775	600
2006	85,726	593
2007	87,704	586
2008	89,810	579
2009	91,863	572
2010	93,954	565
2011	96,093	558
2012	98,290	551

SOUTH CAROLINA ELECTRIC & GAS CO: INDUSTRIAL DETAIL FORECAST

INDUSTRIAL SALES-(GWH)	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALES										
SIC 22	701	703	696	693	698	702	704	705	707	708
SIC 24	165	164	166	167	168	169	169	170	171	171
SIC 26	260	267	272	276	281	288	292	297	302	307
SIC 28	819	827	828	829	832	837	840	843	846	849
SIC 30	133	126	129	131	134	139	142	145	149	153
SIC 32	343	351	371	385	395	408	414	420	427	433
SIC 33	696	724	737	751	769	789	806	821	839	857
GOVERNMENTAL	150	150	153	156	161	167	171	176	181	186
OTHER LARGE	533	557	575	595	626	663	691	721	755	790
WESTVACO	260	264	273	282	291	304	312	321	332	341
S R P	504	399	399	399	399	399	399	399	399	399
OTHER SMALL	342	344	343	343	344	346	346	346	347	347
TOTAL INDUSTRIAL SALES	4905	4877	4942	5006	5099	5209	5286	5363	5454	5540

SOUTH CAROLINA ELECTRIC & GAS CO: INDUSTRIAL DETAIL FORECAST

INDUSTRIAL SALES-(GWH)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
SALES										
SIC 22	708	709	709	709	710	710	711	710	707	704
SIC 24	171	172	173	173	174	174	175	175	176	177
SIC 26	312	318	323	329	334	338	343	347	351	354
SIC 28	852	855	858	860	863	865	867	869	870	871
SIC 30	157	160	164	168	171	174	178	181	184	187
SIC 32	436	440	443	445	450	456	461	466	470	474
SIC 33	876	893	907	922	935	948	959	971	983	994
GOVERNMENTAL	192	197	202	207	212	217	221	226	231	235
OTHER LARGE	826	862	895	929	964	996	1028	1059	1089	1117
WESTVACO	352	363	374	386	397	406	416	426	436	442
S R P	399	399	399	399	399	399	399	399	399	399
OTHER SMALL	347	347	346	345	344	343	341	339	337	335
TOTAL INDUSTRIAL SALES	5628	5714	5794	5871	5952	6026	6098	6169	6234	6288

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III. REVENUE METHODOLOGY AND FORECASTS

III. Revenue Methodology and Forecasts

1. Revenue Assumptions for the Short Range Electric Forecast

The electric forecasts are the result of short term models developed for average use or total kilowatt hours (kWh) and for customers. These models utilize two basic approaches. Most average use models were developed using regression analysis and independent variables that measured weather or time. Most total kWh and customer models were the result of time series analysis based on the autoregressive integrated moving average (ARIMA) approach of Box and Jenkins. For a discussion of the technical aspects of these models, refer to the Chapter I, Short Range Methodology and Forecasts.

The groups for which models were developed were based on SCE&G's class and rate structure. Section 3 provides a listing of these groups. Large industrial customers were further broken down by standard industrial classification (SIC) codes. Municipal and cooperative customers were considered individually.

Certain groups crossed rates. For example, Class 10, Rate 8 contained total kWh for Rates 1, 2, 5, 6, 7, 8, 25, 26, 62, 64, 67, 68, and 69 and customers for Rates 1, 2, 5, 6, 7, and 8. Such groups are identified in Section 3. To calculate revenue, total kWh and customers for these groups had to be spread to the appropriate rates. The procedure used was the same for each group, except residential. Using available data for the groups, excluding residential, the historical patterns were analyzed and a set of spreading percentages was determined for each month. The total kWh and customers forecasted for a month were then allocated to the component rates using these

percentages. For the residential class, the marketing estimates for Good Cents, Rate 1, and Rate 7 were used for customers and sales. Historical spreading percentages were used for the other residential rates.

Basically, there are five types of rates:

Type 1: Rates based on a fixed cost per kWh;

Type 2: Rates based on a basic facility charge and a single energy charge;

Type 3: Rates based on a basic facility charge and a two-tier energy charge (such rates may also include a discount for certain months of the year);

Type 4: Rates based on a two-tier firm demand charge, a single energy charge and an interruptible demand charge, which may be zero (such rates may also include discounts based on delivery voltage); and,

Type 5: Rates based on lamp charges based on lumens.

Section 4 provides a complete list of the rates falling under each type. Examples of the rate schedules for each of these types also appear in Section 4.

In generating revenue, it is assumed that the most recent rate schedules will be in effect throughout the forecast period. The specific schedules used are noted in Section 4. In what follows, nonfuel will refer to revenue or rates per kWh computed without a fuel component. Total revenue values and total rates per kWh refer to those values that contain a fuel component.

Most special contracts fall within Type 1. Rate 3 falls within Type 2. Nonfuel is computed either by direct multiplication of charges and kWh or by a direct application of the terms of the contract or rate.

