Final Report

2009 Load Forecast

Brownsville Public Utilities Board

September 2009

R·W·BECK

An SAIC Company

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EXECUTIVE SUMMARY

R. W. Beck, Inc. was retained by Brownsville Public Utilities Board (BPUB) to prepare a forecast of retail electricity sales, energy requirements, and peak demand of the BPUB electric system (Load Forecast). A load forecast is a critical input to many utility planning activities including power supply planning, transmission and distribution facilities planning, fuel and purchased power budgeting, financial planning and budgeting, and staffing. Hence, a rigorous, objective, and detailed process that relies on widely accepted standards of practice, as well as a thorough review of the methodology and results by various stakeholders, is essential.

The Load Forecast has been prepared for a 20 year period, beginning calendar year 2009 through 2028. The load forecast relies on an econometric approach to forecast retail electricity sales as a function of certain explanatory factors that were found to be highly related to retail sales generally over the period 1994 through 2008 (Study Period). A forecast of system energy requirements, or net energy for load (NEL), was then derived from the retail sales forecast and an estimate of distribution system losses. Finally, a forecast of the system peak demand was derived from the forecasted NEL and load factors forecasted based on a regression analysis of historical load factor.

The econometric forecast of electric sales relies on system data provided by BPUB and a variety of other data provided by third parties. BPUB staff provided historical data regarding retail customer counts, sales, and revenues; net energy for load; and peak demand, as well as certain information regarding its customers and expected customer growth. Historical and projected economic and demographic data for Cameron County, which surrounds BPUB's service area, were obtained from Moody's Economy.com and Woods & Poole Economics, Inc., both widely-used sources of such projections in the utility industry. For purposes of this Forecast, economic projections reflect a blending of these two sources. Weather data for the region were obtained from the National Oceanic and Atmospheric Administration (NOAA).

The results of the load forecast reflect that BPUB system energy requirements are expected to grow at annual average rates of 4.2% from 2009-2018 and 3.0% from 2019-2028[1]. System annual peak demand is expected to grow slightly faster, at 4.3% per year from 2009-2018 and 3.1% over 2019-2028. This compares to historical growth in system energy requirements and peak demand of 3.6% and 3.4%, respectively, over 1999-2008. On a normal weather basis, the Base Case projected 2009 energy requirements and 2009 peak demand are 1,340 GWh and 276.6 MW, respectively. The results of the load forecast reflect energy requirements growing to 1,944.7 GWh in 2018 and to 2,613.7 GWh in 2028 and annual peak demand growing to 405.0 MW by 2018 and to 548.7 MW by 2028.

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[1] Unless otherwise indicated, annual data reflect the calendar year.

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EXECUTIVE SUMMARY

Table ES-1 below shows historical and projected calendar year energy requirements and peak demand, as well as associated growth rates, for selected years.

Table ES-1
Historical and Projected Net Energy for Load and Peak Demand

Year	Net Energy for Load (MWh)	Percent. Change (%)	Peak Demand (MW)	Percent. Change (%)
Historical				
1999	954,876	--	197.0	--
2000	1,037,753	8.7%	217.0	10.2%
2001	1,118,113	7.7%	229.0	5.5%
2002	1,156,209	3.4%	234.0	2.2%
2003	1,164,557	0.7%	241.0	3.0%
2004	1,185,962	1.8%	241.0	0.0%
2005	1,223,754	3.2%	262.0	8.7%
2006	1,269,537	3.7%	258.0	-1.5%
2007	1,311,703	3.3%	270.0	4.7%
2008	1,311,886	0.0%	267.0	-1.1%
Projected				
2009	1,339,996	2.1%	276.6	3.6%
2010	1,389,502	3.7%	287.1	3.8%
2011	1,457,725	4.9%	301.5	5.0%
2012	1,534,836	5.3%	316.8	5.1%
2013	1,613,272	5.1%	334.3	5.5%
2014	1,680,250	4.2%	348.5	4.3%
2015	1,746,228	3.9%	362.5	4.0%
2016	1,813,403	3.8%	375.8	3.7%
2017	1,879,732	3.7%	391.0	4.0%
2018	1,944,722	3.5%	405.0	3.6%
2028	2,613,678		548.7	
Compound Average Growth Rates:				
1999-2008		3.6%		3.4%
2009-2018		4.2%		4.3%
2019-2028		3.0%		3.1%

The following report details the methodology, data sources, assumptions, and results of the 2009 Load Forecast. The first section of the report provides an overview of the underlying methodology, including a general description of the econometric equations and a discussion of the derivation of net energy for load and peak demand. This overview is followed by a description of the sources from which various types of data have been obtained for the load forecast. Next, a list of principal considerations and assumptions that have been relied upon are included to provide context for the results. The forecast results, including the implications of the econometric equations, are then discussed in detail. Finally, a discussion regarding forecast uncertainty is included to provide guidance as to the use of the numerical results and the underlying methodology in planning analyses.

At its core, the Load Forecast relies on an econometric analysis of retail sales by major rate classification. This analysis and the independent projections of driving variables represent the primary driver of system load growth. A separate econometric analysis is relied on to determine the relationship between system energy and peak demand.

Econometric forecasting makes use of regression to establish historical relationships between a variable of interest, such as energy consumption, and various explanatory variables based on economic theory and experience. In this approach, the significance and validity of historical relationships are evaluated using various statistical measures and theoretical tests. Regression equations that, in the view of the analyst, best explain the historical variation of energy consumption are selected. The historical relationships that comprise the final equations are generally assumed to continue into the future, and the selected models are then simulated using projections of the explanatory variables, resulting in projections of energy sales.

Econometric forecasting can be a more reliable technique for long-term forecasting than trend-based approaches and other techniques, because the approach results in an explanation of variations in electric consumption rather than simply an extrapolation of history. As a result of this approach, utilities are more likely to anticipate departures from historical trends in energy consumption, given accurate projections of the driving variables. In addition, understanding the underlying relationships that affect energy consumption allows utilities to perform scenario and risk analyses, thereby improving the robustness of decisions.

Econometric equations are used to forecast residential customer accounts, residential average usage per customer, and energy sales by major rate classification for non-residential classes. A similar equation is used to forecast load factor, from which system peak demand is derived. The primary equations that drive the results of the forecast are annual in nature. However, monthly projections were also produced that were calibrated to the annual totals for each individual determinant.

1.1 Equation Specifications

In order to estimate, or forecast, a particular variable as a function of other variables, a common approach is to explain the "dependent variable" as a linear combination of several "independent variables," each multiplied by a coefficient, as in equation (1-1) below.

$$Y_t = \alpha + \beta_1 X_{1t} + \beta_2 X_{2t} + \dots + B_n \ X_{nt} + \epsilon_t \qquad (1\text{-}1)$$

In this equation, Y_t is the dependent variable. X_{1t} through X_{nt} are independent, or explanatory, variables. The Greek characters α, or alpha, and each β, or beta, are coefficients to be estimated by the statistics program. In this functional form, β represents the amount of change in Y that can be expected from a 1 point change in the associated X term. The variable ϵ_t, or epsilon, is the error in the resulting estimate of the dependent variable and represents other sources of variation that are not explained by the equation. This functional form is referred to as, simply, linear.

However, in many situations, this linear equation does not accurately capture how the variables interact to produce the dependent variable. For example, the impact of weather on electric load is not well represented by a simple multiplier, which might be measured in MWh per degree Fahrenheit. Instead, the impact of weather tends to grow as the system grows. Accordingly, a functional form that results in a multiplicative combination of such factors is typically more appropriate. Equation 1-2 below is a commonly-used theoretical equation that conforms to this principle.

$$Y_t = \alpha \times X_{1t}{}^{\beta 1} \times X_{2t}{}^{\beta 2} \times \ldots \times X_{nt}{}^{Bn} \times \epsilon_t \qquad (1\text{-}2)$$

Through a few algebraic transformations, this equation is made easily estimable using ordinary least squares as the following equation, commonly referred to as the "double-log" or "log-linear" (i.e., linear in log space) form:

$$\ln Y_t = \alpha + \beta_1 \ln X_{1t} + \beta_2 \ln X_{2t} + \ldots + B_n \ln X_{nt} + \epsilon_t \qquad (1\text{-}3)$$

In this equation, Y_t is again the dependent variable, such as average residential usage. X_{1t} through X_{nt} are explanatory variables, such as average income, electricity price, and weather. The Greek characters α, or alpha, and each β, or beta, are estimated by the statistics program. In this functional form, β represents the percentage change in Y that can be expected from a 1% change in the associated X term and is often referred to as "elasticity". The coefficient for the average income variable would then represent the income elasticity of average residential sales.

Variables that can have the value of zero, such as certain weather variables or binary variables, cannot be logged, because the natural log of zero is undefined. These variables are in the equation in non-logged form and can be interpreted to represent the percentage change in Y that can be expected from a one *point* change in X. While these coefficients are not actually elasticity measurements, they are still often referred to in that way for simplicity.

The customer and sales equations are of this functional form.

The form of equation 1-3 (and 1-2 for that matter) yields several benefits over equation 1-1. First, as discussed above, it more accurately represents the multiplicative combination of factors, which is common in a variety of situations. Second, it assumes a constant elasticity, which is a typical assumption in economic forecasts and desirable in equations intended to forecast trending variables. Finally, as the coefficients are measured in percentage terms, they can be readily compared between other forecast equations for the same utility or between different utilities. As importantly, they can similarly be compared to theoretical or expected values. For instance, the coefficient on electricity price in a double-log equation, which represents

the price elasticity of demand, should be significantly below 1.0 in absolute terms and negative. An elasticity estimate that deviates from this preconceived notion, which is backed up by other empirical work in the utility and other industries, may be an indicator of some data or empirical problem. The coefficients on other variables should similarly be subjected to theoretical or preceding empirical benchmarks.

The equation used to estimate load factor conforms to Equation 1-1. This functional form choice is appropriate because elasticity measurements are not of special interest, and the dependent variable is typically not trending to a significant degree.

The equation parameters are estimated using ordinary least squares in the computer program Econometric Views™. The resulting parameterized equations were programmed into an Excel™ spreadsheet model containing further calculations to derive the remaining forecasted variables and various statistics discussed herein.

1.2 Integration of Determinants

The diagram below provides an illustration of the flow of calculations used to produce the forecast.
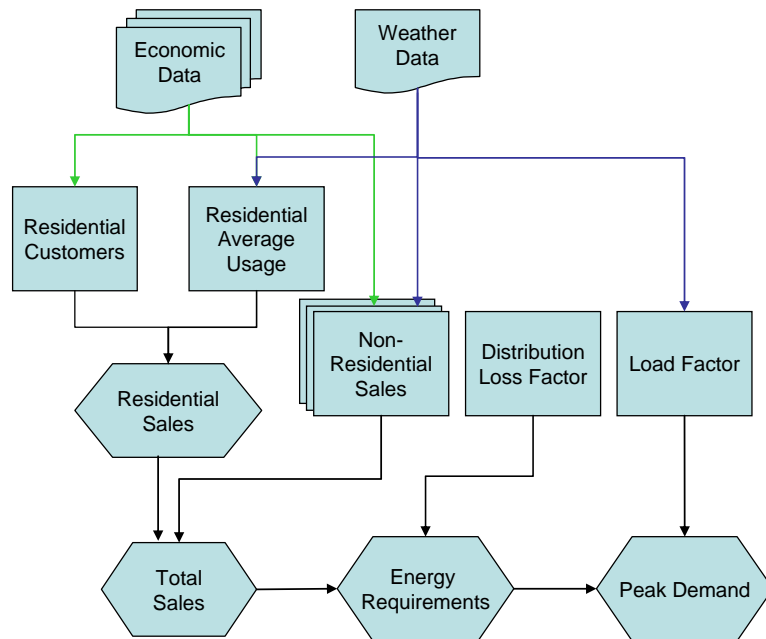
Figure 1-1: Forecast Determinants Derivation

1.3 Monthly Determinants and Calibration

While the forecast results summarized herein are based upon a series of annual econometric models, BPUB also expressed interest in having monthly forecasts of each key determinant available. These monthly forecasts can be used to support various BPUB activities, including budgeting and retail rate planning.

In order to produce monthly forecasts that conformed to the annual forecasts, independent econometric equations were developed for monthly sales for each of the same customer classifications modeled annually. These were then simulated with the same independent projections used in the annual models but were calibrated so that the annual summations were equal to the results of the annual models. Monthly residential customer counts were produced using an average of recent historical ratios of monthly customer counts to the annual average. These monthly ratios were first reviewed to reveal the presence of any trends, resulting in the determination that they were sufficiently stable through time.

Monthly values for NEL and peak demand were produced based on the average relationship between each monthly value and an annual value. In the case of NEL the annual value is simply the annual NEL produced as discussed above. For peak demand values, the annual value for the months of April through November is the annual peak, produced as discussed above, and for the months of December through March is an annual winter peak, which has been developed based on the average annual winter peak load factor over 1999-2008.

For the computations of monthly peak demand, the average relationships were computed after ranking the historical demand data within the summer and winter seasons and reassigning peak demands to each month based on the typical ranking of that month compared to the seasonal peak. This process avoids distortion of the averages due to randomness as to the months in which peak weather conditions occur within each season. For example, a summer peak period can occur during July or August of any year. It is important that the shape of the peak demands reflects that only one of those two months is the peak month and that the other is typically some percentage less.

Appendix A provides a table of monthly determinants for the key forecast outputs detailed herein.

2.1 Historical System Data

Data regarding the monthly number of customer accounts, electric sales, and revenues by major customer classification were provided by BPUB. Hourly system load data was provided from which monthly and annual system peak demand and NEL was derived, as well as the timing (i.e., date and hour) of monthly and annual peak demand. Revenue data were verified to reflect the full retail costs of electricity, including power cost adjustments, and were used to estimate the cost of electricity experienced by BPUB's customers. Data were available and analyzed generally over the period 1994 through 2008 (Study Period).

System energy requirements are typically greater than total retail sales by the amount of losses incurred over distribution lines and related equipment (e.g., transformers) and unbilled sales (if any), such as energy use at a utility's offices and certain system facilities (e.g., substations). Distribution loss factors computed for purposes of this load forecast represent a percentage adjustment to account for these differences between total sales and system NEL.

2.2 Weather Data

Historical weather data for the Brownsville airport was obtained from the National Oceanic and Atmospheric Administration (NOAA).

The influence on electricity sales of weather has been represented through the use of two data series—heating and cooling degree days (HDD and CDD, respectively.) Degree days are derived by comparing the average daily temperature and a base temperature, typically 65 degrees Fahrenheit (dF), which was the base relied on herein. To the extent the average daily temperature exceeds the base temperature, the difference between that average temperature and the base is the number of CDD for the day in question. Conversely, HDD result from average daily temperatures which are below the base temperature. Heating and cooling degree days are then summed over the period of interest—in this case, the fiscal year.

The assumed values over the forecast horizon for these annual weather determinants were based on their average values over the period 1989-2008 (i.e., 20 years).

Figure 2-1 shows a graphical comparison of historical and the long-term average annual HDD and CDD for the Brownsville airport weather station. The data reflects that the region is dominated by warm weather and that, in recent years, winter weather has been somewhat mild by long-term historical standards.
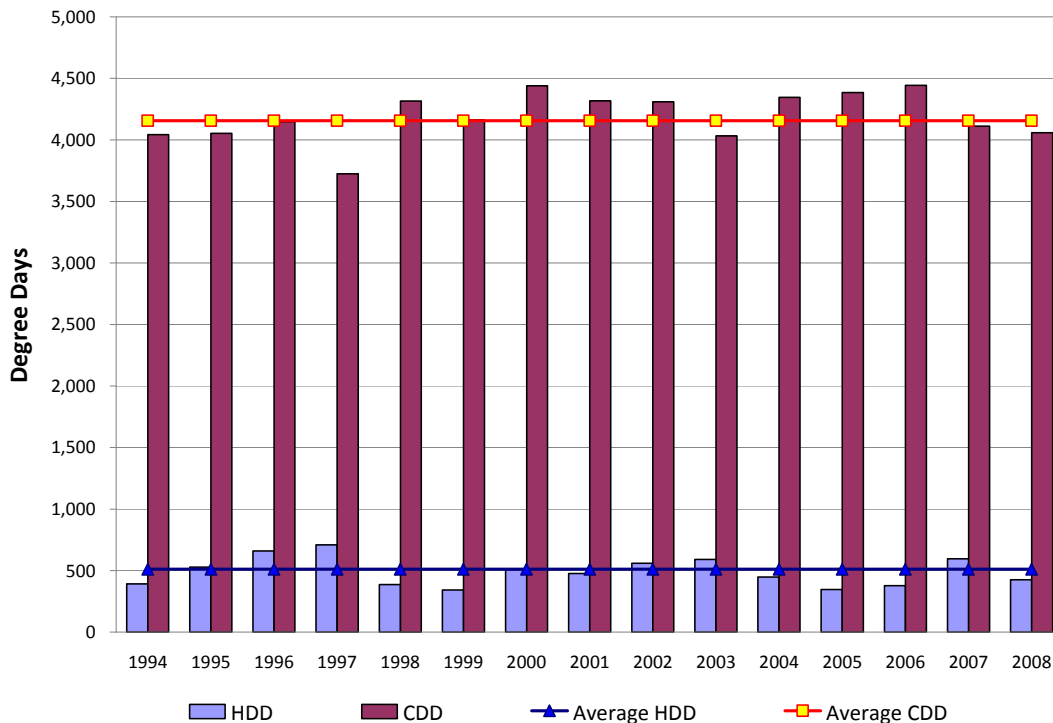
Figure 2-1: Historical and Long-Term Average Heating and Cooling Degree Days

The influence of weather on annual summer peak load factor was represented and tested using several weather-related data series. In addition to the HDD and CDD series discussed above, several weather variables associated with the peak day weather were constructed. Daily weather statistics were compiled, including high and low "dry bulb" temperatures, average dew point, humidity, and rainfall. Peak day weather determinants were then determined based on information regarding the timing of the annual peak demand from BPUB. In addition, high and low temperatures from the day prior to the peak day were similarly determined. Finally, multiple temperature-humidity indices were constructed to test for the usefulness of a combined heat index in explaining variations in load factor resulting from its impact on peak demand.

For the forecast period, the average of peak weather conditions over 1992-2008 (excluding 1994 and 1995 for which hourly load data were not available) were assumed to reflect conditions that could be expected on BPUB's peak load day.

Figure 2-2 below shows the historical daily high temperature on the peak day and day prior to the peak day over 1992-2008 compared to the averages of each over that period. The data shows a great deal of volatility in peak day temperatures (note however that the chart has a Y-axis that is restricted to the range of temperatures of interest). In addition, while the peak day is typically hotter than the prior day, it is sometimes the day after a hot day that is the peak.
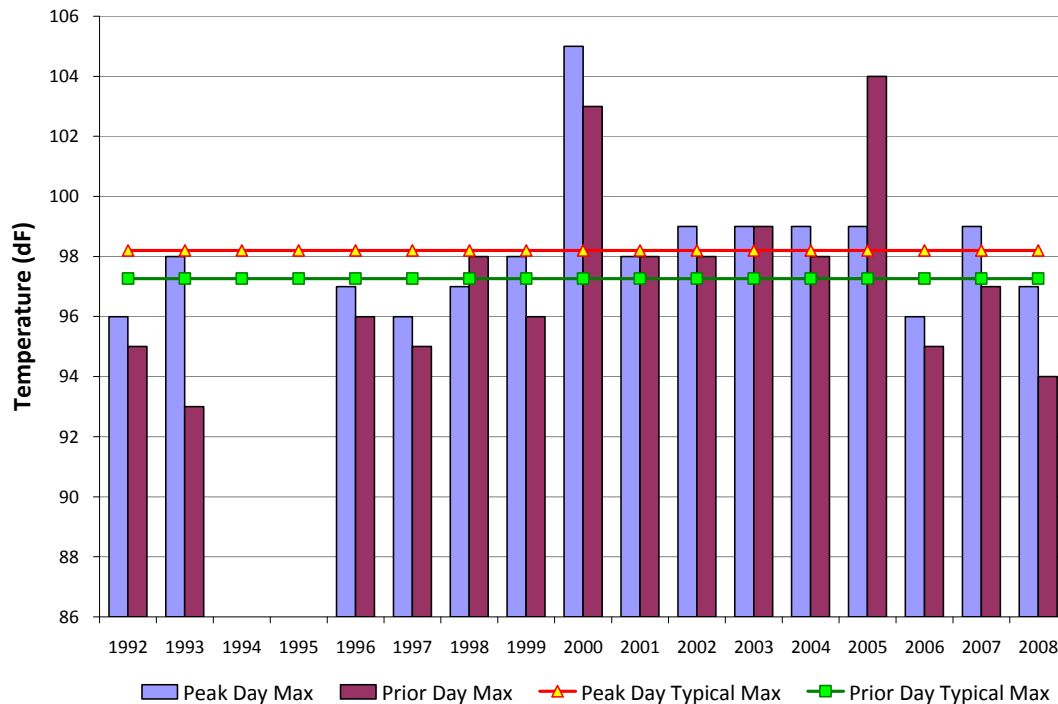
Figure 2-2: Long-term Average v. Recent Peak Day Maximum Temperatures

2.3 Economic and Demographic Data

Data regarding the economy and population of Cameron County were obtained from Moody's Economy.com (Moody's) and Woods & Poole Economics, Inc. (Woods & Poole), both widely-used providers of such data in the utility and other industries. These data include county population, households, employment, personal income, retail sales, and gross domestic product. Although all data was not necessarily utilized in each of the forecast equations, each was examined for its potential to explain changes in historical electric sales. Note that personal income refers to the total income earned by the population in the geographic region rather than average personal income per capita, thereby combining population and income per capita concepts. The vintage of the Moody's data was April 2009, while the vintage of the Woods & Poole data was approximately May 2008. Moody's produces updated projections monthly, whereas Woods & Poole produces them only annually, and the 2009 vintage was not be produced until late summer.