Type 3 rates require more sophistication in computing nonfuel revenue. Nonfuel revenue (NFR) is determined using the following Formula:

$$NFR = c * N + r_1 * p * K + r_2 * (1 - p) * K \qquad (1)$$

where c = basic facilities charge

N = number of customers

K = total kWh

r_1 = nonfuel energy charge in first tier

r_2 = nonfuel energy charge in second tier (may reflect discount)

p = proportion of kWh billed at lower tier

* indicates multiplication.

N and K are forecasted for each class/rate group; c, r_1, and r_2 are known from the rate schedules. It remains to determine p.

Manipulation of the above equation leads to the following:

$$p = [[(NFR - (c * N)) / K] - r_2] / (r_1 - r_2). \qquad (2)$$

Using monthly historical data and the pertinent rate schedules, p and average usage are computed. PROC REG of the Statistical Analysis System (SAS) is used to model the relationship between average usage and p. This is done for each class/rate group that falls within Type 3. Then p is estimated for the 24 monthly average use values that

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composed the forecast for a particular class/rate group, and nonfuel revenue is computed using (1).

Nonfuel revenue (NFR) for Type 4 rates is based on the following formula:

$$NFR = c * N + d_2 * D + d_i * I + r * K \qquad (3)$$

where c   = customer charge

     N   = number of customers

     d_1 = first-tier firm demand charge

     d_2 = second-tier firm demand charge billing

     d_i = interruptible demand charge

     D   = firm demand, measured in KVA or KW

     I   = interruptible demand, measured in KVA or KW

     r   = nonfuel energy charge

     K   = total kWh

     *   indicates multiplication.

Figure 1: Computing the Customer Charge

Demand Charge

First........1000 KW of billing demand for $10,040

Excess Over...1000 KW of billing demand at $9.34 per KW

Here, d_1 = $10,040

d_2 = $9.34

first-tier demand = 1000 KW

Therefore,

c = Customer Charge = $10,040 - ($9.34/KW * 1000 KW)

= $ 700.00

Customer charge is defined as follows:

$$c = d_1 - (d_2 * \text{first-tier demand}). \qquad (4)$$

Figure 1 provides an example of computing the customer charge.

For each class/rate group, N and K have been forecasted; c, d_i and r are known from rate schedules. For interruptible customers, D and I are set by contract: Only D is unknown for firm customers. For past periods, D and $\overline{D}$ can be computed using the formulae:

$$D = (NFR - c * N - r * K) / d_2 \qquad (5)$$

$$\overline{D} = D/N.$$

In addition, average customer usage was computed:

$$\overline{K} = \text{average usage} = K/N$$

For all Type 4, except large industrial, Rate 23, and Municipal and Cooperatives, PROC REG of SAS is used to model the relationship between $\overline{D}$ and $\overline{K}$. For each month of the forecast, $\overline{K}$ is computed and $\overline{D}$ is estimated. Nonfuel revenues can then be computed using (3).

For the large industrial, Rate 23, and Municipals and Cooperatives, load factors are computed.

$$LF = \text{Load Factor} = K/D/ \text{ (hours in month)}$$

Using a dummy variable for each month, PROC REG of SAS is used to estimate a load factor for each month of the year based on historical data. The dummy variable would take the following form:

IF month = January, then DUM = 1; else DUM = 0.
.
.
.
IF month = December, then DUM = 1; else DUM = 0.

Then, D can be computed.

$$D = K/LF/ \text{(hours in month)}$$

Non-fuel revenues can then be computed using (3) for Rate 23 Industrial, and (7) for Municipals and Cooperatives.

$$NFR = d_2 * D + r * K - d_3 * D \qquad (7)$$

where d_2 = second-tier demand charge

d_3 = discount based on delivery voltage

D = cutoff for first-tier demand charge, if D is less than this cutoff

= D, otherwise

K = total kWh

r = nonfuel rate per kWh

Type 5 rates are based primarily on size (measured in lumens) of street lamps. A nonfuel rate, or rate per kWh, is estimated for each class/rate group by analyzing historical data.

The previous procedures generate monthly revenue that does not reflect a fuel component. The PSC reviews and generally revises the fuel component for retail sales every six months. Sales for resale are subject to a monthly fuel adjustment. To adjust the nonfuel revenue to reflect fuel charges, SCE&G's fuel system estimates the monthly fuel component based on the most recent PSC fuel order, projected inventories and generation mix, and forecasted sales. Total revenue estimates (TR) are obtained by adding the fuel revenue to the nonfuel revenues generated using the methods discussed above. The total rate per kWh (R) is then computed by dividing the final revenue estimates by the estimated sales in kWh.

Let

NFR = nonfuel revenue

   K = total kWh

  F1 = fuel rate per kWh

  F2 = 0, if not subject to monthly fuel adjustment

      = monthly fuel adjustment, otherwise.

Then,

  TR = NFR + K * F1 + K * F2

   R = TR/K   (8)

The revenue associated with the current forecasts are summarized in Section 6 by customer class. Two sets of figures are given: revenue with fuel and revenue without fuel.

2. Revenue Assumptions for the Long Range Electric Forecast

The long range forecast is based on several econometric models. These models are described in Chapter II, Long Range Methodology and Forecasts. The models produce estimates of total sales (kWh) for eight service classes:

1. Space Heating Residential;

2. Non-Space Heating Residential;

3. Commercial;

4. Non-SRP Industrial;

5. Street Lighting;

6. Other Public Authorities;

7. Municipal; and

8. Cooperative

The amount of SRP (Savannah River Plant) industrial sales is assumed constant throughout the forecast period unless modified by contract negotiations.

To estimate revenue associated with the long range forecast, two assumptions are necessary:

1. The rate structures will not change during the forecast period; however, the amount of the fuel component will vary.

2. For each class of service, the proportion of sales subject to a fuel charge will remain the same as it is in the last year of the short term forecast.

Under these assumptions, an average nonfuel rate can be estimated using the last year of the short term forecast. The Company's fuel system, which estimates the monthly fuel component for the short term forecast, also estimates the retail sales fuel component and the sales for resale fuel component for each year of the long range forecast. With these values, nonfuel and total revenue can be estimated for the long range forecast.

Let

K = total sales in kWh

N = nonfuel rate per kWh

F = fuel rate per kWh

TR = total revenue

NFR = total nonfuel revenue

i = year of forecast

j = class of service

k = last year of short-range forecast

$*$ indicates multiplication

Then,

$$N(i,j) = NFR(k,j)/K(k,j)$$

$$NFR(i,j) = K(i,j) * N(i,j)$$

$$TR(i,j) = K(i,j) * N(i,j) + K(i,j) * F(i,j)$$

Section 8 provides the long-range estimates of revenue with and without fuel.

3. 1993 - 1994 Rate Categories

The electric rates developed using the short range forecast procedure are described in Chapter I, Short Range Methodology and Forecasts.

The groups that crossed rates were six:

(1) Class 10, Rate 8 nonspace heating that contained kWh for Rates 1, 2, 5, 6, 7, 8, 25, 26, 62, 64, 67, 68, and 69 and customers for Rates 1, 2, 5, 6, 7, and 8; and Rate 8, space heating that contained kWh for Rates 1, 2, 5, 6, 7, and 8, and customers for Rates 1, 2, 5, 6, 7, and 8;

(2) Class 20, Other that contained kWh for Rates 10, 11, 14, 16, 25, 26, 29, 60, 62, 64, 67 and 69 and customers for Rates 10, 11, 14, 16, 29, and 60;

(3) Class 30, Other that contained kWh for Rates 25 and 26;

(4) Class 60 that contained kWh for Rates 3, 9, 17, 25, 26, 29, 62, 63 and 69 and customers for Rates 3, 9, 17 and 29; and;

(5) Class 70, Rate 3 that contained kWh and customers for Rates 3 and 29.

(6) Class 70, Rates 65 and 66 that contained kWh and customers for Rates 65 and 66.

The Rates 60, 61, 62, 64, 65, 66, 67, 68 and 69 are in-house rate designations for special contracts and municipal/cooperative (Rate 61) accounts. They do not represent published rate schedules. Due to the few customers on Rates 5 and 6, sales and customers were not allocated to these rates.

TABLE 1:   Short-Term Forecasting Groups, 1993-1994

CLASS NUMBER	CLASS NAME	RATE/SIC DESIGNATION		COMMENT
10	Residential Non-Space Heating	Rate 8	Single Family Multi Family	Rates 1, 2, 5, 6, 7, 8, 25, 26, 62, 64, 67, 68, 69
910	Residential Space Heating		Mobile Homes	Rates 1, 2, 7, 8
20	Commercial Non-Space Heating	Rate 9		Small General Service
		Rate 12		Churches and Schools
		Rate 20		Medium General Service
		Rate 23		Large General Service
		Rate 28		
		Other		Rates 10, 11, 14, 16, 24, 25, 26, 29, 60, 62, 64, 67, 68, 69
920	Commercial Space Heating	Rate 9		Small General Service
30	Industrial Non-Space Heating	Rate 9		Small General Service
		Rate 20		Medium General Service
		Rate 23, SIC 22		Textile Mill Products
		Rate 23, SIC 24		Lumber, Wood Products, Furniture and Fixtures (SIC Codes 24 and 25)
		Rate 23, SIC 26		Paper and Allied Products
		Rate 23, SIC 28		Chemical and Allied Products
		Rate 23, SIC 30		Rubber and Miscellaneous Products
		Rate 23, SIC 32		Stone, Clay, Glass and Concrete Products
		Rate 23, SIC 33		Primary Metal Industries; Fabricated Metal Products; Machinery; Electric and Electronic Machinery, Equipment and Supplies; and Transportation Equipment (SIC Codes 33, 34, 35, 36 and 37)
		Rate 23, SIC 91		Executive, Legislative and General Government (except Finance)
		Rate 23, SIC 99		Other or Unknown SIC Code*
		Rate 60		Large General Service
		Other		Rates 25 and 26
930	Industrial Space Heating	Rate 9		Small General Service
60	Street Lighting			Rates 3, 9, 17, 25, 26, 29, 62, 63 and 69
70	Other Public Authority	Rate 3 and 29		
		Rates 65 and 66		Formerly Rate 60
92	Municipal	Rate 92		Three Individual Accounts
97	Cooperative	Rate 61		Seven Individual Accounts

* Includes small industrial customers from all SIC classifications that were not previously forecasted individually.