A comparison of the two data sources showed that the two projections were significantly different in terms of the growth trend for a few key economic variables, including personal income and employment[2]. To address this issue and represent a sort of consensus between the two projections, the 2009 Load Forecast relies on a blending of projections from the two providers.

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[2] The Moody's data regarding employment also reflected a definitional difference, resulting in significantly lower values throughout the historical and projected period.

Appendix C contains tables showing the economic and demographic series from Moody's and Woods & Poole that were analyzed for potential use in the forecasting equations. Of these determinants, county households, total employment, total personal income, and mean household personal income were utilized in the resulting forecast. The historical and projected values for these variables reflect the blending of the two providers' data, as discussed above.

2.4 Real Electricity Price Data

The real price of electricity by customer classification is represented by real average revenue, which is calculated by dividing revenue by electricity sales and normalizing for inflation using the implicit price deflator for personal consumption expenditures (PCEd), which is published quarterly by the U.S. Bureau of Economic Analysis. The adjustment for inflation is accomplished by dividing annual nominal average revenue by the associated annual PCEd value.

The forecast model for average residential usage includes this price term using a multi-year moving average to reflect that the demand response from price changes take some time to be felt. However, it is important to recognize that this lagged demand response may only capture changes in discretionary use, and changes to electric consumption resulting from the replacement of the stock of electric appliances, which increase the average efficiency of appliances, take much longer to be felt but may be more significant. However, BPUB's average revenues are strongly negatively correlated with most of the economic series, and this inhibits the ability of the statistics software from discerning this long-run price influence. See the discussion in Section 3, "Principal Considerations and Assumptions," for further information.

For purposes of this Forecast, projected electricity prices are assumed to increase at the rate of 1.0% above inflation. Consequently, the real price is projected to increase at 1.0% per year, due in part to the significant probability that regulations concerning carbon dioxide emissions and renewable portfolio standards will be enacted by the federal government that are expected to put upward pressure on electricity rates during the forecast horizon.

Figure 2-4 below depicts the historical trend of real average revenue, or real electricity prices, for the residential class of BPUB, as compared to similar data for the state of Texas (as reported by the Energy Information Administration). The trend of average revenue for the other major rate classifications is very similar. The data reflect that residential electricity prices have been relatively flat in real terms for most of the historical period but have increased significantly in recent years. In addition, BPUB's residential rates appear to be somewhat lower than the state average over nearly the entire coincident historical period.
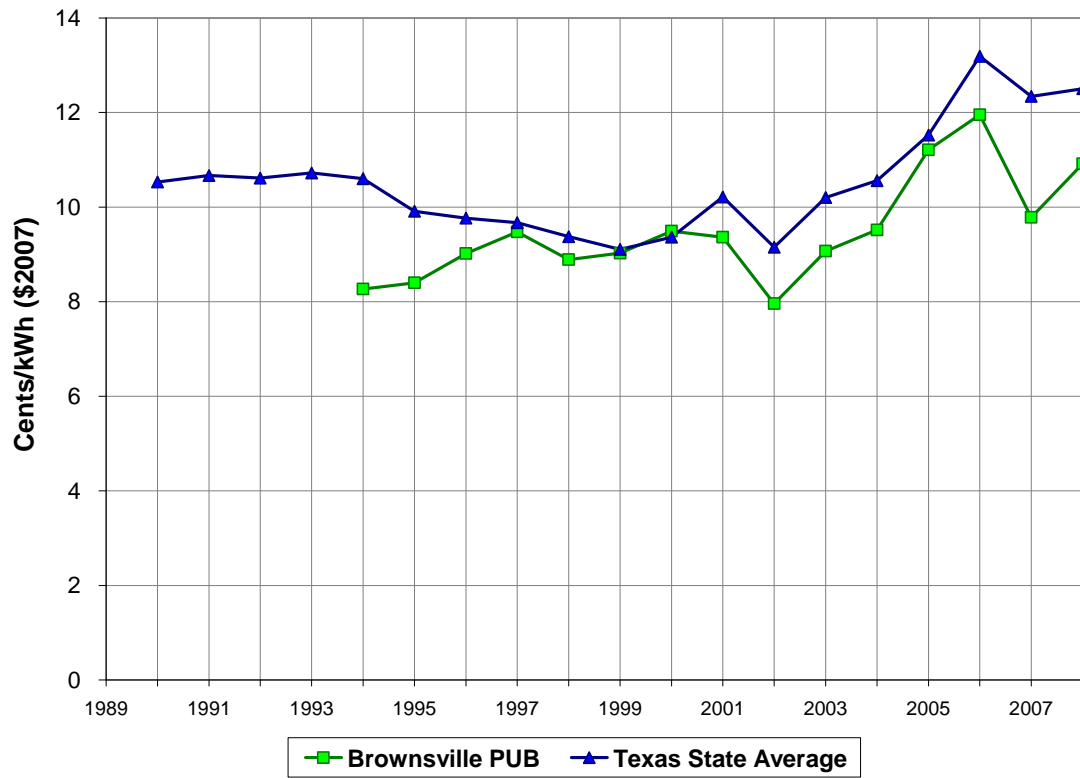
Figure 2-3: Historical Residential Real Average Revenue

In preparing the 2009 Load Forecast, as summarized in this report, we have made certain assumptions with respect to conditions that may occur in the future. These assumptions primarily relate to economic, demographic, and weather conditions. With regard to certain of these factors, we have used and relied upon information provided to us, or prepared by others. While we believe the assumptions made by us in preparing the 2009 Load Forecast are reasonable for the purposes of the forecast, they are dependent on future events, and actual conditions may differ from those assumed. While we believe the sources of the information provided to us, or prepared by others, to be reliable and the use of such information to be reasonable for the purposes of the forecast, we offer no other assurances with respect thereto.

To the extent that economic, demographic, weather, or other conditions occur that are different from those assumed by us or from the information provided to us or prepared by others, the actual future BPUB load can be expected to vary from the forecast. It should be emphasized that the confidence associated with any forecast varies inversely with the length of the forecast horizon. The probability of other factors affecting forecasted values increases with uncertainty about future developments; this uncertainty increases with the length of the forecast horizon. With this in mind, the 2009 Load Forecast should be seen as providing reasonable estimates of BPUB's future demand and energy requirements for the purposes for which the Load Forecast is intended. However, these estimates are subject to the future effects of factors that cannot be reasonably foreseen at this time.

The development of the 2009 Load Forecast was based upon the following principal consideration and assumptions:

■ The data on which this forecast is based, both external (economic, weather, etc.) and internal (energy sales, peak demands, etc.) are assumed to be accurate. While R. W. Beck has reviewed the data for major anomalies, we can give no assurances that the data are without error. In particular, recent historical economic data (for the period after 2007) actually represent projections by Moody's, as actual data is unavailable. Further, even "actual" economic and demographic data for the most recent several years is subject to substantial revision as more supporting data becomes available. Therefore, the relationships upon which the forecast is based may be in error, as the "true" data could show a different quantitative relationship.

■ The future influence on energy sales of the economic, demographic, and weather factors, on which the econometric models are based, was assumed to be similar to the estimated influence of such factors generally over the period 1994 through 2008.

■ Although the econometric models implicitly account for the historical relationships between energy usage and the following factors to the extent they have occurred in the past, the Load Forecast does not explicitly reflect extraordinary potential future effects of: (a) increases in appliance design efficiency or building insulation standards; (b) significant penetration of time-of-use electricity pricing schemes; (c) development of substitute energy sources; (d) consumers switching to traditional or new types of electrical appliances from other alternatives (e.g., electric vehicles); (e) consumers switching from electrical appliances to other alternatives; or (f) variations in load that might result from legal, legislative, regulatory, or policy actions.

The following discussion details the forecasting models that resulted from the regression analysis and the projections of energy sales by major rate classification, system NEL, and peak demand.

Appendix A contains several tables that provide detailed projections for each of these variables on an annual basis. Further information regarding the regression models is included in Appendix B.

4.1 Residential Class

The residential class model reflects that energy sales are dependent on, or driven by: (i) the number of residential customers; (ii) real personal income per household; (iii) real electricity prices; and (iv) weather variables. For the residential class, the analysis of electric sales was separated into independent analyses of the number of customers and residential usage per customer, the product of which is total residential sales. This process is common for highly homogenous customer groups. For other rate classifications, the total sales series is the primary forecasted variable.

4.1.1 Residential Customers

The number of residential customers is typically projected on the basis of the historical relationship between residential customers and population or the number of households, either in the utility's service area or surrounding county. If such data are reported and are accurate, historical households in the utility's service area should be nearly perfectly correlated and, indeed, essentially analogous to residential customers. Population should also similarly be highly correlated with residential customer counts, given a fairly stable number of persons per household.

However, utility forecasting typically must rely on demographic and economic data that represents a larger geographic area than, or some amalgamation of reported geographic areas that correspond fairly closely to, the exact service territory. The typical econometric model of residential utility customers then reflects the portion of the households in the total geographic area that are served by the utility or perhaps how that proportion might be trending through time.

R. W. Beck performed an econometric analysis of BPUB residential customer counts and county households to determine an appropriate functional form and equation parameters to forecast residential customer counts. This analysis resulted in the selection of a functional form in which the growth in residential customers is modeled based on the ratio between residential customers and county households, which essentially represents the proportion of county households served by BPUB. The

resulting forecast equation reflects that the proportion of county households served by BPUB can reasonably be expected to grow by about 0.23% per year. The regression equation includes a binary variable to account for the period prior to 1997, which reflected significantly slower growth in BPUB residential customers versus growth in county households. Similarly, although the growth in this ratio between BPUB's residential customers and county households has exceeded the long-run expected growth rate, it is expected that this above-normal growth will not be sustained.

The history and resulting projection of Residential customers are depicted in Figure 4-1. Historical growth in Residential customer accounts averaged approximately 2.9% over 1999-2008. The results of this Load Forecast reflect that Residential customers are expected to grow at average annual rates of 2.9% over 2009-2018 and 2.3% over 2019-2028. This reflects an expected level of approximately 50,600 customers by 2018 and 63,900 by 2028, from about 38,500 in 2008.
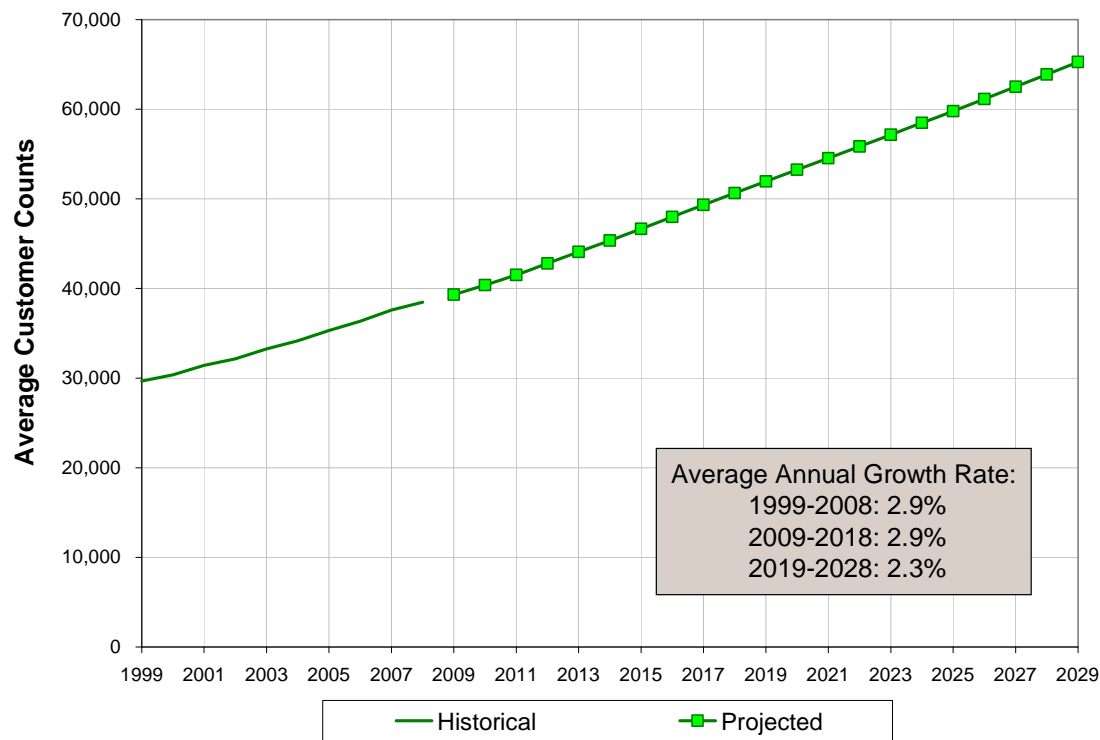
Figure 4-1: Historical and Projected Residential Customer Counts

The growth in customer counts discussed above is directly comparable to the projected growth rates for households in Cameron County, albeit somewhat higher. Over 2009-2018, growth in county households is expected to average approximately 2.2%, and over 2019-2028, 1.7%. The forecast results imply that the ratio of residential customers to county households (i.e., the percentage of Cameron County served by BPUB) will grow from about 34% in 2008 to 36% in 2018 and 38% by 2028.

Additional information regarding the resulting model parameters and statistics are included in Appendix B.

4.1.2 Residential Average Use

Residential average use is calculated simply by dividing total billed Residential sales by customer counts and is modeled as a function of the following variables as shown in Appendix B:

- Average personal income per household (CAM_PYHH)
- The price of electricity for the residential class (PR_ RES)
- The number of heating and cooling degree days (WHDD/WCDD)
- A binary variable to account for an unexplained drop in average usage in 2008, which has been assumed to be recovered somewhat over the first 5 years of the forecast period

Income and electricity prices are included in the model as a reflection of a considerable weight of economic theory suggesting that these variables affect consumers' purchasing habits. In the case of income, the effect is somewhat indirect. As average incomes rise, current residents and new residents will tend to build larger homes or add on to existing homes; upgrade other aspects of their homes resulting in greater electric use, or purchase new and/or larger electric appliances. In the case of electricity prices, the influence is more direct. When electricity prices go up in real terms, BPUB's residential customers will tend to conserve in various ways to some degree and, in the longer term, will be encouraged to replace electric appliances with more efficient ones.

The elasticity of average usage with respect to average income, also referred to as the "income elasticity", is estimated in the residential average use model to be 0.92. Accordingly, a 10% change in average income can be expected to result in a 9.2% increase in average residential use and, all else equal, total residential sales. Similarly, the price elasticity is estimated to be -0.19. Accordingly, a sustained 10% increase in the real price of electricity can then be expected to yield a 1.9% decrease in average usage, after a lag.

The unexplained deviation in average usage in 2008 can be attributed to several factors. First, as mentioned previously, the economic data reflects a projected value for 2008. It is highly likely, given the abrupt deterioration in economic activity, as well as the sharp run-up in energy and food costs in mid-2008, that average personal incomes were less than projected values. In addition, while the impact of the housing crisis has been less acute in most areas of Texas than elsewhere in the U.S., it is likely that there was a sharp increase in the number of unoccupied and under-occupied homes that were still connected and for which electricity bills would have been sent out. Finally, the recent run-up in energy costs and sharp increases in electricity prices in the portions of Texas that are open to competition may have brought about greater conservation than would have been caused by the much smaller increases in BPUB's effective electricity rates alone. The Forecast assumes that these conditions improve somewhat over 2009-2013 but that a significant portion of this conservation impact is permanent.

The historical trend and resulting projection of average use per Residential customer are depicted in Figure 4-2. Historical growth in Residential average use over 1999-

2008 averaged approximately 0.6% per year. The forecast reflects that Residential use is expected to grow at average annual rates of 1.7% over 2009-2018 and 1.1% over 2019-2028 from approximately 12,800 kWh per customer per year in 2009 to about 16,700 kWh per customer per year by 2028. While this growth appears to be significantly greater than that over the recent historical period, it should be recognized that usage has been impacted by much larger increases in electricity prices than those expected over the forecast horizon and much lower growth in income than is expected over the forecast horizon, as well as the conditions specific to 2008, which are expected to improve over the next several years.
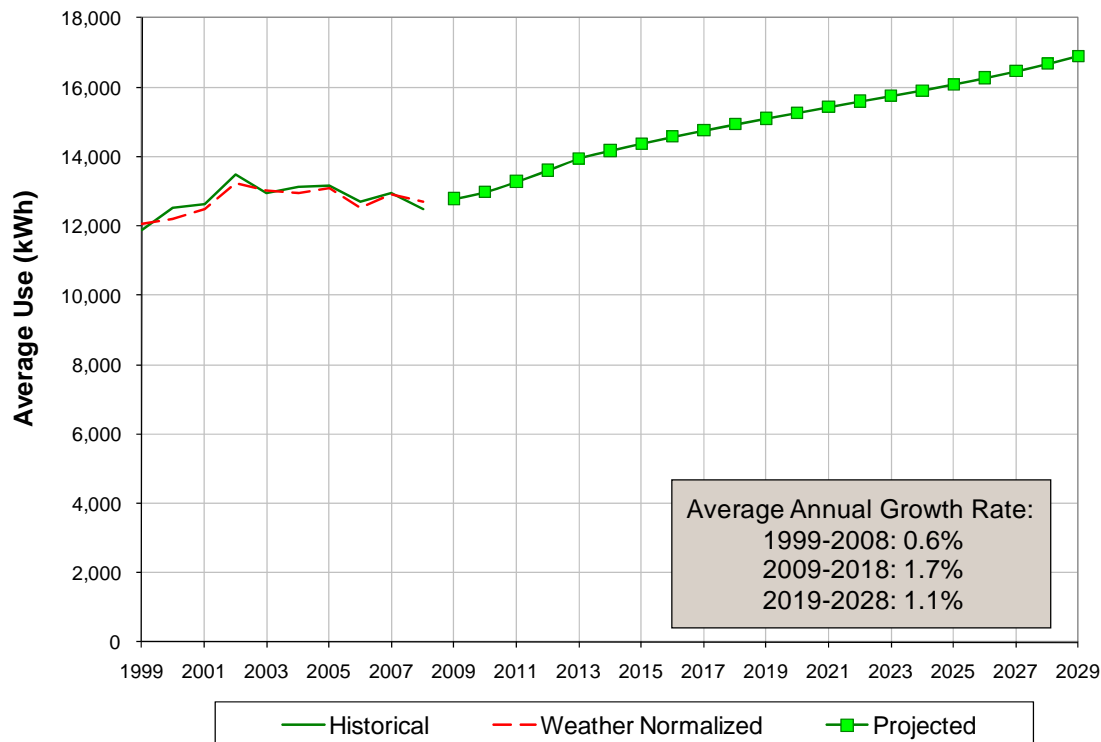
Figure 4-2: Historical and Projected Residential Average Use