Note: Industrial Rate 23 also includes Rate 24 and Rate 27.

4. Typical Electric Rate Schedules

4. Typical Electric Rate Schedules

1. Type 2 - Rate 3

2. Type 3 - Rate 8

3. Type 4 - Rate 23

4. Type 5 - Rate 25

5. Special Contracts (includes examples of Type 1)

Note: Revenue was developed for retail sales and resale sales using the rate schedules ordered in January, 1990 with the kWh charge lowered by .00025 for all rates and updated to reflect the Fall, 1992 Fuel Forecast.

Class/Rate Groups by Rate Type

	Rate Type	Rate Schedule	Special Contracts
Type 1:	Fixed Cost Per kWh		In-house rate designations 60
Type 2:	Basic Facility Charge and Single Energy Charge	2, 3, 10,	
Type 3:	Basic Facility Charge and Two-Tier Energy Charge	1, 7, 8, 9, 12, 14, 29	
Type 4:	Two-Tier Firm Demand Charge, Energy Charge and/or Interruptible Demand Charge	20; 23; 28; Resale Service to Municipalities, Public Power Bodies, and REA Cooperatives	In-house rate designations 60, 61, 65, 66
Type 5:	Lumens	17, 25, 26	In-house rate designations 62, 67, 68 and 69

Note: Rates 11, 16, and 24 which include on-peak, off-peak or shoulder rates are not included in the above rate type classifications. An average non-fuel rate based on historical data was used for these rates.

RATE 3   MISCELLANEOUS MUNICIPAL
                                                          LIGHT AND POWER SERVICE

AVAILABILITY

This rate is available to municipal customers using the Company's standard service which is specified as a single point of delivery per premises from an existing overhead distribution system. This includes all municipally owned and operated facilities for lighting and/or power purposes including, but not restricted to, public buildings, traffic signals and pumping stations. It is not available for resale or standby service.

CHARACTER OF SERVICE

Alternating current, 60 hertz. Voltage and phase at the option of the Company.

RATE PER MONTH

Basic Facilities Charge: $12.05
Plus Energy Charge:
   All Kwhrs. @ .... $.05291 per Kwhr.

MINIMUM CHARGE

The monthly minimum charge shall be the basic facilities charge as stated above, provided however, when construction costs exceed four (4) times the estimated annual revenue excluding fuel revenue to be derived by the Company, the customer may make a contribution in aid of construction of the excess cost or pay the Company's standard facility rate on the excess construction cost in addition to the rate charges above.

ADJUSTMENT FOR FUEL COSTS

Fuel costs of $.01350 per Kwhr. are included in the energy charge and subject to adjustment by order of the Public Service Commission of South Carolina.

SALES AND FRANCHISE TAX

To the above will be added any applicable sales tax, franchise fee or business license tax which may be assessed by any state or local governmental body.

PAYMENT TERMS

All bills are net and payable when rendered.

SPECIAL PROVISIONS

Service shall not be supplied under this rate for establishments of a commercial nature, nor to operations primarily non-municipal. Under no conditions will the Company allow the service to be resold to or shared with others.

The Company will furnish service in accordance with its standard specifications. Non-standard service will be furnished only when the customer pays the difference in costs between non-standard service and standard service or pays to the Company its normal monthly facility charge based on such difference in costs.

TERM OF CONTRACT

Contracts shall normally be written for a period of not less than ten (10) years.

GENERAL TERMS AND CONDITIONS

The Company's General Terms and Conditions are incorporated by reference and are a part of this rate schedule.

RATE 8   RESIDENTIAL SERVICE

AVAILABILITY

This rate is available to customers using the Company's standard service which is specified as a single point of delivery per premises from an existing overhead distribution system to individually metered private residences and individually metered dwelling units in apartment structures or other multi-family residential structures. It is not available for resale service nor shall service be supplied to dwelling units having a total of more than ten rooms, five or more of which are rented or offered for rent to any person or persons not a member, or members, of the immediate family of the owner or lessor of the dwelling units.

A dwelling unit is defined as a room or group of rooms having, in addition to living quarters, kitchen facilities for the sole use of the family or individual occupying such dwelling unit.

CHARACTER OF SERVICE

. Alternating current, 60 hertz, single phase, 120 volts, 2 wire or 120/240 volts 3 wire.

RATE PER MONTH

	Summer	Winter
	(Billing Months June-September)	(Billing Months October-May)
Basic Facilities Charge:	$6.00	$6.00
Plus Energy Charge:		
First 800 Kwhrs. @	S.06219 per Kwhr.	S.06219 per Kwhr.
Excess over 800 Kwhrs. @	S.07170 per Kwhr.	S.05931 per Kwhr.

MINIMUM CHARGE

The monthly minimum charge shall be the basic facilities charge as stated above.

ADJUSTMENT FOR FUEL COSTS

Fuel costs of $.01350 per Kwhr. are included in the energy charge and subject to adjustment by order of the Public Service Commission of South Carolina.

SALES AND FRANCHISE TAX

To the above will be added any applicable sales tax, franchise fee or business license tax which may be assessed by any state or local governmental body.

PAYMENT TERMS

All bills are net and payable when rendered.

SPECIAL PROVISIONS

The Company will furnish service in accordance with its standard specifications. Non-standard service will be furnished only when the customer pays the difference in costs between non-standard service and standard service or pays to the Company its normal monthly facility charge based on such difference in costs.

TERM OF CONTRACT

Contracts shall be written for a period of not less than one (1) year. A separate contract shall be written for each meter at each location.

GENERAL TERMS AND CONDITIONS

The Company's General Terms and Conditions are incorporated by reference and are a part of this rate schedule.

Effective for bills rendered on and after
the first billing cycle of May 1992

RATE 23   LARGE GENERAL SERVICE

AVAILABILITY

This rate is available to any customer using the Company's standard service for power and light requirements and having a contract demand of 1,000 KW or over. It is not available for resale service

CHARACTER OF SERVICE

Alternating current, 60 hertz, three phase, metering at the delivery voltage which shall be standard to the Company's operation

RATE PER MONTH

Demand Charge:

First . . . . 1,000 KW of Billing Demand for $10,040.00

Excess over . . . . 1,000 KW of Billing Demand @ $9.34 per KW

The billing demand (to the nearest whole KW) shall be the greatest of: (1) the maximum integrated fifteen minute demand measured (which may be on a rolling time interval) during the current month; (2) eighty per cent (80%) of the highest demand occurring during the eleven preceding months; (3) the contract demand; or (4) 1,000 KW.

The customer shall maintain a power factor of as near unity as is practicable. If the power factor of the customer's installation falls below 85%, the Company will adjust the billing demand to a basis of 85% power factor.

Plus Energy Charge:

All Kwhrs. @ . . . . S.02027 per Kwhr.

DISCOUNT

A discount of 52c per KW of billing demand will be allowed when the service is supplied at a delivery voltage of 46,000 volts or higher

MINIMUM CHARGE

The monthly minimum charge is the demand charge as determined above. The Company may allow a buildup period not to exceed six months for new and expanding accounts during which time the contract demand and/or the minimum demand specified in the rate schedule may be waived. The Company shall not commit itself to a buildup period exceeding six months without prior approval of the Commission for the specific account involved.

ADJUSTMENT FOR FUEL COSTS

Fuel costs of S.01350 per Kwhr. are included in the energy charge and subject to adjustment by order of the Public Service Commission of South Carolina.

SALES AND FRANCHISE TAX

To the above will be added any applicable sales tax, franchise fee or business license tax which may be assessed by any state or local governmental body.

PAYMENT TERMS

All bills are net and payable when rendered.

SPECIAL PROVISIONS

The Company will furnish service in accordance with its standard specifications. Non-standard service will be furnished only when the customer pays the difference in costs between non-standard service and standard service or pays to the Company its normal monthly facility charge based on such difference in costs.

TERM OF CONTRACT

The contract terms will depend on the conditions of service. No contract shall be written for a period of less than five (5) years. A separate contract shall be written for each meter at each location.

GENERAL TERMS AND CONDITIONS

The Company's General Terms and Conditions are incorporated by reference and are a part of this rate schedule.

RATE 25   OVERHEAD FLOODLIGHTING

AVAILABILITY

This rate is available to customers using the Company's electric service for overhead floodlighting.

RATE

All night flood lighting service where fixtures are mounted on Company's standard wooden poles which are a part of Company's distribution system will be charged for at the following rates:

Size	Lamp Charges per Month	Kwhrs. per Month
20,000 Lumens (Mercury)	$11.88	150
45,000 Lumens (High Pressure Sodium) — Retrofit	$12.85	127
55,000 Lumens (Mercury)	$18.46	359
130,000 Lumens (High Pressure Sodium) — Retrofit	$18.50	338

The following fixture is available for new installations only to maintain pattern sensitive areas:

45,000 Lumens (High Pressure Sodium)	$12.81	158

Cost per month for each additional pole:

30'	35'	40'	45'
$1.80	$2.42	$2.94	$3.55

MINIMUM CHARGE

When construction costs exceed four (4) times the estimated annual revenue excluding fuel revenue to be derived by the Company, the customer may make a contribution in aid of construction of the excess cost or pay the Company's standard facility rate on the excess construction cost in addition to the rate charges above.

ADJUSTMENT FOR FUEL COSTS

Fuel costs of $.01350 per Kwhr. are included in the monthly lamp charge and are subject to adjustment by order of the Public Service Commission of South Carolina.

SALES AND FRANCHISE TAX

To the above will be added any applicable sales tax, franchise fee or business license tax which may be assessed by any state or local governmental body.

PAYMENT TERMS

All bills are net and payable when rendered.

TERM OF CONTRACT

The initial term of this contract may be for a period of five years and, thereafter, for one-year periods until terminated by either party on thirty days' written notice. The Company may require an advance deposit not to exceed one-half of the estimated revenue for the term of the initial contract.

SPECIAL PROVISIONS

The Company will furnish, erect, operate and maintain all necessary equipment in accordance with its standard specifications. Non-standard service requiring underground, special fixtures and/or poles will be furnished only when the customer pays the difference in costs between such non-standard service and standard service or pays to the Company its normal monthly facility charge based on such difference in costs.