4.1.3 Residential Sales

The above forecasts of Residential customer counts and average use are combined to derive total Residential sales. The historical trend and resulting projection of Residential sales are depicted in Figure 4-3 below. Historical growth in Residential sales over 1999-2008 averaged approximately 3.5% per year. The forecast reflects that Residential sales are expected to grow at average annual rates of 4.6% over 2009-2018 and 3.5% over 2019-2028.
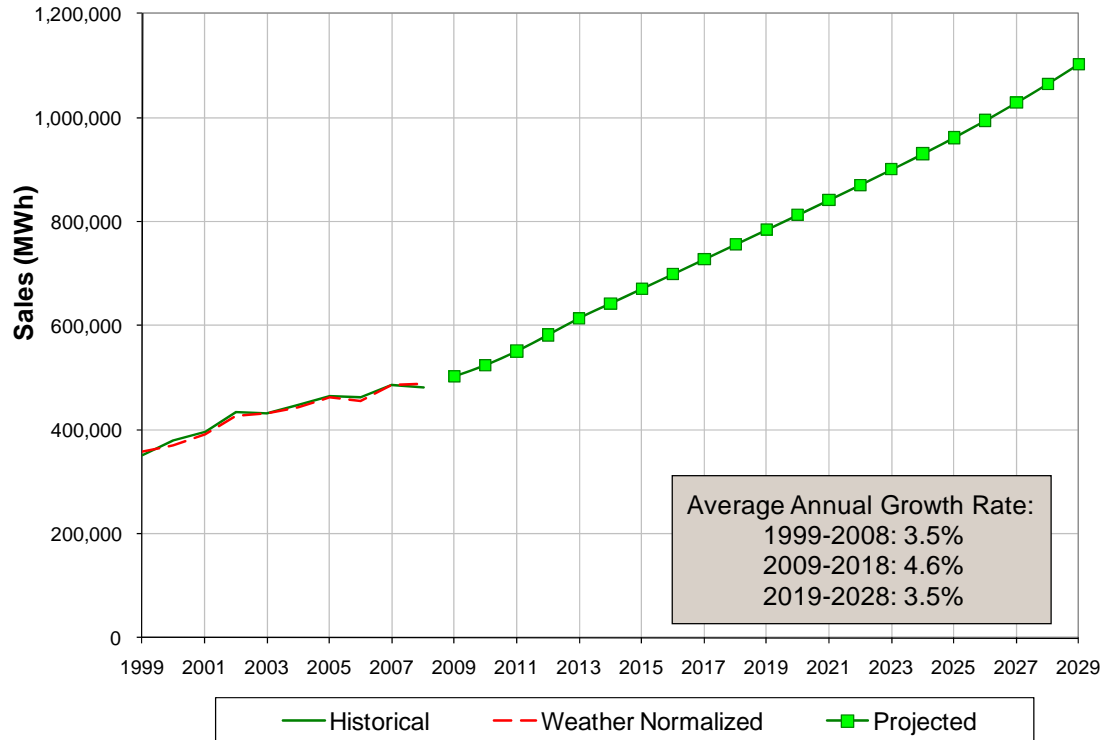
Figure 4-3: Historical and Projected Residential Sales

4.2 General Service Non-Demand Sales

The General Service Non-Demand (GSND) sales model reflects that sales are best explained by the combination of:

■ Total employment in Cameron County (CAM_EMPL) and

■ A binary variable addressing a significant increase in GSND sales subsequent to the year 1997, which was understood to be driven by the migration of customers to the GSND class from the General Service Demand class

The inclusion of total employment in the model captures the pool of customers from which commercial business draw, as well as their earning and spending power, which can be expected to grow in proportion to the strength of employment opportunities in the area. The binary variable reflects an isolated adjustment driven from a significant shift in the underlying customer base of BPUB from one class to another. It is noteworthy that weather conditions did not appear to explain variations in commercial sales in any significant way.

The historical data and resulting projection of sales for the GSND Class are depicted in Figure 4-4. Historical growth in GSND sales over 1999-2008 averaged approximately 2.7% per year. The forecast reflects that sales are expected to grow at average rates of 3.1% over 2009-2018 and 2.0% over 2019-2028, growing from approximately 138.9 GWh in 2009 to about 224.5 GWh by 2028.
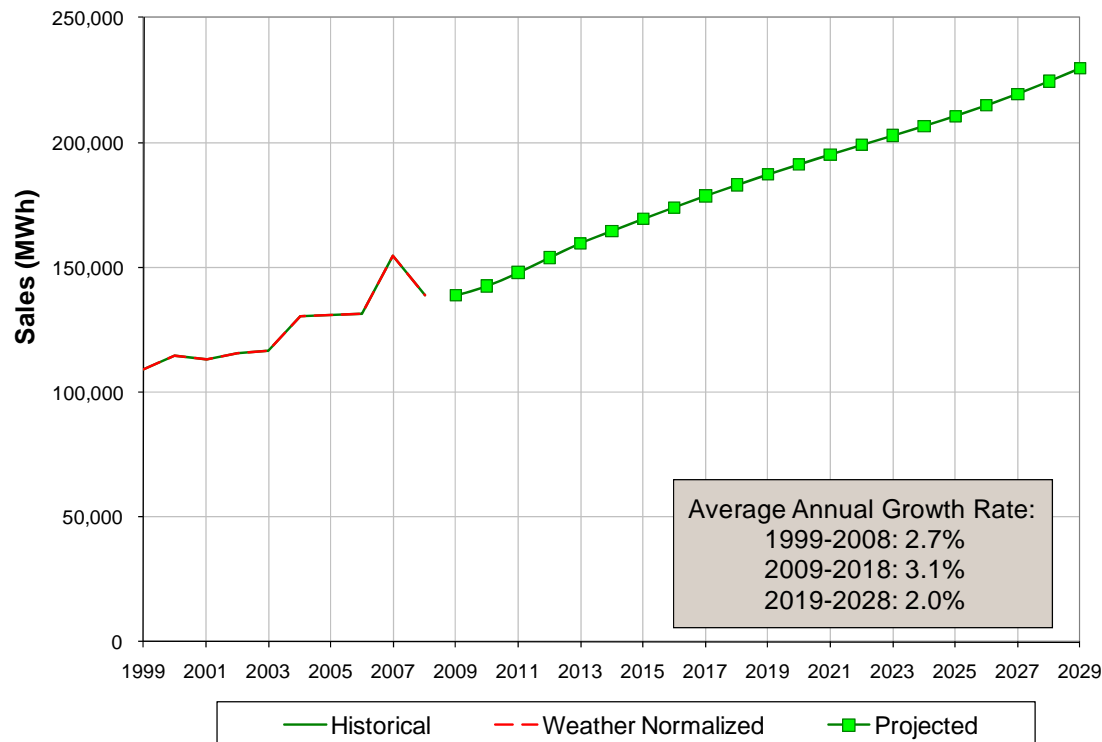
Figure 4-4: Historical and Projected GSND Sales

4.3 General Service Demand Sales

The General Service Demand (GSD) sales equation reflects that sales can be explained primarily as a function of:

- Total employment in Cameron County (CAM_EMPL),
- Cooling degree days (WCDD), and
- A binary variable, similar to the one used in explaining GSND sales, to reflect the migration of customers away from this class into the GSND class

The inclusion of total employment in the equation is similar to the GSND sales equation discussed above. However, GSD sales have grown a good deal more over the historical period than GSND sales have, and this trend is effectively embedded in the resulting forecast equation in the form of a much higher coefficient on total employment. This higher coefficient in the GSD sales equation and the expectation of continued economic growth in Cameron County results in a faster growing GSD class than other classes and an increase in the mix of GSD load over the forecast horizon. The fact that GSD sales appears to be influenced by weather conditions is a reflection of the fact that this class also comprises many large commercial businesses (e.g., big box retailers).

The historical data and resulting projection of GSD sales are depicted in Figure 4-5. Historical growth in sales over 1999-2008 averaged approximately 4.1% per year. The results reflect that GSD sales are expected to grow at average annual rates of

4.3% over 2009-2018 and 2.8% over 2019-2028, growing from approximately 551 GWh in 2009 to about 1,060 GWh by 2028.
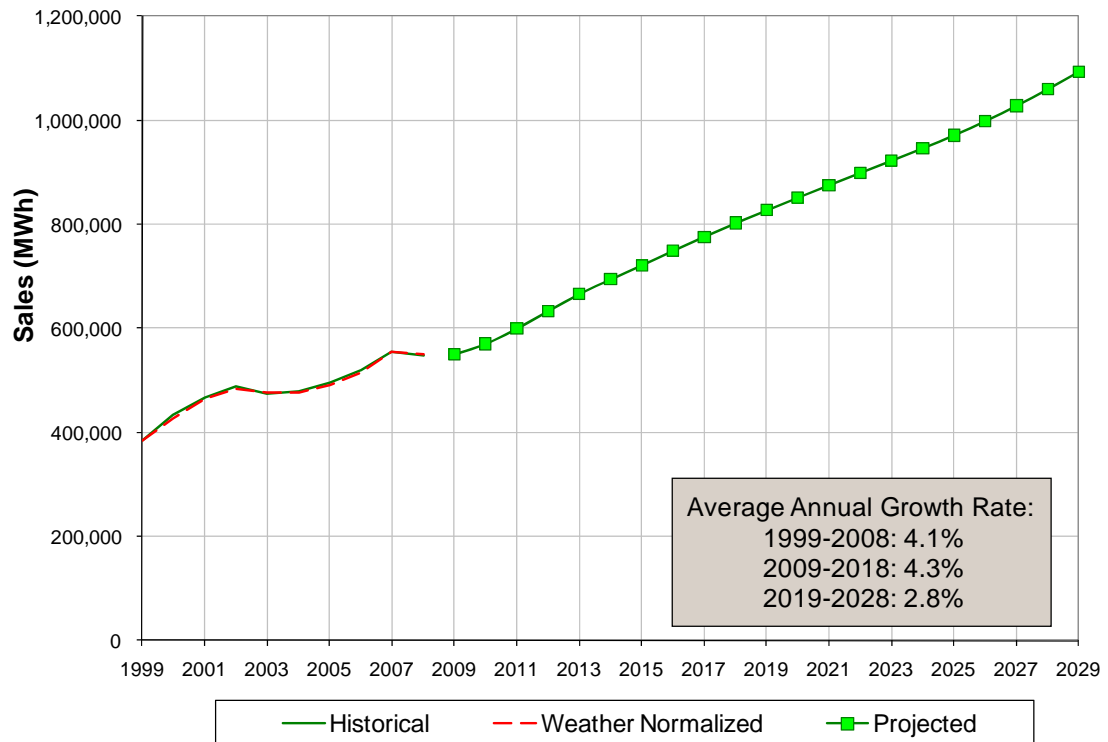
Figure 4-5: Historical and Projected GSD Sales

4.4 Sales to Other Classes

The remaining classifications of customers have historically accounted for approximately 5.3% of BPUB sales and consist of the following:

- Municipal and
- Vapor Lamp sales

Municipal class sales were modeled in similar fashion to the GSND class, but with Cameron county total personal income as the primary driving variable. Vapor lamp sales constitute a very small percentage of total sales. Given the brief period over which these sales data exist and their significant volatility, the data were not subjected to econometric analysis and were instead projected based on a Holt-Winters exponential smoothing method. The resulting forecasts are shown in detail in Appendix A, and the forecast equation for Municipal sales, in Appendix B.

4.5 Total Retail Electricity Sales

Based on a summation of the independent forecasts of sales for each customer classification discussed above, total system retail sales are projected to grow at average annual rates of 4.2% over 2009-2018 and 3.0% over 2019-2028. These

growth rates are somewhat faster in the near term and slower in the long run than the recent historical growth rate of 3.6% per year over 1999-2008. This differential is driven primarily by the relatively high expected growth rate across all sales classes relative to recent history. Total retail sales are projected to grow from 1,266 GWh in 2009 to 2,470 GWh in 2028. Figure 4-6 below depicts the historical and projected trend of total retail electricity sales in BPUB's service territory.
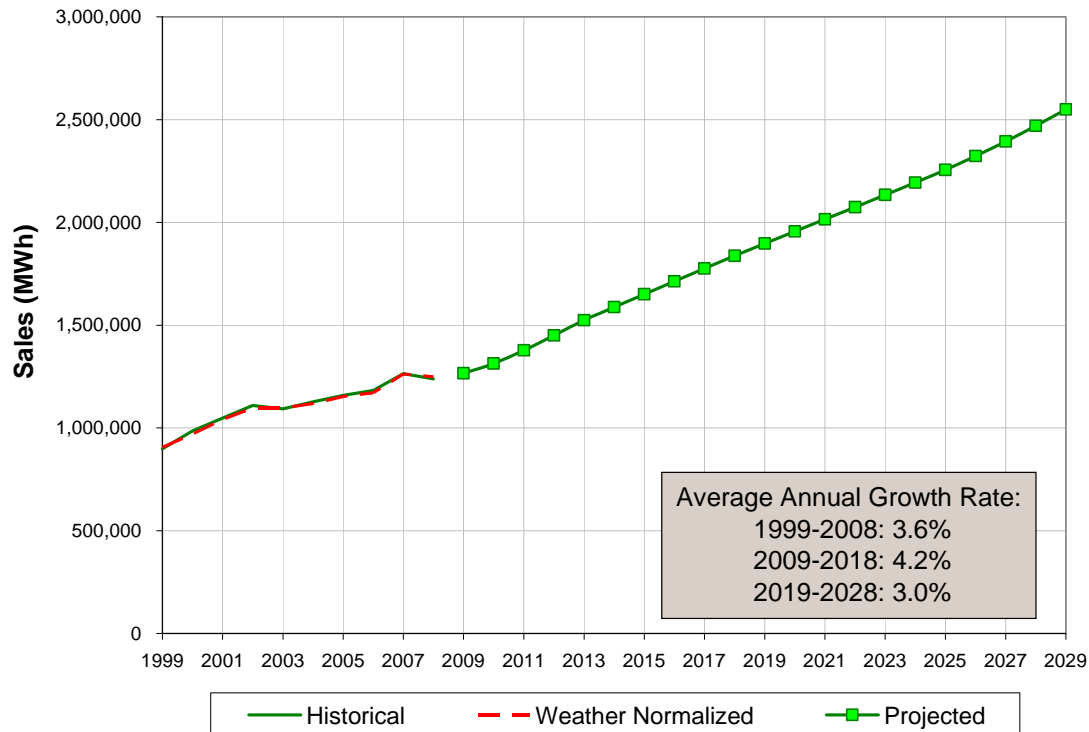
Figure 4-6: Historical and Projected Total Retail Electricity Sales

4.6 Energy Requirements

The forecast of system energy requirements, or Net Energy for Load (NEL), is derived from the forecasted total sales above and estimated distribution losses of 5.5%. This estimate was based on a simplified average of losses over the period 1997 through 2008, The resulting forecasted Net Energy for Load generally follows the projected trend of total sales discussed above and is projected to grow at annual average rates of 4.2% over 2009-2018 and 3.0% over 2019-2028. Net Energy for Load is projected to be 1,340 GWh during fiscal year 2009 and to grow to 2,614 GWh in 2028, an overall increase of 95% over the 20-year period. Historical and projected Net Energy for Load are depicted in Figure 4-7 below and shown in Table 4-1 in Section 4.8.
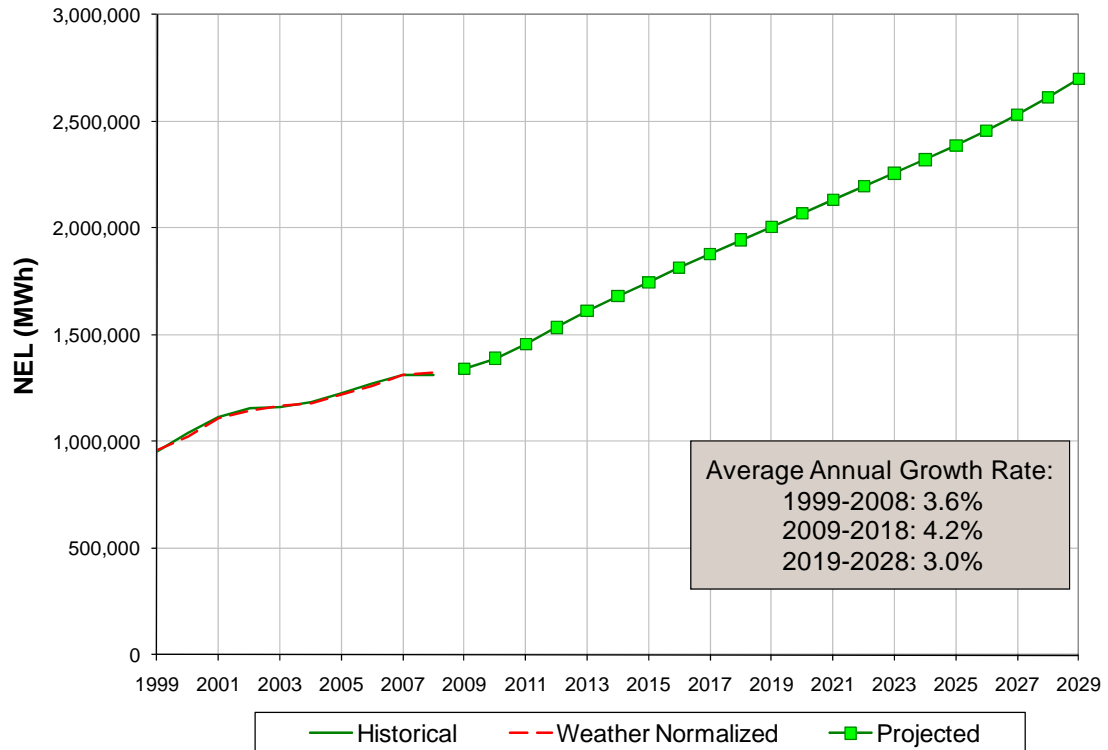
Figure 4-7: Historical and Projected Net Energy for Load

4.7 Load Factor Analysis

The next step in developing an integrated power requirements forecast is to develop a methodology to estimate load factor, which describes the relationship between energy requirements and peak demand. R. W. Beck's preferred methodology involves an effort to directly analyze load factor to (i) determine whether statistically significant trends are discernable, (ii) be able to more accurately capture long-term normal weather conditions, and (iii) be able to estimate the volatility of peak demand with respect to peak-producing weather. The methodology relies on the resulting load factor equation to explicitly integrate the forecasts of energy and peak demand, which are simply two measures of the same phenomenon—electricity demand. In addition, the direct analysis of load factor explicitly determines whether a trend is discernable, what the causes might be, and most importantly, whether those explanatory conditions are likely to continue in the future.

The variables found to be most useful in explaining load factor are the following:

- Cooling degree days (WCDD)
- An interaction (or multiplicative) term combining a general trend term in load factor (LF_TREND) with heating degree days (WHDD)
- The weighted average of maximum temperature on the peak day and the day prior, with an 60% and 40% weighting, respectively (W_PKPRMAX)
- Peak day humidity (W_PEAKHUM)

■   A two year moving average of BPUB's inflation-adjusted average retail revenue for the residential class (PR_RES)

The first four variables above primarily explain the year-to-year volatility of peak demand. Heating and cooling degree days have positive coefficients, implying that higher values for these variables, all else equal, tend to increase load factor. This is intuitive, as weather across the year tends to influence energy requirements rather than peak demand. Conversely, higher temperature on and just prior to the peak day tends to depress load factor, as peak demand is influenced more by peak day conditions than is annual energy. Similarly, humidity on the peak day tends to be associated with higher peak demand and therefore a lower load factor.

The last variable above is more trend-related. Increases in electricity prices generally cause consumers to curtail energy use. However, the reduction in energy consumption tends to be more focused on non-peak periods. Consumers are more likely to reduce "non-essential" consumption; when it is the peak period during the summer, consumption for space conditioning is typically viewed as essential. BPUB's effective retail rates have increased somewhat over the last few years, which has likely depressed load factor somewhat.