GENERAL TERMS AND CONDITIONS

The Company's General Terms and Conditions are incorporated by reference and are a part of this rate schedule.

Effective for bills rendered on and after
the first billing cycle of May 1992

SOUTH CAROLINA ELECTRIC & GAS COMPANY

ELECTRIC CONTRACTED RATES

Name of Customer	Rate

State Line Accounts   Rate 23*

Savannah River Site (DOE)
    Firm Rate

Demand Charge:
First 1,000 KW - $8,640
Excess KW - $7.94
Energy Charge:
All Kwhr. @ $.02027

Savannah River Site (DOE)
    Standby Service

Demand Charge:
$3.18 (40% of the Firm Demand Charge stated above)
Energy Charge:
Fuel cost of highest generation on line when service is received plus $.00678 per Kwhr.

Westvaco - Economy

Energy Charge:
Fuel cost of highest cost generation unit or purchased power (excluding co-generation) plus $.00848/Kwhr. for on-peak and $.00463 /kwhr. for off-peak.

Westvaco - Maintenance

Demand Charge:
$.3069 per KW per day
Energy Charge:
Same as for Economy Power stated above

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5.   Short Range Fuel Rates, 1993 and 1994

Retail Fuel Rates

Dates	Rate
January, 1993 - April, 1993	.01336
May, 1993 - October, 1993	.01479
November, 1993 - April, 1994	.01412
May, 1994 - October, 1994	.01574
November, 1994 - December, 1994	.01991

Sales For Resale Fuel Rate = .01510 + Monthly Adjustment

Month	Monthly Adjustment	
	1993	1994
January	-.00184	-.00132
February	-.00154	-.00178
March	.00023	-.00209
April	.00109	-.00229
May	-.00033	-.00198
June	-.00105	-.00062
July	-.00045	-.00027
August	-.00071	-.00009
September	-.00154	.00102
October	-.00151	.00205
November	-.00170	.00260
December	-.00149	.00343

6. Sales and Revenue Forecasts, 1993-1994

Note: These revenues are calculated based on rate schedules ordered in January, 1990 with the kWh charge lowered by .00025 for all rates and updated to reflect the Fall, 1992 Fuel Forecast.

REVENUE ASSOCIATED WITH 1993 AND 1994 FORECASTS

BASED ON RATES ORDERED JANUARY, 1990
WITH THE KWH CHARGE ADJUSTED DOWN BY .00025

CLASS=   TOTAL

DATE	GWH	REVENUE WITHOUT FUEL TOTAL	RATE/KWH	REVENUE WITH FUEL TOTAL	RATE/KWH
JANUARY 1993	1,377	$54,913	0.039873	$73,304	0.053227
FEBRUARY 1993	1,369	$53,840	0.039338	$72,141	0.052710
MARCH 1993	1,260	$49,804	0.039530	$66,778	0.053002
APRIL 1993	1,198	$46,437	0.038759	$62,647	0.052288
MAY 1993	1,218	$46,474	0.038159	$64,485	0.052948
JUNE 1993	1,429	$57,644	0.040340	$78,712	0.055083
JULY 1993	1,582	$64,971	0.041064	$88,359	0.055845
AUGUST 1993	1,615	$66,797	0.041358	$90,646	0.056125
SEPTEMBER 1993	1,569	$64,019	0.040808	$87,115	0.055530
OCTOBER 1993	1,319	$50,741	0.038461	$70,164	0.053183
NOVEMBER 1993	1,265	$48,323	0.038198	$66,130	0.052273
DECEMBER 1993	1,338	$52,145	0.038967	$70,998	0.053055
1993	16,539	$656,108	0.039669	$891,478	0.053900

DATE	GWH	REVENUE WITHOUT FUEL TOTAL	RATE/KWH	REVENUE WITH FUEL TOTAL	RATE/KWH
JANUARY 1994	1,409	$56,109	0.039831	$75,971	0.053931
FEBRUARY 1994	1,398	$54,977	0.039316	$74,655	0.053388
MARCH 1994	1,287	$50,853	0.039511	$68,943	0.053567
APRIL 1994	1,223	$47,392	0.038745	$64,566	0.052785
MAY 1994	1,232	$47,532	0.038570	$66,715	0.054136
JUNE 1994	1,446	$58,878	0.040718	$81,522	0.056377
JULY 1994	1,603	$66,339	0.041394	$91,475	0.057078
AUGUST 1994	1,636	$68,176	0.041682	$93,850	0.057379
SEPTEMBER 1994	1,589	$65,355	0.041140	$90,394	0.056902
OCTOBER 1994	1,334	$51,817	0.038841	$72,925	0.054663
NOVEMBER 1994	1,276	$49,229	0.038580	$74,456	0.058349
DECEMBER 1994	1,354	$53,208	0.039311	$80,037	0.059134
1994	16,786	$669,866	0.039906	$935,510	0.055731

NOTE: (1) ALL REVENUE FIGURES ARE IN THOUSANDS OF DOLLARS.
      (2) MONTHLY TOTALS MAY NOT ADD TO ANNUAL TOTALS DUE TO ROUNDING