Figure 4-8 below depicts the recent historical and near-term projected annual load factor of BPUB's system. Note that much of the volatility in load factor is attenuated as a result of weather-normalization. Please refer back to the discussion regarding assumed normal peak weather conditions in Section 2. Load factor is projected to decline slightly over the forecast horizon as a result of an assumed 1.0% increase in real electricity prices.
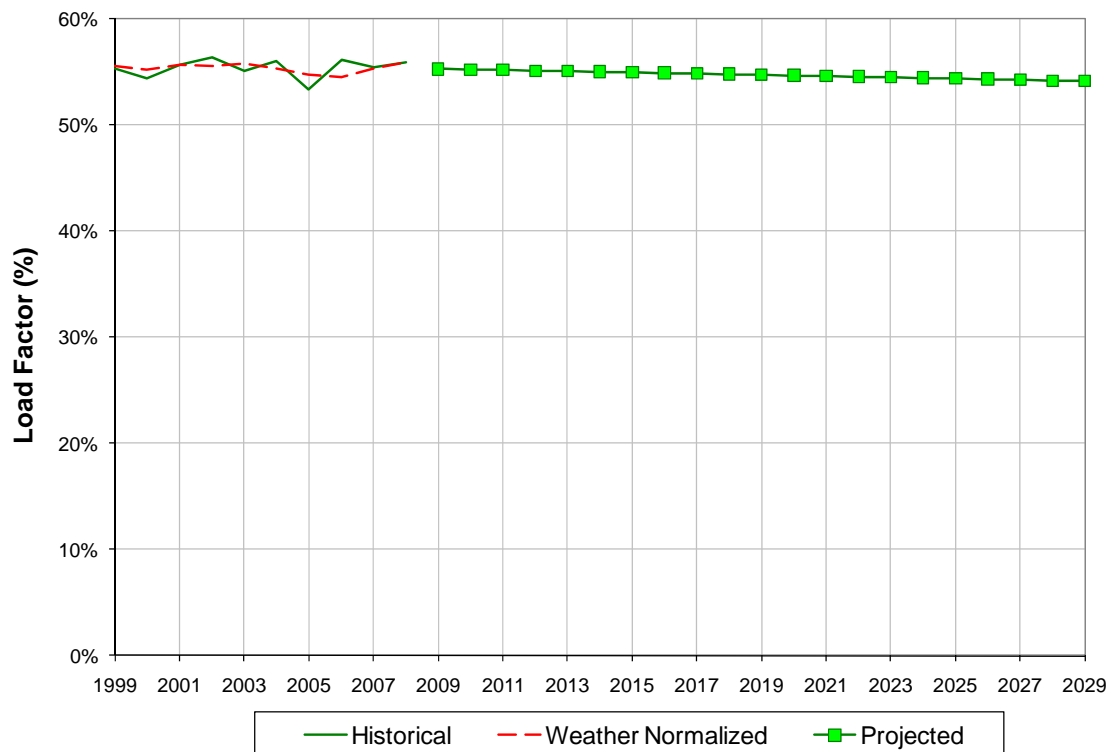
Figure 4-8: Historical and Projected Annual Load Factor

4.8 Peak Demand

Annual peak demand is derived from Net Energy for Load based on forecasted annual peak load factors determined as discussed above. Annual peak demand is projected to grow at annual average rates of 4.3% over 2009-2018 and 3.1% over 2019-2028. This compares to an historical growth rate over 1999-2008 of 3.4% per year. Peak demand is projected to be 276.6 MW, on a weather-normalized basis in 2009, and is projected to grow to 405.0 MW by 2018 and 548.7 MW by 2028.

Historical, weather-normalized, and projected annual peak demand are depicted below in Figure 4-9 below.
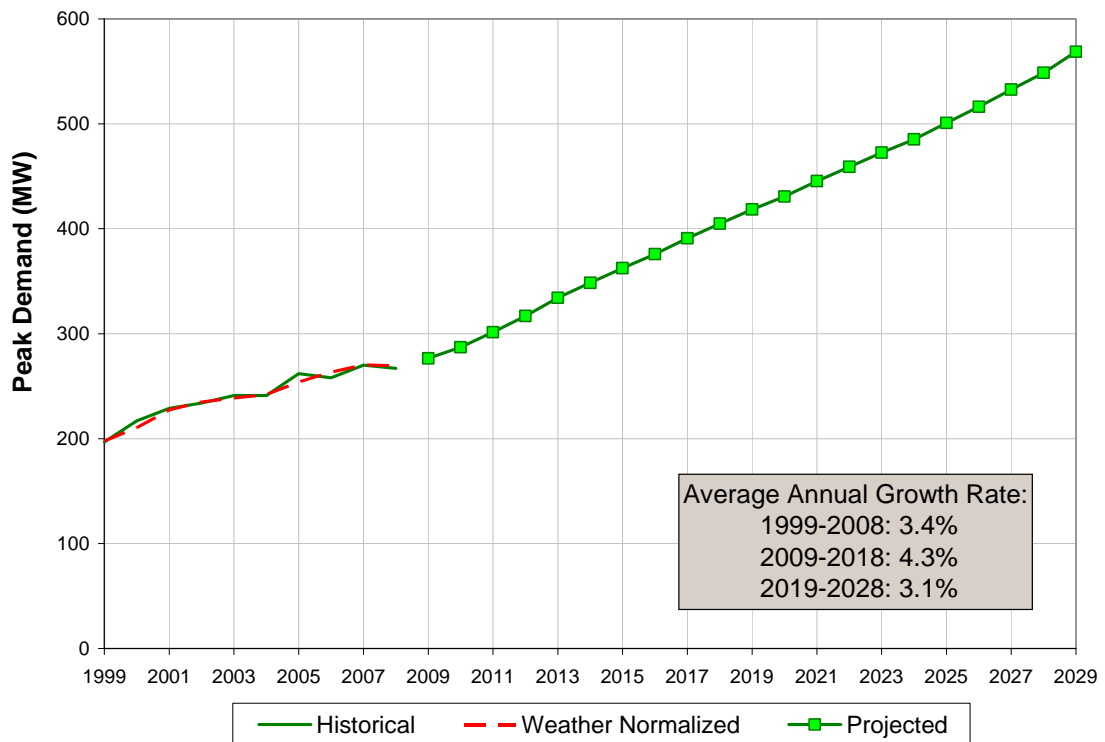
Figure 4-9: Historical and Projected Annual Peak Demand

Table 4-1 below shows historical and projected calendar year net energy for load and peak demand, as well as associated growth rates and load factor, for selected years.

Table 4-1
Historical and Projected Net Energy for Load and Peak Demand

Year	Net Energy for Load (MWh)	Percent. Change (%)	Peak Demand (MW)	Percent. Change (%)
Historical				
1999	954,876	--	197.0	--
2000	1,037,753	8.7%	217.0	10.2%
2001	1,118,113	7.7%	229.0	5.5%
2002	1,156,209	3.4%	234.0	2.2%
2003	1,164,557	0.7%	241.0	3.0%
2004	1,185,962	1.8%	241.0	0.0%
2005	1,223,754	3.2%	262.0	8.7%
2006	1,269,537	3.7%	258.0	-1.5%
2007	1,311,703	3.3%	270.0	4.7%
2008	1,311,886	0.0%	267.0	-1.1%
Projected				
2009	1,339,996	2.1%	276.6	3.6%
2010	1,389,502	3.7%	287.1	3.8%
2011	1,457,725	4.9%	301.5	5.0%
2012	1,534,836	5.3%	316.8	5.1%
2013	1,613,272	5.1%	334.3	5.5%
2014	1,680,250	4.2%	348.5	4.3%
2015	1,746,228	3.9%	362.5	4.0%
2016	1,813,403	3.8%	375.8	3.7%
2017	1,879,732	3.7%	391.0	4.0%
2018	1,944,722	3.5%	405.0	3.6%
2028	2,613,678		548.7	
Compound Average Growth Rates:				
1999-2008		3.6%		3.4%
2009-2018		4.2%		4.3%
2019-2028		3.0%		3.1%

Forecasting the direction of the nation's economy is no easy task. Population growth is fairly predictable, but migration rates are highly uncertain and subject to volatile regional pressures. The pace of economic activity is also highly uncertain. At a regional level, the uncertainty of future population and economic growth increases dramatically, both due to increased migration volatility and the focus on a smaller number of economic agents (residents, businesses, industries, etc). It is in this environment that forecasts of the power requirements of a small region must be developed.

It is important to recognize that no point estimate forecast will prove to be perfectly accurate once projected periods become history. This Load Forecast is no exception. It can only be as accurate as the numerous assumptions and data sources it relies on are or later prove to be. The econometric equations that the forecast is based on demonstrate that energy consumption is driven by population, economic forces, and weather in fairly predictable ways. However these drivers are anything but predictable. Many of these will deviate from the projections shown herein only briefly or in volatile ways but will maintain the trend over the long term; certain others may deviate in a way that suggests a somewhat different trend altogether. Importantly, as discussed in Section 3, a significant portion of the historical period upon which the forecast is based is not known with certainty but is in fact only estimated.

Accordingly, a forecast must be viewed as a guide only, and plans for large capital expenditures, which are based on such forecasts, made with care and with an allowance for flexibility.

This forecast should be updated periodically, particularly when events occur that are expected to impact growth or when projections of driving variables change significantly. In addition, it may become useful to create projections that directly estimate the range of uncertainty that can be expected in future electric demand on the BPUB system. Several techniques are available to address the sources of potential error in the forecast. The appropriate technique depends on several issues, including the tractability of the downstream planning analyses that rely on the forecast (e.g., budgets, power supply simulations, rate studies, etc) to risk analysis. However, the forecasting equations and the infrastructure developed for this forecast are capable of addressing a range of potential risk analysis methods.

Appendix A
FORECAST RESULTS

Table A-1
BPUB 2009 Load Forecast
Historical and Projected Electricity Sales by Customer Class and Net Energy for Load
(Calendar Year 1999-2028)

	Calendar Year	Residential Sales (MWh)	% Chg	Y/E Cust. (#)	% Chg	Sales/ Cust. (kWh)	% Chg	GSND Sales (MWh)	% Chg	GSD Sales (MWh)	% Chg	Municipal Sales (MWh)	% Chg	Vapor Lamp Sales (MWh)	% Chg	Total Sales (MWh)	% Chg	Distr. Losses (MW)	Net Energy for Load (MWh)	% Chg
Historical	1999	352,047		29,663		11,868		108,955		383,221		54,311		0		898,534		56,342	954,876	
	2000	379,616	7.8%	30,353	2.3%	12,507	5.4%	114,717	5.3%	432,896	13.0%	56,253	3.6%	2,129	-	985,611	9.7%	52,142	1,037,753	8.7%
	2001	396,987	4.6%	31,417	3.5%	12,636	1.0%	113,008	-1.5%	467,744	8.1%	61,569	9.5%	8,507	299.6%	1,047,817	6.3%	70,296	1,118,113	7.7%
	2002	433,898	9.3%	32,144	2.3%	13,499	6.8%	115,436	2.1%	487,950	4.3%	62,759	1.9%	8,744	2.8%	1,108,787	5.8%	47,422	1,156,209	3.4%
	2003	430,979	-0.7%	33,266	3.5%	12,956	-4.0%	116,417	0.8%	473,533	-3.0%	67,112	6.9%	5,415	-38.1%	1,093,456	-1.4%	71,101	1,164,557	0.7%
	2004	448,142	4.0%	34,177	2.7%	13,112	1.2%	130,324	11.9%	479,529	1.3%	67,245	0.2%	1,984	-63.4%	1,127,224	3.1%	58,738	1,185,962	1.8%
	2005	465,002	3.8%	35,304	3.3%	13,171	0.5%	131,017	0.5%	494,998	3.2%	65,495	-2.6%	2,069	4.3%	1,158,581	2.8%	65,173	1,223,754	3.2%
	2006	462,363	-0.6%	36,359	3.0%	12,717	-3.5%	131,240	0.2%	520,011	5.1%	66,444	1.4%	2,166	4.7%	1,182,225	2.0%	87,312	1,269,537	3.7%
	2007	487,264	5.4%	37,593	3.4%	12,962	1.9%	154,707	17.9%	554,916	6.7%	64,928	-2.3%	2,247	3.8%	1,264,062	6.9%	47,641	1,311,703	3.3%
	2008	480,321	-1.4%	38,458	2.3%	12,489	-3.6%	138,759	-10.3%	547,886	-1.3%	68,823	6.0%	2,188	-2.6%	1,237,977	-2.1%	73,909	1,311,886	0.0%
Projected	2009	502,736	4.7%	39,317	2.2%	12,787	2.4%	138,865	0.1%	550,826	0.5%	71,678	4.1%	2,191	0.1%	1,266,296	2.3%	73,700	1,339,996	2.1%
	2010	524,451	4.3%	40,388	2.7%	12,985	1.6%	142,474	2.6%	570,430	3.6%	73,470	2.5%	2,254	2.9%	1,313,080	3.7%	76,423	1,389,502	3.7%
	2011	551,337	5.1%	41,508	2.8%	13,283	2.3%	147,899	3.8%	600,232	5.2%	75,765	3.1%	2,316	2.8%	1,377,550	4.9%	80,175	1,457,725	4.9%
	2012	582,325	5.6%	42,801	3.1%	13,605	2.4%	153,862	4.0%	633,449	5.5%	78,405	3.5%	2,379	2.7%	1,450,420	5.3%	84,416	1,534,836	5.3%
	2013	614,983	5.6%	44,080	3.0%	13,951	2.5%	159,678	3.8%	666,302	5.2%	81,139	3.5%	2,441	2.6%	1,524,543	5.1%	88,730	1,613,272	5.1%
	2014	642,936	4.5%	45,355	2.9%	14,176	1.6%	164,563	3.1%	694,235	4.2%	83,599	3.0%	2,504	2.6%	1,587,836	4.2%	92,414	1,680,250	4.2%
	2015	670,685	4.3%	46,646	2.8%	14,378	1.4%	169,305	2.9%	721,638	3.9%	85,991	2.9%	2,567	2.5%	1,650,185	3.9%	96,043	1,746,228	3.9%
	2016	699,360	4.3%	47,985	2.9%	14,575	1.4%	174,030	2.8%	749,223	3.8%	88,425	2.8%	2,629	2.4%	1,713,666	3.8%	99,737	1,813,403	3.8%
	2017	727,972	4.1%	49,330	2.8%	14,757	1.3%	178,616	2.6%	776,259	3.6%	90,808	2.7%	2,692	2.4%	1,776,347	3.7%	103,385	1,879,732	3.7%
	2018	756,312	3.9%	50,641	2.7%	14,935	1.2%	183,033	2.5%	802,536	3.4%	93,127	2.6%	2,754	2.3%	1,837,762	3.5%	106,960	1,944,722	3.5%
	2019	784,375	3.7%	51,934	2.6%	15,103	1.1%	187,186	2.3%	827,452	3.1%	95,382	2.4%	2,817	2.3%	1,897,212	3.2%	110,420	2,007,632	3.2%
	2020	812,819	3.6%	53,241	2.5%	15,267	1.1%	191,194	2.1%	851,693	2.9%	97,635	2.4%	2,879	2.2%	1,956,221	3.1%	113,854	2,070,075	3.1%
	2021	841,632	3.5%	54,540	2.4%	15,431	1.1%	195,129	2.1%	875,670	2.8%	99,886	2.3%	2,942	2.2%	2,015,259	3.0%	117,290	2,132,550	3.0%
	2022	870,898	3.5%	55,834	2.4%	15,598	1.1%	198,980	2.0%	899,303	2.7%	102,145	2.3%	3,005	2.1%	2,074,330	2.9%	120,728	2,195,058	2.9%
	2023	900,520	3.4%	57,149	2.4%	15,757	1.0%	202,775	1.9%	922,760	2.6%	104,398	2.2%	3,067	2.1%	2,133,520	2.9%	124,173	2,257,693	2.9%
	2024	930,615	3.3%	58,483	2.3%	15,913	1.0%	206,619	1.9%	946,683	2.6%	106,657	2.2%	3,130	2.0%	2,193,704	2.8%	127,676	2,321,380	2.8%
	2025	961,514	3.3%	59,787	2.2%	16,082	1.1%	210,558	1.9%	971,358	2.6%	108,957	2.2%	3,192	2.0%	2,255,580	2.8%	131,277	2,386,857	2.8%
	2026	994,578	3.4%	61,134	2.3%	16,269	1.2%	214,876	2.1%	998,611	2.8%	111,409	2.2%	3,255	2.0%	2,322,728	3.0%	135,185	2,457,914	3.0%
	2027	1,029,137	3.5%	62,506	2.2%	16,465	1.2%	219,529	2.2%	1,028,197	3.0%	113,950	2.3%	3,317	1.9%	2,394,131	3.1%	139,341	2,533,472	3.1%
	2028	1,065,368	3.5%	63,883	2.2%	16,677	1.3%	224,504	2.3%	1,060,078	3.1%	116,597	2.3%	3,380	1.9%	2,469,926	3.2%	143,752	2,613,678	3.2%
AAGR	1999-2008		3.5%		2.9%		0.6%		2.7%		4.1%		2.7%		-		3.6%			3.6%
	2009-2018		4.6%		2.9%		1.7%		3.1%		4.3%		3.0%		2.6%		4.2%			4.2%
	2019-2028		3.5%		2.3%		1.1%		2.0%		2.8%		2.3%		2.0%		3.0%			3.0%

Table A-2
BPUB 2009 Load Forecast

Historical and Projected Net Energy for Load and Non-Coincident Peak Demand

(Year 1999-2028)

	Year	Calendar Year Net Energy for Load					Annual Peak Demand						
		Actual (MWh)	Percent Change	Normalized (MWh)	Percent Change	Percent Diff	Actual (MW)	Percent Change	Load Factor	Normalized (MW)	Percent Change	Percent Diff	Load Factor
Historical	1999	954,876	3.1%	961,868	4.1%	0.7%	197.0	2.1%	55.3%	197.6	2.0%	0.3%	55.6%
	2000	1,037,753	8.7%	1,022,369	6.3%	-1.5%	217.0	10.2%	54.4%	210.6	6.5%	-3.0%	55.3%
	2001	1,118,113	7.7%	1,110,272	8.6%	-0.7%	229.0	5.5%	55.7%	227.5	8.1%	-0.6%	55.7%
	2002	1,156,209	3.4%	1,144,183	3.1%	-1.0%	234.0	2.2%	56.4%	234.8	3.2%	0.3%	55.6%
	2003	1,164,557	0.7%	1,168,125	2.1%	0.3%	241.0	3.0%	55.2%	238.8	1.7%	-0.9%	55.8%
	2004	1,185,962	1.8%	1,177,228	0.8%	-0.7%	241.0	0.0%	56.0%	241.9	1.3%	0.4%	55.4%
	2005	1,223,754	3.2%	1,217,792	3.4%	-0.5%	262.0	8.7%	53.3%	253.9	5.0%	-3.1%	54.8%
	2006	1,269,537	3.7%	1,257,485	3.3%	-0.9%	258.0	-1.5%	56.2%	263.4	3.7%	2.1%	54.5%
	2007	1,311,703	3.3%	1,309,885	4.2%	-0.1%	270.0	4.7%	55.5%	270.3	2.6%	0.1%	55.3%
	2008	1,311,886	0.0%	1,323,744	1.1%	0.9%	267.0	-1.1%	55.9%	269.5	-0.3%	1.0%	55.9%
Projected	2009	1,339,996	2.1%	1,339,996	1.2%		276.6	3.6%	55.3%	276.6	2.6%		55.3%
	2010	1,389,502	3.7%	1,389,502	3.7%		287.1	3.8%	55.3%	287.1	3.8%		55.3%
	2011	1,457,725	4.9%	1,457,725	4.9%		301.5	5.0%	55.2%	301.5	5.0%		55.2%
	2012	1,534,836	5.3%	1,534,836	5.3%		316.8	5.1%	55.1%	316.8	5.1%		55.1%
	2013	1,613,272	5.1%	1,613,272	5.1%		334.3	5.5%	55.1%	334.3	5.5%		55.1%
	2014	1,680,250	4.2%	1,680,250	4.2%		348.5	4.3%	55.0%	348.5	4.3%		55.0%
	2015	1,746,228	3.9%	1,746,228	3.9%		362.5	4.0%	55.0%	362.5	4.0%		55.0%
	2016	1,813,403	3.8%	1,813,403	3.8%		375.8	3.7%	54.9%	375.8	3.7%		54.9%
	2017	1,879,732	3.7%	1,879,732	3.7%		391.0	4.0%	54.9%	391.0	4.0%		54.9%
	2018	1,944,722	3.5%	1,944,722	3.5%		405.0	3.6%	54.8%	405.0	3.6%		54.8%
	2019	2,007,632	3.2%	2,007,632	3.2%		418.5	3.3%	54.8%	418.5	3.3%		54.8%
	2020	2,070,075	3.1%	2,070,075	3.1%		430.8	2.9%	54.7%	430.8	2.9%		54.7%
	2021	2,132,550	3.0%	2,132,550	3.0%		445.5	3.4%	54.6%	445.5	3.4%		54.6%
	2022	2,195,058	2.9%	2,195,058	2.9%		459.0	3.0%	54.6%	459.0	3.0%		54.6%
	2023	2,257,693	2.9%	2,257,693	2.9%		472.6	3.0%	54.5%	472.6	3.0%		54.5%
	2024	2,321,380	2.8%	2,321,380	2.8%		485.2	2.7%	54.5%	485.2	2.7%		54.5%
	2025	2,386,857	2.8%	2,386,857	2.8%		500.8	3.2%	54.4%	500.8	3.2%		54.4%
	2026	2,457,914	3.0%	2,457,914	3.0%		516.3	3.1%	54.3%	516.3	3.1%		54.3%
	2027	2,533,472	3.1%	2,533,472	3.1%		532.7	3.2%	54.3%	532.7	3.2%		54.3%
	2028	2,613,678	3.2%	2,613,678	3.2%		548.7	3.0%	54.2%	548.7	3.0%		54.2%
AAGR	1999-2008		3.6%		3.6%			3.4%	55.4%		3.5%		55.4%
	2009-2018		4.2%		4.2%			4.3%	55.1%		4.3%		55.1%
	2019-2028		3.0%		3.0%			3.1%	54.5%		3.1%		54.5%

R. W. Beck, Inc. 8/9/2009

Table A-3

BPUB 2009 Load Forecast - Brownsville Public Utilities Board
Monthly Net Energy for Load (MWh)

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical	1999	63,461	59,335	67,730	77,232	92,000	95,926	97,335	102,401	89,523	78,385	66,250	65,298	954,876
	2000	68,233	65,221	75,714	79,664	98,151	98,357	108,034	107,097	98,145	88,213	73,524	77,400	1,037,753
	2001	78,646	71,618	74,948	88,431	100,843	109,002	114,691	120,634	104,228	94,759	82,902	77,411	1,118,113
	2002	80,993	70,885	79,366	92,854	106,101	110,944	116,249	122,681	113,198	106,823	77,563	78,552	1,156,209
	2003	81,144	74,809	78,153	83,816	116,484	116,923	123,970	120,705	105,613	99,107	85,537	78,296	1,164,557
	2004	80,038	74,635	84,830	87,920	101,545	115,377	124,053	125,683	110,904	110,825	84,859	85,293	1,185,962
	2005	80,812	76,706	81,778	88,868	106,718	123,806	124,504	136,437	123,447	105,417	87,466	87,795	1,223,754
	2006	80,619	76,982	91,986	105,467	118,281	121,444	126,680	135,682	121,021	111,496	90,730	89,149	1,269,537
	2007	102,531	82,534	93,505	95,702	115,818	127,741	130,657	136,187	123,658	113,412	96,218	93,740	1,311,703
	2008	95,260	87,379	95,263	106,045	129,989	134,178	124,534	133,842	116,002	106,419	90,196	92,779	1,311,886
Projected	2009	92,850	84,602	93,867	102,995	123,568	131,379	136,134	141,598	126,376	116,467	95,605	94,553	1,339,996
	2010	96,281	87,728	97,335	106,800	128,134	136,233	141,164	146,830	131,045	120,770	99,138	98,046	1,389,502
	2011	101,008	92,035	102,114	112,044	134,425	142,922	148,094	154,039	137,480	126,699	104,005	102,860	1,457,725
	2012	106,351	96,904	107,516	117,971	141,536	150,482	155,928	162,187	144,752	133,401	109,507	108,301	1,534,836
	2013	111,786	101,856	113,010	123,999	148,769	158,173	163,897	170,475	152,149	140,219	115,103	113,836	1,613,272
	2014	116,427	106,084	117,702	129,148	154,945	164,739	170,701	177,553	158,466	146,040	119,882	118,562	1,680,250
	2015	120,999	110,250	122,324	134,219	161,029	171,208	177,404	184,525	164,689	151,775	124,589	123,217	1,746,228
	2016	125,653	114,491	127,030	139,382	167,224	177,794	184,229	191,623	171,024	157,613	129,382	127,957	1,813,403
	2017	130,249	118,679	131,676	144,480	173,340	184,298	190,967	198,632	177,279	163,378	134,114	132,638	1,879,732
	2018	134,753	122,782	136,229	149,475	179,333	190,670	197,570	205,500	183,409	169,027	138,751	137,224	1,944,722
Projected	2019	139,112	126,754	140,636	154,311	185,135	196,838	203,961	212,148	189,342	174,495	143,240	141,663	2,007,632
	2020	143,439	130,696	145,010	159,110	190,893	202,960	210,305	218,746	195,231	179,922	147,695	146,069	2,070,075
	2021	147,768	134,641	149,386	163,912	196,654	209,085	216,652	225,348	201,123	185,352	152,152	150,477	2,132,550
	2022	152,099	138,587	153,765	168,717	202,418	215,214	223,002	231,953	207,018	190,785	156,612	154,888	2,195,058
	2023	156,439	142,542	158,152	173,531	208,194	221,355	229,366	238,572	212,925	196,229	161,081	159,308	2,257,693
	2024	160,852	146,563	162,614	178,426	214,067	227,599	235,836	245,302	218,932	201,764	165,625	163,801	2,321,380
	2025	165,389	150,697	167,200	183,459	220,105	234,019	242,488	252,221	225,107	207,455	170,296	168,422	2,386,857
	2026	170,312	155,183	172,178	188,920	226,658	240,985	249,707	259,729	231,808	213,631	175,366	173,435	2,457,914
	2027	175,548	159,954	177,471	194,728	233,625	248,393	257,383	267,713	238,934	220,198	180,757	178,767	2,533,472
	2028	181,106	165,017	183,089	200,893	241,022	256,257	265,531	276,189	246,499	227,170	186,479	184,427	2,613,678

Table A-4

BPUB 2009 Load Forecast - Brownsville Public Utilities Board
Monthly Non-Coincident Peaks (MW)

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak
Historical	1999	161.0	130.0	149.0	170.0	189.0	185.0	189.0	197.0	191.0	165.0	142.0	128.0	197.0
	2000	135.0	149.0	181.0	180.0	196.0	194.0	203.0	207.0	217.0	192.0	171.0	168.0	217.0
	2001	181.0	161.0	158.0	186.0	206.0	218.0	220.0	229.0	220.0	204.0	176.0	154.0	229.0
	2002	183.0	176.0	166.0	209.0	216.0	220.0	225.0	234.0	220.0	213.0	163.0	177.0	234.0
	2003	168.0	192.0	170.0	213.0	231.0	230.0	230.0	241.0	224.0	204.0	185.0	157.0	241.0
	2004	181.0	171.0	169.0	186.0	213.0	227.0	241.0	240.0	228.0	220.0	208.0	222.0	241.0
	2005	156.0	175.0	189.0	207.0	241.0	245.0	256.0	262.0	258.0	228.0	196.0	227.0	262.0
	2006	162.0	177.0	209.0	230.0	250.0	244.0	250.0	258.0	246.0	244.0	206.0	172.0	258.0
	2007	255.0	211.0	187.0	211.0	236.0	253.0	252.0	270.0	253.0	245.0	207.0	194.0	270.0
	2008	212.0	196.0	203.0	248.0	264.0	267.0	260.0	263.0	266.0	227.0	209.0	213.0	267.0
Projected	2009	226.5	211.4	203.3	232.3	255.3	261.2	264.6	276.6	267.9	248.1	212.6	210.8	276.6
	2010	234.9	219.2	210.8	241.1	264.9	271.1	274.6	287.1	278.1	257.5	223.0	221.1	287.1
	2011	246.4	230.0	221.1	253.1	278.2	284.7	288.4	301.5	292.0	270.4	234.2	232.2	301.5
	2012	258.7	241.5	232.2	266.1	292.4	299.2	303.1	316.8	306.9	284.2	246.8	244.7	316.8
	2013	272.7	254.6	244.7	280.7	308.5	315.6	319.7	334.3	323.8	299.8	257.1	254.9	334.3
	2014	284.0	265.1	254.9	292.6	321.6	329.1	333.3	348.5	337.6	312.6	267.1	264.9	348.5
	2015	295.1	275.5	264.9	304.4	334.6	342.3	346.8	362.5	351.2	325.2	276.7	274.3	362.5
	2016	305.7	285.3	274.3	315.6	346.8	354.9	359.5	375.8	364.0	337.1	287.6	285.1	375.8
	2017	317.7	296.6	285.1	328.4	360.9	369.3	374.0	391.0	378.8	350.7	297.5	295.0	391.0
	2018	328.7	306.9	295.0	340.1	373.7	382.4	387.4	405.0	392.3	363.2	307.1	304.5	405.0
Projected	2019	339.3	316.8	304.5	351.4	386.2	395.2	400.3	418.5	405.4	375.4	315.8	313.2	418.5
	2020	348.9	325.7	313.2	361.8	397.6	406.8	412.1	430.8	417.3	386.4	326.2	323.5	430.8
	2021	360.4	336.5	323.5	374.1	411.1	420.7	426.1	445.5	431.5	399.6	335.8	333.0	445.5
	2022	371.0	346.4	333.0	385.5	423.6	433.5	439.1	459.0	444.6	411.7	345.4	342.5	459.0
	2023	381.6	356.2	342.5	396.9	436.2	446.3	452.1	472.6	457.8	423.9	354.2	351.2	472.6
	2024	391.3	365.3	351.2	407.4	447.8	458.1	464.1	485.2	470.0	435.2	365.2	362.1	485.2
	2025	403.4	376.6	362.1	420.5	462.2	472.9	479.0	500.8	485.1	449.2	376.0	372.8	500.8
	2026	415.4	387.8	372.8	433.5	476.4	487.5	493.8	516.3	500.1	463.1	387.6	384.3	516.3
	2027	428.2	399.7	384.3	447.4	491.6	503.1	509.6	532.7	516.0	477.8	398.8	395.4	532.7
	2028	440.6	411.3	395.4	460.8	506.4	518.2	524.9	548.7	531.5	492.2	412.8	409.3	548.7

Table A-5

BPUB 2009 Load Forecast
Historical and Projected Monthly Forecast Determinants

Month	Customers					Energy Sales (MWh)						Energy Requirements				NCP Demand		Weather Data	
	Res	GSND	GSD	Mun	Total	Res	GSND	GSD	Mun	VpLmp	Total	Sales	Losses	Losses	NEL	Demand	Load Factor	HDD	CDD
	(#)	(#)	(#)	(#)	(#)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(%)	(MWh)	(MW)	(%)	(#)	(#)
Jan-94	26,753	2,426	1,574	329	31,082	20,778	1,856	26,625	3,828	-	53,087	53,087	#N/A	#N/A	#N/A	#N/A	#N/A	130	61
Feb-94	26,746	2,461	1,548	327	31,082	18,474	1,713	25,898	3,697	-	49,782	49,782	#N/A	#N/A	#N/A	#N/A	#N/A	115	80
Mar-94	26,867	2,529	1,513	327	31,236	17,194	1,801	27,066	3,827	-	49,889	49,889	#N/A	#N/A	#N/A	#N/A	#N/A	44	149
Apr-94	26,894	2,568	1,498	328	31,288	17,711	1,880	29,061	3,814	-	52,466	52,466	#N/A	#N/A	#N/A	#N/A	#N/A	7	289
May-94	26,863	2,527	1,512	327	31,229	22,000	2,188	31,441	3,133	-	58,761	58,761	#N/A	#N/A	#N/A	#N/A	#N/A	2	471
Jun-94	26,975	2,538	1,526	328	31,367	30,484	2,613	36,303	4,203	-	73,603	73,603	#N/A	#N/A	#N/A	#N/A	#N/A	-	581
Jul-94	26,980	2,541	1,528	326	31,375	36,387	3,038	38,523	4,725	-	82,673	82,673	#N/A	#N/A	#N/A	#N/A	#N/A	-	646
Aug-94	27,098	2,546	1,541	327	31,512	32,156	2,812	36,460	4,501	-	75,928	75,928	#N/A	#N/A	#N/A	#N/A	#N/A	-	568
Sep-94	27,154	2,551	1,555	327	31,587	30,494	2,732	36,112	4,239	-	73,578	73,578	#N/A	#N/A	#N/A	#N/A	#N/A	-	446
Oct-94	27,098	2,547	1,553	330	31,528	24,181	2,463	32,739	3,826	-	63,209	63,209	#N/A	#N/A	#N/A	#N/A	#N/A	1	360
Nov-94	27,179	2,555	1,562	327	31,623	23,231	2,371	32,971	3,988	-	62,562	62,562	#N/A	#N/A	#N/A	#N/A	#N/A	4	278
Dec-94	27,377	2,561	1,560	326	31,824	22,340	2,462	34,193	4,170	-	63,164	63,164	#N/A	#N/A	#N/A	#N/A	#N/A	89	114
Jan-95	27,344	2,501	1,604	326	31,775	20,615	1,961	26,592	3,850	-	53,018	53,018	#N/A	#N/A	#N/A	#N/A	#N/A	173	66
Feb-95	27,375	2,512	1,582	328	31,797	17,181	1,821	26,487	3,500	-	48,989	48,989	#N/A	#N/A	#N/A	#N/A	#N/A	43	115
Mar-95	27,429	2,525	1,594	329	31,877	18,000	1,854	26,725	3,734	-	50,313	50,313	#N/A	#N/A	#N/A	#N/A	#N/A	90	158
Apr-95	27,425	2,538	1,577	331	31,871	19,923	2,035	29,555	3,853	-	55,366	55,366	#N/A	#N/A	#N/A	#N/A	#N/A	4	292
May-95	27,339	2,538	1,573	331	31,781	25,003	2,331	32,521	4,160	-	64,015	64,015	#N/A	#N/A	#N/A	#N/A	#N/A	-	549
Jun-95	27,429	2,538	1,573	332	31,872	32,529	2,782	37,222	4,595	-	77,128	77,128	#N/A	#N/A	#N/A	#N/A	#N/A	-	551
Jul-95	27,400	2,535	1,580	331	31,846	38,311	3,100	36,547	4,615	-	82,573	82,573	#N/A	#N/A	#N/A	#N/A	#N/A	-	626
Aug-95	27,378	2,529	1,584	331	31,822	34,302	2,921	36,109	4,111	-	77,444	77,444	#N/A	#N/A	#N/A	#N/A	#N/A	-	582
Sep-95	27,448	2,545	1,586	330	31,909	34,960	3,101	39,615	4,021	-	81,698	81,698	#N/A	#N/A	#N/A	#N/A	#N/A	-	519
Oct-95	27,459	2,571	1,588	333	31,951	29,256	2,922	38,692	4,251	-	75,122	75,122	#N/A	#N/A	#N/A	#N/A	#N/A	-	324
Nov-95	27,399	2,571	1,588	329	31,887	20,068	2,192	30,632	3,688	-	56,580	56,580	#N/A	#N/A	#N/A	#N/A	#N/A	44	143
Dec-95	27,513	2,556	1,589	330	31,988	20,025	2,081	30,378	3,801	-	56,285	56,285	#N/A	#N/A	#N/A	#N/A	#N/A	175	128
Jan-96	27,582	2,521	1,646	329	32,078	25,654	2,142	28,328	3,954	-	60,078	60,078	(429)	-1%	59,649	136.0	59.0%	177	54
Feb-96	27,578	2,473	1,655	330	32,036	21,145	1,905	27,237	3,501	-	53,788	53,788	6,725	11%	60,513	159.0	54.7%	158	129
Mar-96	27,632	2,494	1,645	331	32,102	20,747	2,022	28,485	3,548	-	54,802	54,802	4,048	7%	58,850	131.0	60.4%	122	134
Apr-96	27,663	2,506	1,645	343	32,157	19,046	1,930	27,456	5,882	-	54,314	54,314	9,026	14%	63,340	142.0	62.0%	23	240
May-96	27,576	2,498	1,629	344	32,047	23,850	2,244	33,004	4,286	-	63,385	63,385	17,420	22%	80,805	167.0	65.0%	-	553
Jun-96	27,655	2,503	1,635	344	32,137	33,916	2,890	39,019	4,637	-	80,463	80,463	4,149	5%	84,612	171.0	68.7%	-	596
Jul-96	27,690	2,530	1,647	347	32,214	39,238	3,078	39,811	4,716	-	86,844	86,844	4,594	5%	91,438	172.0	71.5%	-	668
Aug-96	27,693	2,538	1,648	350	32,229	36,681	3,072	39,970	4,631	-	84,354	84,354	6,223	7%	90,577	177.0	68.8%	-	621
Sep-96	27,828	2,520	1,652	352	32,352	33,850	2,897	39,531	4,522	-	80,800	80,800	611	1%	81,411	169.0	66.9%	-	507
Oct-96	27,756	2,514	1,652	352	32,274	25,244	2,476	34,651	4,083	-	66,454	66,454	6,554	9%	73,008	161.0	60.9%	1	349
Nov-96	27,848	2,525	1,641	352	32,366	22,504	2,302	33,175	3,803	-	61,784	61,784	(538)	-1%	61,246	147.0	57.9%	44	187
Dec-96	27,917	2,488	1,672	352	32,429	21,478	2,197	32,473	4,040	-	60,189	60,189	2,198	4%	62,387	160.0	52.4%	135	110
Jan-97	27,928	3,673	465	356	32,422	26,838	7,027	22,863	4,410	-	61,138	61,138	10,871	15%	72,009	194.0	49.9%	287	84
Feb-97	27,905	3,686	461	355	32,407	23,286	6,891	24,290	4,244	-	58,711	58,711	(6,128)	-12%	52,583	120.0	65.2%	90	74
Mar-97	28,048	3,712	450	355	32,565	18,305	6,567	24,920	3,980	-	53,772	53,772	5,994	10%	59,766	131.0	61.3%	19	178
Apr-97	28,181	3,732	453	355	32,721	18,796	6,958	25,010	3,943	-	54,708	54,708	6,713	11%	61,421	151.0	56.5%	28	209
May-97	28,188	3,734	455	356	32,733	20,818	7,374	26,798	4,130	-	59,121	59,121	14,976	20%	74,097	156.0	63.8%	-	388
Jun-97	28,264	3,745	463	357	32,829	30,538	9,984	31,141	4,323	-	75,986	75,986	8,902	10%	84,888	178.0	66.2%	-	530
Jul-97	28,424	3,757	472	361	33,014	38,179	10,700	35,221	5,053	-	89,153	89,153	6,983	7%	96,136	180.0	71.8%	-	647
Aug-97	28,479	3,743	471	364	33,057	35,991	9,768	31,419	5,007	-	82,185	82,185	14,505	15%	96,690	187.0	69.5%	-	643
Sep-97	28,669	3,758	478	364	33,269	36,440	9,863	32,206	5,465	-	83,974	83,974	3,463	4%	87,437	184.0	66.0%	-	523
Oct-97	28,804	3,760	472	367	33,403	31,692	9,695	34,074	5,492	-	80,954	80,954	(7,825)	-11%	73,129	170.0	57.8%	6	297
Nov-97	28,686	3,769	468	366	33,289	22,178	7,998	29,707	4,919	-	64,802	64,802	(3,053)	-5%	61,749	135.0	63.5%	83	111
Dec-97	28,713	3,784	466	368	33,331	21,556	7,110	26,376	4,185	-	59,227	59,227	3,484	6%	62,711	154.0	54.7%	196	40