REVENUE ASSOCIATED WITH 1993 AND 1994 FORECASTS

BASED ON RATES ORDERED JANUARY, 1990
WITH THE KWH CHARGE ADJUSTED DOWN BY .00025

CLASS=   RESIDENTIAL

DATE	GWH	REVENUE WITHOUT FUEL		REVENUE WITH FUEL	
		TOTAL	RATE/KWH	TOTAL	RATE/KWH
JANUARY 1993	520	$26,775	0.051458	$33,727	0.064818
FEBRUARY 1993	495	$25,625	0.051812	$32,233	0.065172
MARCH 1993	425	$22,506	0.052970	$28,183	0.066330
APRIL 1993	358	$19,467	0.054450	$24,244	0.067810
MAY 1993	335	$18,449	0.055072	$23,403	0.069862
JUNE 1993	451	$26,018	0.057707	$32,686	0.072497
JULY 1993	552	$31,668	0.057403	$39,827	0.072193
AUGUST 1993	585	$33,563	0.057372	$42,216	0.072162
SEPTEMBER 1993	538	$30,871	0.057421	$38,823	0.072211
OCTOBER 1993	388	$20,938	0.053921	$26,681	0.068711
NOVEMBER 1993	367	$19,936	0.054310	$25,120	0.068430
DECEMBER 1993	451	$23,745	0.052644	$30,114	0.066764
1993	5,464	$299,562	0.054825	$377,255	0.069044

DATE	GWH	REVENUE WITHOUT FUEL		REVENUE WITH FUEL	
		TOTAL	RATE/KWH	TOTAL	RATE/KWH
JANUARY 1994	533	$27,373	0.051325	$34,903	0.065445
FEBRUARY 1994	507	$26,199	0.051681	$33,357	0.065801
MARCH 1994	436	$23,018	0.052836	$29,170	0.066956
APRIL 1994	366	$19,902	0.054316	$25,076	0.068436
MAY 1994	345	$18,955	0.054889	$24,390	0.070629
JUNE 1994	463	$26,675	0.057618	$33,962	0.073358
JULY 1994	565	$32,406	0.057327	$41,303	0.073067
AUGUST 1994	599	$34,324	0.057298	$43,753	0.073038
SEPTEMBER 1994	551	$31,595	0.057344	$40,267	0.073084
OCTOBER 1994	399	$21,470	0.053763	$27,756	0.069503
NOVEMBER 1994	376	$20,373	0.054178	$27,860	0.074088
DECEMBER 1994	462	$24,269	0.052515	$33,471	0.072425
1994	5,604	$306,560	0.054709	$395,269	0.070540

NOTE: (1) ALL REVENUE FIGURES ARE IN THOUSANDS OF DOLLARS.
      (2) MONTHLY TOTALS MAY NOT ADD TO ANNUAL TOTALS DUE TO ROUNDING

Fuel Rates

Year	Retail FuelRate	Sales For Resale* Fuel Rates
1995	.01509	-.00049
1996	.01593	.00032
1997	.01687	.00124
1998	.01695	.00131
1999	.01839	.00271
2000	.02001	.00427
2001	.02087	.00510
2002	.02285	.00702

*.01510 is the base fuel amount added to
this for the total fuel component.

Non-Fuel Rates

Values Based on 1994 Data

Class	Nonfuel Rate Per KWH
Space Heating Residential	.053038
Non-Space Heating Residential	.056385
Commercial	.042115
Non-SRP Industrial	.024861
SRP Industrial	.027218
Street Lighting	.069736
Other Public Authority	.029727
Municipal	.021372
Municipal -- City of Camden	.026388
Cooperative	.027114

8.   Sales and Revenue Forecasts, 1995 - 2002

Note: These revenues are calculated based on rate schedules
        ordered in January, 1990 with the kWh charge lowered by
        .00025 for all rates and updated to reflect the Fall,
        1992 Fuel forecast.

REVENUE WITHOUT FUEL AND TOTAL REVENUE IN THOUSANDS
BASED ON RATES ORDERED JANUARY, 1990
WITH THE KWH CHARGE ADJUSTED DOWN BY .00025

LONG-RANGE FORECAST, 1995 - 2002

REVENUE WITHOUT FUEL	1995	1996	1997	1998	1999	2000	2001	2002
RESIDENTIAL-NON SP HTG	$159,062	$160,725	$162,400	$164,060	$165,856	$167,485	$169,137	$170,680
RESIDENTIAL-SPACE HEAT	$153,408	$158,879	$164,471	$170,077	$176,011	$181,535	$187,042	$192,219
RESIDENTIAL-TOTAL	$312,470	$319,604	$326,871	$334,137	$341,867	$349,020	$356,179	$362,899
COMMERCIAL	$206,190	$212,613	$219,268	$226,034	$233,282	$240,136	$247,059	$253,630
INDUSTRIAL-NON SRP	$112,952	$114,556	$116,850	$119,601	$121,508	$123,412	$125,690	$127,809
INDUSTRIAL-SRP	$10,849	$10,849	$10,849	$10,849	$10,849	$10,849	$10,849	$10,849
INDUSTRIAL-TOTAL	$123,801	$125,405	$127,699	$130,450	$132,357	$134,261	$136,539	$138,658
STREET LIGHTING	$3,497	$3,565	$3,635	$3,705	$3,779	$3,848	$3,917	$3,982
OTHER PUBLIC AUTHORITY	$14,290	$14,708	$15,140	$15,578	$16,046	$16,487	$16,930	$17,352
TOTAL ULTIMATE CUSTOMERS	$660,248	$675,895	$692,613	$709,904	$727,331	$743,752	$760,624	$776,521
MUNICIPAL - EX CC	$17,932	$18,361	$18,831	$19,326	$19,804	$20,260	$20,734	$21,182
CITY OF CAMDEM	$5,288	$5,468	$5,650	$5,832	$6,014	$6,199	$6,381	$6,565
MUNICIPAL - TOTAL	$23,220	$23,829	$24,481	$25,158	$25,818	$26,459	$27,115	$27,747
COOPERATIVE	$5,453	$5,570	$5,698	$5,832	$5,961	$6,084	$6,212	$6,332
TOTAL TERRITORIAL SALES	$688,921	$705,294	$722,792	$740,894	$759,110	$776,295	$793,951	$810,600