Table A-5

BPUB 2009 Load Forecast
Historical and Projected Monthly Forecast Determinants

Month	Customers Res (#)	GSND (#)	GSD (#)	Mun (#)	Total (#)	Energy Sales Res (MWh)	GSND (MWh)	GSD (MWh)	Mun (MWh)	VpLmp (MWh)	Total (MWh)	Energy Req Sales (MWh)	Losses (MWh)	Losses (%)	NEL (MWh)	NCP Demand (MW)	Load Factor (%)	HDD (#)	CDD (#)
Jan-98	28,815	3,790	458	366	33,429	24,700	7,542	26,163	4,489	-	62,895	62,895	(4,866)	-8%	58,029	111.0	70.3%	75	88
Feb-98	28,840	3,829	421	370	33,460	17,909	7,722	24,889	4,018	-	54,539	54,539	(2,424)	-5%	52,115	116.0	66.9%	53	44
Mar-98	28,914	3,838	412	372	33,536	17,306	7,036	23,861	3,874	-	52,078	52,078	9,051	15%	61,129	141.0	58.3%	56	151
Apr-98	28,954	3,863	413	373	33,603	19,990	7,641	26,534	4,247	-	58,412	58,412	6,072	9%	64,484	150.0	59.7%	3	223
May-98	28,872	3,822	435	379	33,508	23,783	8,411	28,750	4,375	-	65,319	65,319	20,476	24%	85,795	176.0	65.5%	-	518
Jun-98	28,922	3,816	456	382	33,576	36,774	10,369	35,484	4,868	-	87,496	87,496	10,474	11%	97,970	188.0	72.4%	-	673
Jul-98	28,992	3,817	466	381	33,656	42,776	11,071	35,064	4,977	-	93,888	93,888	8,721	8%	102,609	192.0	71.8%	-	692
Aug-98	28,978	3,825	471	386	33,660	40,766	10,776	35,407	4,876	-	91,825	91,825	9,454	9%	101,279	193.0	70.5%	-	674
Sep-98	29,129	3,864	469	389	33,851	37,847	10,592	35,903	4,738	-	89,080	89,080	(189)	0%	88,891	185.0	66.7%	-	545
Oct-98	29,189	3,869	463	391	33,912	33,650	9,949	34,549	4,701	-	82,848	82,848	(3,725)	-5%	79,123	174.0	61.1%	-	372
Nov-98	29,197	3,872	442	396	33,907	24,017	8,646	30,328	4,235	-	67,226	67,226	(1,697)	-3%	65,529	138.0	66.0%	7	229
Dec-98	29,291	3,868	440	391	33,990	23,446	8,412	29,923	4,294	-	66,076	66,076	3,479	5%	69,555	158.0	59.2%	193	107
Jan-99	29,336	3,843	459	391	34,029	28,188	7,660	25,395	4,363	-	65,607	65,607	(2,146)	-3%	63,461	161.0	53.0%	111	110
Feb-99	29,420	3,869	447	395	34,131	20,102	7,252	26,779	4,112	-	58,245	58,245	1,090	2%	59,335	130.0	67.9%	43	159
Mar-99	29,478	3,871	447	398	34,194	19,582	7,586	27,504	4,256	-	58,928	58,928	8,802	13%	67,730	149.0	61.1%	9	200
Apr-99	29,651	3,890	450	399	34,390	22,781	8,121	28,790	4,398	-	64,090	64,090	13,142	17%	77,232	170.0	63.1%	3	383
May-99	29,613	3,869	455	405	34,342	29,059	9,206	32,093	4,633	-	74,993	74,993	17,007	18%	92,000	189.0	65.4%	-	513
Jun-99	29,740	3,868	471	409	34,488	37,239	10,365	36,490	5,168	-	89,261	89,261	6,665	7%	95,926	185.0	72.0%	-	573
Jul-99	29,706	3,882	470	412	34,470	38,159	10,579	35,541	4,955	-	89,235	89,235	8,100	8%	97,335	189.0	69.2%	-	588
Aug-99	29,730	3,874	473	413	34,490	40,226	10,841	37,094	4,740	-	92,900	92,900	9,501	9%	102,401	197.0	69.9%	-	642
Sep-99	29,717	3,859	483	415	34,474	39,015	10,623	37,320	4,633	-	91,590	91,590	(2,067)	-2%	89,523	191.0	65.1%	-	465
Oct-99	29,777	3,870	476	421	34,544	33,345	10,300	36,121	4,700	-	84,465	84,465	(6,080)	-8%	78,385	165.0	63.9%	13	312
Nov-99	29,854	3,896	466	428	34,644	23,387	8,595	31,108	4,223	-	67,313	67,313	(1,063)	-2%	66,250	142.0	64.8%	31	159
Dec-99	29,933	3,895	461	429	34,718	20,963	7,825	28,988	4,131	-	61,906	61,906	3,392	5%	65,298	128.0	68.6%	133	58
Jan-00	30,053	3,906	463	434	34,856	23,889	7,584	25,915	4,414	-	61,802	61,802	6,431	9%	68,233	135.0	67.9%	96	137
Feb-00	30,051	3,917	463	435	34,866	22,432	7,678	28,581	4,275	-	62,966	62,966	2,255	3%	65,221	149.0	62.9%	27	189
Mar-00	30,164	3,930	467	445	35,006	21,845	8,005	30,744	4,125	-	64,718	64,718	10,996	15%	75,714	181.0	56.2%	1	300
Apr-00	30,163	3,952	464	445	35,024	23,666	8,700	31,479	4,442	-	68,288	68,288	11,376	14%	79,664	180.0	61.5%	2	330
May-00	30,274	3,950	478	444	35,146	30,351	9,632	35,064	4,588	-	79,635	79,635	18,516	19%	98,151	196.0	67.3%	-	549
Jun-00	30,323	3,959	497	449	35,228	37,990	10,723	39,028	4,810	-	92,552	92,552	5,805	6%	98,357	194.0	70.4%	-	585
Jul-00	30,366	3,956	504	448	35,274	42,658	11,336	41,738	5,010	-	100,741	100,741	7,293	7%	108,034	203.0	71.5%	-	649
Aug-00	30,382	3,971	513	451	35,317	43,573	11,473	42,770	5,342	-	103,160	103,160	3,937	4%	107,097	207.0	69.5%	-	597
Sep-00	30,499	3,964	522	455	35,440	42,577	11,413	43,351	5,042	-	102,384	102,384	(4,239)	-4%	98,145	217.0	62.8%	-	535
Oct-00	30,559	3,981	529	457	35,526	35,977	10,577	41,647	4,967	738	93,906	93,906	(5,693)	-6%	88,213	192.0	61.8%	54	363
Nov-00	30,640	3,990	520	459	35,609	28,345	9,191	38,123	4,570	694	80,923	80,923	(7,399)	-10%	73,524	171.0	59.7%	66	179
Dec-00	30,762	3,999	516	461	35,738	26,314	8,404	34,454	4,667	697	74,537	74,537	2,863	4%	77,400	168.0	61.9%	262	27
Jan-01	30,907	4,006	520	461	35,894	32,310	9,213	30,907	4,875	704	78,008	78,008	638	1%	78,646	181.0	58.4%	199	38
Feb-01	30,991	4,003	527	463	35,984	25,989	7,632	32,007	4,602	704	70,934	70,934	684	1%	71,618	161.0	66.2%	77	153
Mar-01	31,134	3,999	517	464	36,114	21,417	7,736	33,717	4,561	710	68,140	68,140	6,808	9%	74,948	158.0	63.8%	38	106
Apr-01	31,293	4,004	520	467	36,284	22,541	8,060	33,947	4,672	716	69,936	69,936	18,495	21%	88,431	186.0	66.0%	-	399
May-01	31,369	3,987	537	466	36,359	28,990	9,307	37,361	5,088	714	81,461	81,461	19,382	19%	100,843	206.0	65.8%	-	487
Jun-01	31,445	3,985	543	467	36,440	37,355	10,555	42,347	5,070	713	96,041	96,041	12,961	12%	109,002	218.0	69.4%	-	630
Jul-01	31,517	3,982	557	471	36,527	43,287	11,465	42,986	5,389	712	103,839	103,839	10,852	9%	114,691	220.0	70.1%	-	644
Aug-01	31,616	3,948	617	472	36,653	45,165	10,866	43,918	5,544	677	106,171	106,171	14,463	12%	120,634	229.0	70.8%	-	675
Sep-01	31,581	3,954	622	475	36,632	45,914	10,501	46,722	5,783	712	109,632	109,632	(5,404)	-5%	104,228	220.0	65.8%	-	511
Oct-01	31,668	4,019	619	478	36,784	36,934	10,228	43,989	5,214	702	97,048	97,048	(2,289)	-2%	94,759	204.0	62.4%	-	356
Nov-01	31,677	4,059	623	478	36,837	29,037	8,851	39,972	5,644	718	84,221	84,221	(1,319)	-2%	82,902	176.0	65.4%	46	216
Dec-01	31,804	4,118	623	477	37,022	28,048	8,615	39,870	5,129	724	82,386	82,386	(4,975)	-6%	77,411	154.0	67.6%	116	103

Table A-5

BPUB 2009 Load Forecast
Historical and Projected Monthly Forecast Determinants

Month	Customers					Energy Sales (MWh)						Energy Requirements				NCP Demand		Weather Data	
	Res	GSND	GSD	Mun	Total	Res	GSND	GSD	Mun	VpLmp	Total	Sales	Losses	Losses	NEL	Demand	Load Factor	HDD	CDD
	(#)	(#)	(#)	(#)	(#)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(%)	(MWh)	(MW)	(%)	(#)	(#)
Jan-02	31,929	4,152	622	479	37,182	31,258	7,824	35,316	5,263	722	80,384	80,384	609	1%	80,993	183.0	59.5%	143	115
Feb-02	31,885	4,147	621	481	37,134	25,915	7,481	35,077	5,062	734	74,269	74,269	(3,384)	-5%	70,885	176.0	59.9%	179	35
Mar-02	32,043	4,256	620	480	37,399	26,234	7,281	33,430	4,684	735	72,364	72,364	7,002	9%	79,366	166.0	64.3%	56	203
Apr-02	32,357	4,325	621	483	37,786	27,606	8,223	38,309	5,280	745	80,164	80,164	12,690	14%	92,854	209.0	61.7%	-	429
May-02	32,692	4,369	622	487	38,170	42,848	11,556	40,099	5,051	746	100,300	100,300	5,801	5%	106,101	216.0	66.0%	-	518
Jun-02	31,839	4,367	689	490	37,385	40,824	10,704	44,770	5,980	667	102,946	102,946	7,998	7%	110,944	220.0	70.0%	-	590
Jul-02	31,190	4,148	692	472	36,502	45,512	11,341	45,300	5,364	727	108,244	108,244	8,005	7%	116,249	225.0	69.4%	-	618
Aug-02	32,652	4,214	694	483	38,043	48,414	11,746	46,448	4,737	707	112,052	112,052	10,629	9%	122,681	234.0	70.5%	-	672
Sep-02	32,230	4,250	712	478	37,670	48,636	13,077	44,183	4,364	738	110,998	110,998	2,200	2%	113,198	220.0	71.5%	-	537
Oct-02	32,174	4,179	723	480	37,556	38,553	9,391	45,800	6,262	756	100,761	100,761	6,062	6%	106,823	213.0	67.4%	-	420
Nov-02	31,835	3,991	697	474	36,997	28,963	8,518	41,623	2,780	703	82,587	82,587	(5,024)	-6%	77,563	163.0	66.1%	63	109
Dec-02	32,898	4,200	740	493	38,331	29,135	8,292	37,593	7,931	765	83,717	83,717	(5,165)	-7%	78,552	177.0	59.7%	119	64
Jan-03	33,040	4,293	736	497	38,566	28,631	7,513	33,705	6,658	751	77,258	77,258	3,886	5%	81,144	168.0	64.9%	206	21
Feb-03	32,654	4,202	725	496	38,077	27,698	6,582	33,569	4,812	724	73,385	73,385	1,424	2%	74,809	192.0	58.0%	153	65
Mar-03	33,101	4,260	670	498	38,529	26,272	7,122	32,062	5,023	734	71,213	71,213	6,940	9%	78,153	170.0	61.8%	28	143
Apr-03	33,137	4,290	664	497	38,588	25,196	7,690	35,272	5,915	731	74,804	74,804	9,012	11%	83,816	213.0	54.7%	9	317
May-03	33,330	4,367	656	502	38,855	37,770	9,829	41,707	5,763	752	95,821	95,821	20,663	18%	116,484	231.0	67.8%	-	572
Jun-03	33,287	4,386	655	497	38,825	46,494	11,455	43,798	6,038	757	108,541	108,541	8,382	7%	116,923	230.0	70.6%	-	582
Jul-03	33,422	4,441	653	495	39,011	47,923	12,053	44,099	5,566	159	109,800	109,800	14,170	11%	123,970	230.0	72.4%	-	597
Aug-03	33,209	4,441	652	490	38,792	48,028	12,112	44,655	5,632	159	110,587	110,587	10,118	8%	120,705	241.0	67.3%	-	612
Sep-03	33,449	4,480	661	491	39,081	46,197	11,934	46,382	5,850	165	110,528	110,528	(4,915)	-5%	105,613	224.0	65.5%	-	485
Oct-03	33,560	4,522	659	496	39,237	37,280	11,048	41,783	5,546	160	95,817	95,817	3,290	3%	99,107	204.0	65.3%	8	347
Nov-03	33,364	4,514	649	493	39,020	31,170	10,020	38,420	5,117	163	84,889	84,889	648	1%	85,537	185.0	64.2%	44	236
Dec-03	33,633	4,563	653	494	39,343	28,320	9,061	38,081	5,191	162	80,813	80,813	(2,517)	-3%	78,296	157.0	67.0%	142	55
Jan-04	33,609	4,493	647	494	39,243	32,923	9,014	31,998	5,401	162	79,498	79,498	540	1%	80,038	181.0	59.4%	142	75
Feb-04	33,816	4,553	646	493	39,508	26,217	7,983	35,461	5,269	161	75,091	75,091	(456)	-1%	74,635	171.0	62.7%	129	56
Mar-04	33,936	4,545	626	476	39,583	24,990	8,207	32,624	5,066	160	71,048	71,048	13,782	16%	84,830	169.0	67.5%	1	236
Apr-04	34,161	4,585	627	491	39,864	28,584	9,654	38,311	5,348	164	82,061	82,061	5,859	7%	87,920	186.0	65.7%	6	300
May-04	33,980	4,539	619	491	39,629	31,629	9,837	37,913	5,325	164	84,868	84,868	16,677	16%	101,545	213.0	64.1%	-	451
Jun-04	34,196	4,541	610	494	39,841	45,702	12,777	40,905	5,872	164	105,420	105,420	9,957	9%	115,377	227.0	70.6%	-	588
Jul-04	34,347	4,621	624	506	40,098	48,687	12,930	45,545	5,835	171	113,168	113,168	10,885	9%	124,053	241.0	69.2%	-	668
Aug-04	34,322	4,575	629	505	40,031	52,804	12,999	45,883	6,056	168	117,910	117,910	7,773	6%	125,683	240.0	70.4%	-	667
Sep-04	34,552	4,648	634	510	40,344	50,633	14,794	49,261	6,199	168	121,055	121,055	(10,151)	-9%	110,904	228.0	67.6%	-	513
Oct-04	34,479	4,587	633	503	40,202	40,160	11,701	40,198	5,780	169	98,008	98,008	12,817	12%	110,825	220.0	67.7%	-	486
Nov-04	34,501	4,648	637	504	40,290	34,922	10,935	41,705	5,661	168	93,391	93,391	(8,532)	-10%	84,859	208.0	56.7%	14	225
Dec-04	34,226	4,582	618	503	39,929	30,889	9,494	39,726	5,432	166	85,706	85,706	(413)	0%	85,293	222.0	51.6%	156	82
Jan-05	34,834	4,613	614	513	40,574	34,658	11,346	35,905	5,287	170	87,366	87,366	(6,554)	-8%	80,812	156.0	69.6%	76	138
Feb-05	34,901	4,621	615	517	40,654	25,668	7,878	31,726	4,674	167	70,112	70,112	6,594	9%	76,706	175.0	65.2%	80	122
Mar-05	35,127	4,668	611	512	40,918	25,568	8,884	36,684	5,173	168	76,477	76,477	5,301	6%	81,778	189.0	58.2%	19	166
Apr-05	35,154	4,640	611	516	40,921	30,230	9,866	38,005	5,274	167	83,541	83,541	5,327	6%	88,868	207.0	59.6%	2	284
May-05	34,997	4,653	604	522	40,776	30,563	9,408	35,380	5,046	172	80,570	80,570	26,148	25%	106,718	241.0	59.5%	-	460
Jun-05	35,360	4,693	621	530	41,204	48,952	12,543	45,907	5,706	172	113,280	113,280	10,526	9%	123,806	245.0	70.2%	-	614
Jul-05	35,357	4,659	640	534	41,190	55,955	13,514	48,398	6,008	169	124,044	124,044	460	0%	124,504	256.0	65.4%	-	657
Aug-05	35,393	4,701	607	528	41,229	50,265	12,890	44,063	5,818	177	113,213	113,213	23,224	17%	136,437	262.0	70.0%	-	682
Sep-05	35,565	4,773	580	536	41,454	52,723	14,241	47,699	5,931	175	120,768	120,768	2,679	2%	123,447	258.0	66.5%	-	600
Oct-05	35,549	4,759	582	538	41,428	47,269	13,788	47,123	5,793	178	114,152	114,152	(8,735)	-8%	105,417	228.0	62.1%	-	390
Nov-05	35,664	4,742	585	540	41,531	31,425	10,097	40,076	5,312	178	87,089	87,089	377	0%	87,466	196.0	62.0%	28	203
Dec-05	35,744	4,687	599	538	41,568	31,725	6,564	44,032	5,473	174	87,968	87,968	(173)	0%	87,795	227.0	52.0%	141	69