REVENUE WITHOUT FUEL AND TOTAL REVENUE IN THOUSANDS
BASED ON RATES ORDERED JANUARY, 1990
WITH THE KWH CHARGE ADJUSTED DOWN BY .00025

LONG-RANGE FORECAST, 1995 - 2002

TOTAL REVENUE	1995	1996	1997	1998	1999	2000	2001	2002
RESIDENTIAL-NON SP HTG	$201,631	$206,133	$210,989	$213,378	$219,950	$226,922	$231,740	$239,848
RESIDENTIAL-SPACE HEAT	$197,055	$206,598	$216,785	$224,431	$237,040	$250,024	$260,642	$275,032
RESIDENTIAL-TOTAL	$398,686	$412,731	$427,774	$437,809	$456,990	$476,946	$492,382	$514,880
COMMERCIAL	$280,069	$293,034	$307,100	$317,006	$335,147	$354,231	$369,489	$391,240
INDUSTRIAL-NON SRP	$181,511	$187,959	$196,141	$201,144	$211,389	$222,743	$231,203	$245,280
INDUSTRIAL-SRP	$16,864	$17,198	$17,573	$17,605	$18,179	$18,825	$19,167	$19,957
INDUSTRIAL-TOTAL	$198,375	$205,157	$213,714	$218,749	$229,568	$241,568	$250,370	$265,237
STREET LIGHTING	$4,254	$4,379	$4,514	$4,605	$4,775	$4,952	$5,089	$5,287
OTHER PUBLIC AUTHORITY	$21,544	$22,590	$23,732	$24,461	$25,972	$27,585	$28,816	$30,690
TOTAL ULTIMATE CUSTOMERS	$902,928	$937,891	$976,834	$1,002,630	$1,052,452	$1,105,282	$1,146,146	$1,207,334
MUNICIPAL - EX CC	$30,191	$31,608	$33,229	$34,165	$36,307	$38,622	$40,331	$43,106
CITY OF CAMDEM	$8,216	$8,663	$9,148	$9,459	$10,073	$10,749	$11,265	$12,069
MUNICIPAL - TOTAL	$38,407	$40,271	$42,377	$43,624	$46,380	$49,371	$51,596	$55,175
COOPERATIVE	$8,391	$8,738	$9,132	$9,362	$9,877	$10,430	$10,839	$11,497
TOTAL TERRITORIAL SALES	$949,726	$986,900	$1,028,343	$1,055,616	$1,108,709	$1,165,083	$1,208,581	$1,274,006

LONG RANGE SALES FORECAST IN GWH
1995 - 2002

CLASS OF SERVICE	1995	1996	1997	1998	1999	2000	2001	2002
RESIDENTIAL-NON SP HTG	2,778	2,807	2,835	2,864	2,894	2,922	2,951	2,977
RESIDENTIAL-SPACE HEAT	2,892	2,996	3,101	3,207	3,319	3,423	3,527	3,624
RESIDENTIAL-TOTAL	5,713	5,846	5,981	6,116	6,260	6,393	6,526	6,651
COMMERCIAL	4,896	5,048	5,206	5,367	5,539	5,702	5,866	6,022
INDUSTRIAL-NON SRP	4,543	4,608	4,700	4,811	4,888	4,964	5,056	5,141
INDUSTRIAL-SRP	399	399	399	399	399	399	399	399
INDUSTRIAL-TOTAL	4,942	5,006	5,099	5,209	5,286	5,363	5,454	5,540
STREET LIGHTING	50	51	52	53	54	55	56	57
OTHER PUBLIC AUTHORITY	481	495	509	524	540	555	570	584
TOTAL ULTIMATE CUSTOMERS	16,082	16,447	16,848	17,270	17,679	18,067	18,473	18,854
MUNICIPAL-EX CC	839	859	881	904	927	948	970	991
CITY OF CAMDEM	200	207	214	221	228	235	242	249
MUNICIPAL TOTAL	1,039	1,066	1,095	1,125	1,155	1,183	1,212	1,240
COOPERATIVE	201	205	210	215	220	224	229	234
TOTAL TERRITORIAL SALES	17,323	17,719	18,153	18,610	19,054	19,475	19,914	20,327