Table A-5

BPUB 2009 Load Forecast
Historical and Projected Monthly Forecast Determinants

Month	Customers					Energy Sales (MWh)						Energy Requirements				NCP Demand		Weather Data	
	Res	GSND	GSD	Mun	Total	Res	GSND	GSD	Mun	VpLmp	Total	Sales	Losses	Losses	NEL	Demand	Load Factor	HDD	CDD
	(#)	(#)	(#)	(#)	(#)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(%)	(MWh)	(MW)	(%)	(#)	(#)
Jan-06	35,815	4,675	581	540	41,611	29,127	10,683	32,388	5,106	178	77,481	77,481	3,138	4%	80,619	162.0	66.9%	86	95
Feb-06	35,917	4,691	601	539	41,748	24,179	8,421	33,978	4,951	163	71,691	71,691	5,291	7%	76,982	177.0	64.7%	105	94
Mar-06	36,149	4,718	611	546	42,024	28,051	8,993	36,073	5,156	176	78,449	78,449	13,537	15%	91,986	209.0	59.2%	23	308
Apr-06	36,107	4,704	619	552	41,982	31,089	9,084	39,185	5,406	176	84,940	84,940	20,526	19%	105,467	230.0	63.7%	-	453
May-06	36,361	4,783	636	553	42,333	40,789	10,671	45,577	5,383	177	102,598	102,598	15,683	13%	118,281	250.0	63.6%	-	525
Jun-06	36,452	4,809	636	554	42,451	45,668	12,505	45,940	5,805	180	110,097	110,097	11,347	9%	121,444	244.0	69.1%	-	553
Jul-06	36,309	4,783	628	555	42,275	52,316	14,087	48,402	6,209	182	121,195	121,195	5,485	4%	126,680	250.0	68.1%	-	626
Aug-06	36,534	4,787	642	557	42,520	50,643	13,064	48,752	5,876	181	118,516	118,516	17,166	13%	135,682	258.0	70.7%	-	626
Sep-06	36,581	4,787	657	559	42,584	51,953	10,927	51,772	5,963	191	120,807	120,807	214	0%	121,021	246.0	68.3%	-	529
Oct-06	36,577	4,805	652	564	42,598	44,366	12,348	49,751	6,123	187	112,775	112,775	(1,279)	-1%	111,496	244.0	61.4%	-	370
Nov-06	36,642	4,759	645	569	42,615	33,837	10,756	45,441	5,136	188	95,357	95,357	(4,627)	-5%	90,730	206.0	61.2%	20	196
Dec-06	36,863	4,750	645	570	42,828	30,346	9,702	42,753	5,330	187	88,318	88,318	831	1%	89,149	172.0	69.7%	144	69
Jan-07	36,938	4,751	648	570	42,907	34,381	9,063	43,848	5,217	192	92,700	92,700	9,831	10%	102,531	255.0	54.0%	278	37
Feb-07	36,997	4,746	659	569	42,971	39,661	10,207	47,562	5,193	189	102,812	102,812	(20,278)	-25%	82,534	211.0	58.2%	99	79
Mar-07	37,299	4,765	663	569	43,296	27,960	8,465	39,391	4,961	189	80,967	80,967	12,538	13%	93,505	187.0	67.2%	33	244
Apr-07	37,431	4,771	666	569	43,437	33,543	10,244	44,646	5,324	182	93,939	93,939	1,763	2%	95,702	211.0	63.0%	44	260
May-07	37,610	4,778	668	567	43,623	37,394	10,895	49,950	5,415	199	103,853	103,853	11,965	10%	115,818	236.0	66.0%	-	438
Jun-07	37,655	4,790	648	574	43,667	47,719	16,042	47,463	5,678	184	117,086	117,086	10,655	8%	127,741	253.0	70.1%	-	548
Jul-07	37,705	4,753	647	573	43,678	52,761	15,992	48,602	5,998	184	123,537	123,537	7,120	5%	130,657	252.0	69.7%	-	609
Aug-07	37,823	4,745	649	573	43,790	50,315	14,593	47,883	5,527	184	118,502	118,502	17,685	13%	136,187	270.0	67.8%	-	636
Sep-07	37,905	4,754	642	578	43,879	50,384	16,163	49,370	5,707	185	121,809	121,809	1,849	1%	123,658	253.0	67.9%	-	531
Oct-07	37,942	4,719	642	577	43,880	46,019	15,517	46,889	5,067	193	113,686	113,686	(274)	0%	113,412	245.0	62.2%	-	376
Nov-07	37,879	4,709	640	580	43,808	34,147	14,079	47,372	5,306	184	101,089	101,089	(4,871)	-5%	96,218	207.0	64.6%	57	227
Dec-07	37,928	4,742	640	582	43,892	32,979	13,447	41,939	5,534	184	94,083	94,083	(343)	0%	93,740	194.0	64.9%	86	127
Jan-08	38,141	4,736	644	581	44,102	34,198	11,764	42,394	5,492	186	94,035	94,035	1,225	1%	95,260	212.0	60.4%	170	65
Feb-08	38,092	4,734	641	581	44,048	29,858	10,621	36,810	4,759	184	82,232	82,232	5,147	6%	87,379	196.0	64.1%	37	153
Mar-08	38,233	4,730	634	580	44,177	28,655	11,786	40,226	5,174	185	86,026	86,026	9,237	10%	95,263	203.0	63.1%	33	204
Apr-08	38,511	4,653	659	582	44,405	35,220	10,442	46,560	5,753	186	98,161	98,161	7,884	7%	106,045	248.0	59.4%	-	326
May-08	38,378	4,658	659	580	44,275	39,942	11,188	47,487	5,611	183	104,411	104,411	25,578	20%	129,989	264.0	66.2%	-	488
Jun-08	38,508	4,632	659	579	44,378	53,020	12,870	51,191	6,154	182	123,417	123,417	10,761	8%	134,178	267.0	69.8%	-	606
Jul-08	38,553	4,612	661	580	44,406	55,024	14,111	51,026	7,073	182	127,417	127,417	(2,883)	-2%	124,534	260.0	64.4%	-	554
Aug-08	38,486	4,570	659	579	44,294	52,138	12,589	49,620	5,883	181	120,410	120,410	13,432	10%	133,842	263.0	68.4%	-	635
Sep-08	38,607	4,595	658	583	44,443	51,240	13,138	52,250	6,284	181	123,093	123,093	(7,091)	-6%	116,002	266.0	60.6%	-	457
Oct-08	38,608	4,548	656	583	44,395	38,108	10,858	45,996	5,582	180	100,724	100,724	5,695	5%	106,419	227.0	63.0%	2	305
Nov-08	38,581	4,533	656	582	44,352	32,210	10,340	43,205	5,557	179	91,491	91,491	(1,295)	-1%	90,196	209.0	59.9%	40	168
Dec-08	38,798	4,491	662	585	44,536	30,707	9,053	41,120	5,500	179	86,559	86,559	6,220	7%	92,779	213.0	58.5%	143	98
Jan-09	38,849				38,849	36,590	9,615	38,663	5,737	182	90,787	90,787	2,063	1%	92,850	226.5	55.1%	206	54
Feb-09	38,861				38,861	31,239	9,453	38,989	5,626	177	85,484	85,484	(882)	-1%	84,602	211.4	59.5%	125	76
Mar-09	39,071				39,071	29,211	9,499	39,973	5,575	180	84,438	84,438	9,429	12%	93,867	203.3	62.1%	45	179
Apr-09	39,218				39,218	31,773	10,133	42,105	5,678	180	89,868	89,868	13,127	8%	102,995	232.3	61.6%	7	287
May-09	39,273				39,273	38,791	11,259	45,113	5,959	183	101,305	101,305	22,263	17%	123,568	255.3	65.1%	-	457
Jun-09	39,301				39,301	50,822	12,905	50,701	6,252	181	120,860	120,860	10,519	9%	131,379	261.2	69.9%	-	545
Jul-09	39,293				39,293	57,021	13,899	52,400	6,419	182	129,921	129,921	6,213	3%	136,134	264.6	69.2%	-	601
Aug-09	39,466				39,466	55,942	14,368	51,883	6,481	183	128,857	128,857	12,741	12%	141,598	276.6	68.8%	-	603
Sep-09	39,553				39,553	55,578	14,063	52,943	6,328	186	129,098	129,098	(2,721)	-2%	126,376	267.9	65.5%	-	494
Oct-09	39,597				39,597	45,613	12,567	49,339	6,035	187	113,740	113,740	2,726	1%	116,467	248.1	63.1%	6	332
Nov-09	39,560				39,560	35,532	11,086	45,399	5,788	186	97,991	97,991	(2,385)	-4%	95,605	212.6	62.5%	69	166
Dec-09	39,767				39,767	34,626	10,019	43,317	5,800	184	93,947	93,947	606	1%	94,553	210.8	60.3%	186	80

Table A-5

BPUB 2009 Load Forecast

Historical and Projected Monthly Forecast Determinants

Month	Customers					Energy Sales (MWh)						Energy Requirements				NCP Demand		Weather Data	
	Res	GSND	GSD	Mun	Total	Res	GSND	GSD	Mun	VpLmp	Total	Sales	Losses	Losses	NEL	Demand	Load Factor	HDD	CDD
	(#)	(#)	(#)	(#)	(#)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(%)	(MWh)	(MW)	(%)	(#)	(#)
Jan-10	39,907				39,907	38,389	9,752	39,645	5,861	187	93,834	93,834	2,447	1%	96,281	234.9	55.1%	206	54
Feb-10	39,919				39,919	32,408	9,640	39,716	5,749	183	87,694	87,694	33	-1%	87,728	219.2	59.5%	125	76
Mar-10	40,135				40,135	30,334	9,696	40,714	5,700	185	86,630	86,630	10,706	12%	97,335	210.8	62.1%	45	179
Apr-10	40,285				40,285	33,026	10,354	43,022	5,809	185	92,397	92,397	14,403	8%	106,800	241.1	61.5%	7	287
May-10	40,342				40,342	40,361	11,518	46,284	6,101	188	104,453	104,453	23,681	17%	128,134	264.9	65.0%	-	457
Jun-10	40,371				40,371	52,930	13,221	52,242	6,405	186	124,983	124,983	11,250	9%	136,233	271.1	69.8%	-	545
Jul-10	40,362				40,362	59,443	14,261	54,229	6,581	187	134,701	134,701	6,463	3%	141,164	274.6	69.1%	-	601
Aug-10	40,540				40,540	58,374	14,765	53,930	6,650	188	133,907	133,907	12,922	12%	146,830	287.1	68.7%	-	603
Sep-10	40,630				40,630	58,049	14,478	55,274	6,497	192	134,489	134,489	(3,443)	-2%	131,045	278.1	65.5%	-	494
Oct-10	40,675				40,675	47,686	12,961	51,737	6,200	192	118,777	118,777	1,993	1%	120,770	257.5	63.0%	6	332
Nov-10	40,637				40,637	37,182	11,456	47,815	5,950	191	102,594	102,594	(3,457)	-4%	99,138	223.0	61.7%	69	166
Dec-10	40,850				40,850	36,269	10,374	45,823	5,967	189	98,621	98,621	(575)	1%	98,046	221.1	59.6%	186	80
Jan-11	41,014				41,014	40,191	10,101	41,402	6,027	192	97,914	97,914	3,094	1%	101,008	246.4	55.1%	206	54
Feb-11	41,026				41,026	33,953	9,988	41,531	5,914	188	91,574	91,574	461	-1%	92,035	230.0	59.5%	125	76
Mar-11	41,248				41,248	31,803	10,049	42,632	5,868	191	90,542	90,542	11,572	12%	102,114	221.1	62.1%	45	179
Apr-11	41,403				41,403	34,651	10,734	45,108	5,983	190	96,666	96,666	15,378	8%	112,044	253.1	61.5%	7	287
May-11	41,462				41,462	42,377	11,946	48,591	6,287	194	109,394	109,394	25,031	17%	134,425	278.2	64.9%	-	457
Jun-11	41,491				41,491	55,612	13,717	54,918	6,604	191	131,042	131,042	11,881	9%	142,922	284.7	69.7%	-	545
Jul-11	41,482				41,482	62,500	14,803	57,080	6,788	193	141,364	141,364	6,731	3%	148,094	288.4	69.0%	-	601
Aug-11	41,665				41,665	61,419	15,334	56,839	6,862	193	140,648	140,648	13,391	12%	154,039	301.5	68.7%	-	603
Sep-11	41,757				41,757	61,119	15,043	58,331	6,708	197	141,397	141,397	(3,917)	-2%	137,480	292.0	65.4%	-	494
Oct-11	41,804				41,804	50,243	13,474	54,669	6,404	198	124,988	124,988	1,711	1%	126,699	270.4	63.0%	6	332
Nov-11	41,764				41,764	39,203	11,916	50,589	6,150	196	108,053	108,053	(4,048)	-4%	104,005	234.2	61.7%	69	166
Dec-11	41,983				41,983	38,266	10,796	48,543	6,170	194	103,969	103,969	(1,109)	1%	102,860	232.2	59.5%	186	80
Jan-12	42,291				42,291	42,349	10,507	43,634	6,227	198	102,915	102,915	3,436	1%	106,351	258.7	55.3%	206	54
Feb-12	42,304				42,304	35,791	10,389	43,781	6,112	193	96,266	96,266	637	-1%	96,904	241.5	57.6%	125	76
Mar-12	42,533				42,533	33,539	10,453	44,951	6,066	196	95,204	95,204	12,312	12%	107,516	232.2	62.2%	45	179
Apr-12	42,692				42,692	36,557	11,165	47,574	6,187	195	101,678	101,678	16,293	8%	117,971	266.1	61.6%	7	287
May-12	42,753				42,753	44,726	12,426	51,260	6,503	199	115,113	115,113	26,423	17%	141,536	292.4	65.1%	-	457
Jun-12	42,783				42,783	58,719	14,269	57,947	6,833	196	137,964	137,964	12,519	9%	150,482	299.2	69.9%	-	545
Jul-12	42,774				42,774	66,019	15,399	60,243	7,025	198	148,883	148,883	7,045	3%	155,928	303.1	69.2%	-	601
Aug-12	42,963				42,963	64,903	15,952	60,002	7,104	198	148,160	148,160	14,027	12%	162,187	316.8	68.8%	-	603
Sep-12	43,057				43,057	64,612	15,650	61,590	6,946	202	149,001	149,001	(4,249)	-2%	144,752	306.9	65.5%	-	494
Oct-12	43,106				43,106	53,135	14,019	57,737	6,634	203	131,728	131,728	1,673	1%	133,401	284.2	63.1%	6	332
Nov-12	43,065				43,065	41,476	12,398	53,441	6,372	201	113,888	113,888	(4,381)	-4%	109,507	246.8	61.6%	69	166
Dec-12	43,291				43,291	40,500	11,235	51,291	6,395	200	109,620	109,620	(1,319)	1%	108,301	244.7	59.5%	186	80
Jan-13	43,555				43,555	44,723	10,917	45,967	6,444	203	108,255	108,255	3,531	1%	111,786	272.7	55.1%	206	54
Feb-13	43,569				43,569	37,798	10,792	46,109	6,326	198	101,223	101,223	633	-1%	101,856	254.6	59.5%	125	76
Mar-13	43,804				43,804	35,419	10,856	47,330	6,277	201	100,083	100,083	12,927	12%	113,010	244.7	62.1%	45	179
Apr-13	43,969				43,969	38,607	11,593	50,077	6,403	200	106,881	106,881	17,118	8%	123,999	280.7	61.4%	7	287
May-13	44,031				44,031	47,234	12,900	53,943	6,729	204	121,011	121,011	27,758	17%	148,769	308.5	64.8%	-	457
Jun-13	44,062				44,062	62,012	14,810	60,964	7,071	202	145,059	145,059	13,114	9%	158,173	315.6	69.6%	-	545
Jul-13	44,053				44,053	69,721	15,980	63,363	7,270	203	156,537	156,537	7,360	3%	163,897	319.7	68.9%	-	601
Aug-13	44,247				44,247	68,543	16,551	63,093	7,352	204	155,743	155,743	14,733	12%	170,475	334.3	68.5%	-	603
Sep-13	44,345				44,345	68,236	16,234	64,747	7,189	207	156,613	156,613	(4,463)	-2%	152,149	323.8	65.3%	-	494
Oct-13	44,394				44,394	56,115	14,540	60,681	6,866	208	138,409	138,409	1,810	1%	140,219	299.8	62.9%	6	332
Nov-13	44,352				44,352	43,802	12,857	56,150	6,594	207	119,610	119,610	(4,507)	-4%	115,103	257.1	62.2%	69	166
Dec-13	44,585				44,585	42,772	11,648	53,877	6,618	205	115,120	115,120	(1,284)	1%	113,836	254.9	60.0%	186	80

Table A-5

BPUB 2009 Load Forecast
Historical and Projected Monthly Forecast Determinants

Month	Customers Res (#)	GSND (#)	GSD (#)	Mun (#)	Total (#)	Energy Sales Res (MWh)	GSND (MWh)	GSD (MWh)	Mun (MWh)	VpLmp (MWh)	Total (MWh)	Energy Req Sales (MWh)	Losses (MWh)	Losses (%)	NEL (MWh)	NCP Demand (MW)	Load Factor (%)	HDD (#)	CDD (#)
Jan-14	44,815				44,815	46,896	11,283	48,111	6,653	208	113,152	113,152	3,275	1%	116,427	284.0	55.1%	206	54
Feb-14	44,828				44,828	39,614	11,149	48,221	6,528	203	105,715	105,715	369	-1%	106,084	265.1	59.5%	125	76
Mar-14	45,071				45,071	37,101	11,209	49,458	6,476	206	104,451	104,451	13,252	12%	117,702	254.9	62.1%	45	179
Apr-14	45,240				45,240	40,420	11,964	52,289	6,603	206	111,481	111,481	17,666	8%	129,148	292.6	61.3%	7	287
May-14	45,304				45,304	49,426	13,306	56,281	6,937	209	126,160	126,160	28,785	17%	154,945	321.6	64.8%	-	457
Jun-14	45,336				45,336	64,857	15,268	63,557	7,287	207	151,176	151,176	13,564	9%	164,739	329.1	69.5%	-	545
Jul-14	45,326				45,326	72,882	16,466	66,006	7,490	208	163,053	163,053	7,648	3%	170,701	333.3	68.8%	-	601
Aug-14	45,526				45,526	71,614	17,047	65,675	7,571	209	162,116	162,116	15,437	12%	177,553	348.5	68.5%	-	603
Sep-14	45,627				45,627	71,258	16,713	67,345	7,400	212	162,927	162,927	(4,461)	-2%	158,466	337.6	65.2%	-	494
Oct-14	45,678				45,678	58,571	14,961	63,067	7,065	213	143,877	143,877	2,163	1%	146,040	312.6	62.8%	6	332
Nov-14	45,634				45,634	45,696	13,223	58,314	6,783	212	124,228	124,228	(4,347)	-4%	119,882	267.1	62.3%	69	166
Dec-14	45,874				45,874	44,600	11,974	55,911	6,805	210	119,500	119,500	(938)	1%	118,562	264.9	60.2%	186	80
Jan-15	46,090				46,090	48,976	11,617	50,066	6,849	213	117,721	117,721	3,277	1%	120,999	295.1	55.1%	206	54
Feb-15	46,104				46,104	41,362	11,477	50,171	6,719	209	109,938	109,938	312	-1%	110,250	275.5	59.5%	125	76
Mar-15	46,354				46,354	38,731	11,537	51,448	6,665	211	108,593	108,593	13,731	12%	122,324	264.9	62.1%	45	179
Apr-15	46,527				46,527	42,187	12,313	54,382	6,795	211	115,887	115,887	18,332	8%	134,219	304.4	61.2%	7	287
May-15	46,594				46,594	51,577	13,692	58,522	7,137	215	131,144	131,144	29,886	17%	161,029	334.6	64.7%	-	457
Jun-15	46,627				46,627	67,666	15,710	66,075	7,496	212	157,159	157,159	14,049	9%	171,208	342.3	69.5%	-	545
Jul-15	46,617				46,617	76,025	16,940	68,609	7,703	213	169,491	169,491	7,914	3%	177,404	346.8	68.8%	-	601
Aug-15	46,822				46,822	74,688	17,535	68,251	7,786	214	168,474	168,474	16,051	12%	184,525	362.5	68.4%	-	603
Sep-15	46,925				46,925	74,302	17,190	69,973	7,609	218	169,290	169,290	(4,602)	-2%	164,689	351.2	65.1%	-	494
Oct-15	46,978				46,978	61,062	15,386	65,515	7,264	218	149,445	149,445	2,330	1%	151,775	325.2	62.7%	6	332
Nov-15	46,933				46,933	47,630	13,597	60,567	6,973	217	128,984	128,984	(4,395)	-4%	124,589	276.7	62.5%	69	166
Dec-15	47,179				47,179	46,479	12,311	58,060	6,995	215	124,060	124,060	(842)	1%	123,217	274.3	60.4%	186	80
Jan-16	47,413				47,413	51,080	11,945	52,009	7,044	218	122,296	122,296	3,357	1%	125,653	305.7	55.3%	206	54
Feb-16	47,428				47,428	43,138	11,800	52,113	6,910	214	114,175	114,175	316	-1%	114,491	285.3	57.6%	125	76
Mar-16	47,684				47,684	40,392	11,862	53,434	6,854	217	112,759	112,759	14,271	12%	127,030	274.3	62.2%	45	179
Apr-16	47,863				47,863	43,995	12,659	56,475	6,987	216	120,332	120,332	19,050	8%	139,382	315.6	61.3%	7	287
May-16	47,931				47,931	53,785	14,076	60,770	7,340	220	136,190	136,190	31,033	17%	167,224	346.8	64.8%	-	457
Jun-16	47,965				47,965	70,561	16,149	68,606	7,708	217	163,241	163,241	14,553	9%	177,794	354.9	69.6%	-	545
Jul-16	47,955				47,955	79,275	17,413	71,229	7,921	219	176,057	176,057	8,172	3%	184,229	359.5	68.9%	-	601
Aug-16	48,166				48,166	77,878	18,023	70,851	8,006	219	174,978	174,978	16,646	12%	191,623	375.8	68.5%	-	603
Sep-16	48,272				48,272	77,473	17,667	72,632	7,824	223	175,818	175,818	(4,794)	-2%	171,024	364.0	65.3%	-	494
Oct-16	48,326				48,326	63,666	15,812	67,999	7,469	224	155,168	155,168	2,445	1%	157,613	337.1	62.8%	6	332
Nov-16	48,281				48,281	49,660	13,973	62,856	7,170	222	133,881	133,881	(4,499)	-4%	129,382	287.6	62.5%	69	166
Dec-16	48,534				48,534	48,457	12,651	60,249	7,192	221	128,770	128,770	(812)	1%	127,957	285.1	60.3%	186	80
Jan-17	48,743				48,743	53,218	12,268	53,938	7,238	224	126,885	126,885	3,365	1%	130,249	317.7	55.1%	206	54
Feb-17	48,758				48,758	44,936	12,117	54,036	7,100	219	118,409	118,409	270	-1%	118,679	296.6	59.5%	125	76
Mar-17	49,021				49,021	42,070	12,179	55,397	7,041	222	116,909	116,909	14,767	12%	131,676	285.1	62.1%	45	179
Apr-17	49,205				49,205	45,814	12,996	58,540	7,178	221	124,750	124,750	19,731	8%	144,480	328.4	61.1%	7	287
May-17	49,275				49,275	56,001	14,449	62,981	7,539	225	141,196	141,196	32,145	17%	173,340	360.9	64.6%	-	457
Jun-17	49,310				49,310	73,457	16,576	71,090	7,916	222	169,262	169,262	15,036	9%	184,298	369.3	69.3%	-	545
Jul-17	49,300				49,300	82,515	17,871	73,797	8,134	224	182,542	182,542	8,426	3%	190,967	374.0	68.6%	-	601
Aug-17	49,517				49,517	81,049	18,496	73,393	8,221	225	181,383	181,383	17,250	12%	198,632	391.0	68.3%	-	603
Sep-17	49,626				49,626	80,615	18,128	75,224	8,033	228	182,228	182,228	(4,949)	-2%	177,279	378.8	65.0%	-	494
Oct-17	49,681				49,681	66,238	16,223	70,414	7,667	229	160,772	160,772	2,607	1%	163,378	350.7	62.6%	6	332
Nov-17	49,634				49,634	51,659	14,335	65,079	7,360	228	138,659	138,659	(4,545)	-4%	134,114	297.5	62.6%	69	166
Dec-17	49,895				49,895	50,400	12,977	62,369	7,381	226	133,354	133,354	(716)	1%	132,638	295.0	60.4%	186	80

Table A-5

BPUB 2009 Load Forecast
Historical and Projected Monthly Forecast Determinants

Month	Customers					Energy Sales (MWh)						Energy Requirements				NCP Demand		Weather Data	
	Res	GSND	GSD	Mun	Total	Res	GSND	GSD	Mun	VpLmp	Total	Sales	Losses	Losses	NEL	Demand	Load Factor	HDD	CDD
	(#)	(#)	(#)	(#)	(#)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(%)	(MWh)	(MW)	(%)	(#)	(#)
Jan-18	50,038				50,038	55,341	12,579	55,818	7,427	229	131,394	131,394	3,359	1%	134,753	328.7	55.1%	206	54
Feb-18	50,053				50,053	46,721	12,423	55,910	7,285	224	122,564	122,564	218	-1%	122,782	306.9	59.5%	125	76
Mar-18	50,324				50,324	43,734	12,485	57,309	7,224	227	120,979	120,979	15,250	12%	136,229	295.0	62.1%	45	179
Apr-18	50,513				50,513	47,619	13,321	60,550	7,363	226	129,080	129,080	20,396	8%	149,475	340.1	61.0%	7	287
May-18	50,584				50,584	58,198	14,810	65,132	7,733	230	146,102	146,102	33,231	17%	179,333	373.7	64.5%	-	457
Jun-18	50,620				50,620	76,326	16,987	73,506	8,119	228	175,166	175,166	15,504	9%	190,670	382.4	69.2%	-	545
Jul-18	50,609				50,609	85,725	18,313	76,292	8,342	229	188,900	188,900	8,670	3%	197,570	387.4	68.6%	-	601
Aug-18	50,833				50,833	84,188	18,951	75,861	8,429	230	187,659	187,659	17,841	12%	205,500	405.0	68.2%	-	603
Sep-18	50,945				50,945	83,724	18,572	77,742	8,236	233	188,507	188,507	(5,098)	-2%	183,409	392.3	64.9%	-	494
Oct-18	51,002				51,002	68,782	16,619	72,759	7,860	234	166,253	166,253	2,774	1%	169,027	363.2	62.5%	6	332
Nov-18	50,953				50,953	53,634	14,683	67,234	7,544	233	143,327	143,327	(4,576)	-4%	138,751	307.1	62.7%	69	166
Dec-18	51,220				51,220	52,320	13,291	64,424	7,565	231	137,831	137,831	(608)	1%	137,224	304.5	60.6%	186	80
Jan-19	51,316				51,316	57,445	12,875	57,628	7,612	234	135,794	135,794	3,318	1%	139,112	339.3	55.1%	206	54
Feb-19	51,331				51,331	48,490	12,714	57,710	7,465	229	126,608	126,608	146	-1%	126,754	316.8	59.5%	125	76
Mar-19	51,609				51,609	45,383	12,775	59,139	7,402	232	124,931	124,931	15,704	12%	140,636	304.5	62.1%	45	179
Apr-19	51,802				51,802	49,407	13,629	62,470	7,543	232	133,280	133,280	21,031	8%	154,311	351.4	61.0%	7	287
May-19	51,876				51,876	60,373	15,149	67,181	7,921	235	150,861	150,861	34,274	17%	185,135	386.2	64.4%	-	457
Jun-19	51,913				51,913	79,167	17,374	75,801	8,316	233	180,892	180,892	15,945	9%	196,838	395.2	69.2%	-	545
Jul-19	51,902				51,902	88,903	18,728	78,656	8,543	234	195,063	195,063	8,898	3%	203,961	400.3	68.5%	-	601
Aug-19	52,131				52,131	87,296	19,377	78,194	8,632	235	193,734	193,734	18,414	12%	212,148	418.5	68.1%	-	603
Sep-19	52,245				52,245	86,802	18,987	80,114	8,433	238	194,575	194,575	(5,233)	-2%	189,342	405.4	64.9%	-	494
Oct-19	52,304				52,304	71,300	16,988	74,961	8,047	239	171,536	171,536	2,959	1%	174,495	375.4	62.5%	6	332
Nov-19	52,254				52,254	55,590	15,007	69,254	7,723	238	147,811	147,811	(4,571)	-4%	143,240	315.8	63.0%	69	166
Dec-19	52,528				52,528	54,220	13,582	66,344	7,744	236	142,126	142,126	(464)	1%	141,663	313.2	60.8%	186	80
Jan-20	52,607				52,607	59,552	13,157	59,362	7,794	239	140,103	140,103	3,336	1%	143,439	348.9	55.3%	206	54
Feb-20	52,623				52,623	50,265	12,991	59,438	7,643	235	130,572	130,572	125	-1%	130,696	325.7	57.6%	125	76
Mar-20	52,907				52,907	47,040	13,053	60,902	7,578	237	128,811	128,811	16,199	12%	145,010	313.2	62.2%	45	179
Apr-20	53,106				53,106	51,208	13,924	64,323	7,722	237	137,414	137,414	21,696	8%	159,110	361.8	61.1%	7	287
May-20	53,181				53,181	62,570	15,476	69,165	8,109	241	155,561	155,561	35,332	17%	190,893	397.6	64.5%	-	457
Jun-20	53,219				53,219	82,043	17,748	78,030	8,513	238	186,571	186,571	16,389	9%	202,960	406.8	69.3%	-	545
Jul-20	53,208				53,208	92,125	19,128	80,957	8,745	239	201,195	201,195	9,110	3%	210,305	412.1	68.6%	-	601
Aug-20	53,442				53,442	90,454	19,790	80,471	8,835	240	199,791	199,791	18,955	12%	218,746	430.8	68.2%	-	603
Sep-20	53,560				53,560	89,937	19,391	82,436	8,631	244	200,638	200,638	(5,407)	-2%	195,231	417.3	65.0%	-	494
Oct-20	53,620				53,620	73,870	17,347	77,125	8,236	244	176,822	176,822	3,100	1%	179,922	386.4	62.6%	6	332
Nov-20	53,569				53,569	57,590	15,323	71,243	7,904	243	152,302	152,302	(4,607)	-4%	147,695	326.2	62.9%	69	166
Dec-20	53,850				53,850	56,166	13,867	68,241	7,925	241	146,441	146,441	(372)	1%	146,069	323.5	60.7%	186	80
Jan-21	53,890				53,890	61,685	13,432	61,065	7,976	245	144,402	144,402	3,366	1%	147,768	360.4	55.1%	206	54
Feb-21	53,907				53,907	52,062	13,262	61,138	7,821	240	134,523	134,523	118	-1%	134,641	336.5	59.5%	125	76
Mar-21	54,198				54,198	48,720	13,324	62,638	7,754	243	132,679	132,679	16,707	12%	149,386	323.5	62.1%	45	179
Apr-21	54,401				54,401	53,032	14,213	66,150	7,901	242	141,539	141,539	22,373	8%	163,912	374.1	60.9%	7	287
May-21	54,479				54,479	64,796	15,796	71,124	8,297	246	160,258	160,258	36,396	17%	196,654	411.1	64.3%	-	457
Jun-21	54,518				54,518	84,955	18,114	80,232	8,709	243	192,253	192,253	16,832	9%	209,085	420.7	69.0%	-	545
Jul-21	54,506				54,506	95,389	19,522	83,234	8,946	245	207,337	207,337	9,315	3%	216,652	426.1	68.3%	-	601
Aug-21	54,746				54,746	93,653	20,196	82,728	9,039	245	205,861	205,861	19,487	12%	225,348	445.5	68.0%	-	603
Sep-21	54,867				54,867	93,112	19,787	84,740	8,829	249	206,717	206,717	(5,594)	-2%	201,123	431.5	64.7%	-	494
Oct-21	54,928				54,928	76,473	17,701	79,273	8,425	250	182,121	182,121	3,231	1%	185,352	399.6	62.3%	6	332
Nov-21	54,876				54,876	59,615	15,634	73,220	8,084	248	156,803	156,803	(4,651)	-4%	152,152	335.8	62.9%	69	166
Dec-21	55,164				55,164	58,138	14,148	70,129	8,106	247	150,768	150,768	(291)	1%	150,477	333.0	60.7%	186	80

Table A-5

BPUB 2009 Load Forecast
Historical and Projected Monthly Forecast Determinants

Month	Customers					Energy Sales (MWh)						Energy Requirements				NCP Demand		Weather Data	
	Res	GSND	GSD	Mun	Total	Res	GSND	GSD	Mun	VpLmp	Total	Sales	Losses	Losses	NEL	Demand	Load Factor	HDD	CDD
	(#)	(#)	(#)	(#)	(#)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(%)	(MWh)	(MW)	(%)	(#)	(#)
Jan-22	55,169				55,169	63,849	13,701	62,747	8,158	250	148,706	148,706	3,393	1%	152,099	371.0	55.1%	206	54
Feb-22	55,185				55,185	53,886	13,528	62,816	7,999	245	138,474	138,474	113	-1%	138,587	346.4	59.5%	125	76
Mar-22	55,484				55,484	50,423	13,590	64,352	7,930	248	136,544	136,544	17,221	12%	153,765	333.0	62.1%	45	179
Apr-22	55,692				55,692	54,884	14,496	67,953	8,081	247	145,662	145,662	23,055	8%	168,717	385.5	60.8%	7	287
May-22	55,771				55,771	67,055	16,109	73,056	8,485	251	164,956	164,956	37,463	17%	202,418	423.6	64.2%	-	457
Jun-22	55,811				55,811	87,913	18,472	82,403	8,906	248	197,942	197,942	17,271	9%	215,214	433.5	69.0%	-	545
Jul-22	55,799				55,799	98,705	19,907	85,479	9,149	250	213,489	213,489	9,513	3%	223,002	439.1	68.3%	-	601
Aug-22	56,045				56,045	96,904	20,593	84,950	9,242	251	211,940	211,940	20,013	12%	231,953	459.0	67.9%	-	603
Sep-22	56,168				56,168	96,339	20,175	87,008	9,028	254	212,804	212,804	(5,785)	-2%	207,018	444.6	64.7%	-	494
Oct-22	56,231				56,231	79,119	18,047	81,387	8,614	255	187,422	187,422	3,363	1%	190,785	411.7	62.3%	6	332
Nov-22	56,178				56,178	61,675	15,939	75,166	8,266	254	161,300	161,300	(4,688)	-4%	156,612	345.4	63.0%	69	166
Dec-22	56,472				56,472	60,144	14,423	71,986	8,287	252	155,093	155,093	(205)	1%	154,888	342.5	60.8%	186	80
Jan-23	56,469				56,469	66,046	13,966	64,409	8,340	255	153,015	153,015	3,424	1%	156,439	381.6	55.1%	206	54
Feb-23	56,486				56,486	55,736	13,788	64,475	8,177	250	142,427	142,427	115	-1%	142,542	356.2	59.5%	125	76
Mar-23	56,791				56,791	52,151	13,852	66,047	8,107	253	140,409	140,409	17,743	12%	158,152	342.5	62.1%	45	179
Apr-23	57,004				57,004	56,761	14,774	69,739	8,260	253	149,786	149,786	23,745	8%	173,531	396.9	60.7%	7	287
May-23	57,085				57,085	69,343	16,418	74,970	8,672	256	169,660	169,660	38,534	17%	208,194	436.2	64.2%	-	457
Jun-23	57,126				57,126	90,907	18,825	84,557	9,103	254	203,645	203,645	17,709	9%	221,355	446.3	68.9%	-	545
Jul-23	57,114				57,114	102,061	20,286	87,707	9,350	255	219,659	219,659	9,706	3%	229,366	452.1	68.2%	-	601
Aug-23	57,365				57,365	100,192	20,985	87,159	9,446	256	218,037	218,037	20,535	12%	238,572	472.6	67.8%	-	603
Sep-23	57,492				57,492	99,602	20,558	89,264	9,226	259	218,909	218,909	(5,984)	-2%	212,925	457.8	64.6%	-	494
Oct-23	57,556				57,556	81,794	18,389	83,492	8,803	260	192,737	192,737	3,492	1%	196,229	423.9	62.2%	6	332
Nov-23	57,501				57,501	63,756	16,240	77,105	8,446	259	165,807	165,807	(4,726)	-4%	161,081	354.2	63.2%	69	166
Dec-23	57,803				57,803	62,170	14,695	73,838	8,468	257	159,428	159,428	(121)	1%	159,308	351.2	61.0%	186	80
Jan-24	57,786				57,786	68,271	14,232	66,087	8,522	260	157,372	157,372	3,480	1%	160,852	391.3	55.3%	206	54
Feb-24	57,804				57,804	57,611	14,051	66,154	8,356	256	146,427	146,427	136	-1%	146,563	365.3	57.6%	125	76
Mar-24	58,117				58,117	53,903	14,115	67,764	8,283	258	144,324	144,324	18,289	12%	162,614	351.2	62.2%	45	179
Apr-24	58,335				58,335	58,666	15,054	71,551	8,440	258	153,968	153,968	24,458	8%	178,426	407.4	60.8%	7	287
May-24	58,417				58,417	71,667	16,730	76,916	8,860	261	174,435	174,435	39,632	17%	214,067	447.8	64.3%	-	457
Jun-24	58,459				58,459	93,949	19,182	86,750	9,300	259	209,440	209,440	18,159	9%	227,599	458.1	69.0%	-	545
Jul-24	58,446				58,446	105,471	20,671	89,980	9,552	260	225,934	225,934	9,901	3%	235,836	464.1	68.3%	-	601
Aug-24	58,704				58,704	103,535	21,382	89,416	9,650	261	224,243	224,243	21,058	12%	245,302	485.2	68.0%	-	603
Sep-24	58,833				58,833	102,920	20,947	91,574	9,425	265	225,130	225,130	(6,198)	-2%	218,932	470.0	64.7%	-	494
Oct-24	58,899				58,899	84,515	18,736	85,650	8,992	265	198,159	198,159	3,605	1%	201,764	435.2	62.3%	6	332
Nov-24	58,843				58,843	65,874	16,547	79,097	8,628	264	170,410	170,410	(4,785)	-4%	165,625	365.2	63.0%	69	166
Dec-24	59,152				59,152	64,232	14,973	75,743	8,650	262	163,861	163,861	(59)	1%	163,801	362.1	60.8%	186	80
Jan-25	59,075				59,075	70,542	14,502	67,802	8,706	265	161,817	161,817	3,572	1%	165,389	403.4	55.1%	206	54
Feb-25	59,093				59,093	59,527	14,318	67,872	8,536	261	150,513	150,513	184	-1%	150,697	376.6	59.5%	125	76
Mar-25	59,412				59,412	55,695	14,383	69,526	8,462	264	148,329	148,329	18,871	12%	167,200	362.1	62.1%	45	179
Apr-25	59,635				59,635	60,615	15,341	73,412	8,622	263	158,253	158,253	25,206	8%	183,459	420.5	60.6%	7	287
May-25	59,720				59,720	74,048	17,048	78,918	9,052	267	179,332	179,332	40,773	17%	220,105	462.2	64.0%	-	457
Jun-25	59,762				59,762	97,069	19,547	89,010	9,501	264	215,391	215,391	18,627	9%	234,019	472.9	68.7%	-	545
Jul-25	59,749				59,749	108,973	21,065	92,326	9,758	266	232,387	232,387	10,101	3%	242,488	479.0	68.0%	-	601
Aug-25	60,013				60,013	106,971	21,790	91,749	9,858	266	230,634	230,634	21,586	12%	252,221	500.8	67.7%	-	603
Sep-25	60,145				60,145	106,335	21,347	93,965	9,628	270	231,545	231,545	(6,438)	-2%	225,107	485.1	64.5%	-	494
Oct-25	60,212				60,212	87,319	19,094	87,888	9,186	271	203,758	203,758	3,697	1%	207,455	449.2	62.1%	6	332
Nov-25	60,155				60,155	68,059	16,863	81,165	8,814	269	175,171	175,171	(4,874)	-4%	170,296	376.0	62.9%	69	166
Dec-25	60,471				60,471	66,362	15,259	77,726	8,836	267	168,450	168,450	(29)	1%	168,422	372.8	60.7%	186	80

Table A-5

BPUB 2009 Load Forecast
Historical and Projected Monthly Forecast Determinants

Month	Customers					Energy Sales (MWh)						Energy Requirements				NCP Demand		Weather Data	
	Res	GSND	GSD	Mun	Total	Res	GSND	GSD	Mun	VpLmp	Total	Sales	Losses	Losses	NEL	Demand	Load Factor	HDD	CDD
	(#)	(#)	(#)	(#)	(#)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(%)	(MWh)	(MW)	(%)	(#)	(#)
Jan-26	60,406				60,406	72,922	14,791	69,641	8,898	271	166,523	166,523	3,790	1%	170,312	415.4	55.1%	206	54
Feb-26	60,424				60,424	61,542	14,604	69,723	8,725	266	154,861	154,861	322	-1%	155,183	387.8	59.5%	125	76
Mar-26	60,751				60,751	57,587	14,673	71,434	8,650	269	152,613	152,613	19,565	12%	172,178	372.8	62.1%	45	179
Apr-26	60,978				60,978	62,681	15,651	75,439	8,814	268	162,853	162,853	26,067	8%	188,920	433.5	60.5%	7	287
May-26	61,065				61,065	76,579	17,395	81,110	9,254	272	184,611	184,611	42,047	17%	226,658	476.4	63.9%	-	457
Jun-26	61,109				61,109	100,399	19,947	91,497	9,714	269	221,825	221,825	19,160	9%	240,985	487.5	68.7%	-	545
Jul-26	61,095				61,095	112,723	21,497	94,920	9,978	271	239,389	239,389	10,318	3%	249,707	493.8	68.0%	-	601
Aug-26	61,365				61,365	110,664	22,240	94,341	10,081	271	237,597	237,597	22,132	12%	259,729	516.3	67.6%	-	603
Sep-26	61,500				61,500	110,017	21,789	96,635	9,846	275	238,563	238,563	(6,755)	-2%	231,808	500.1	64.4%	-	494
Oct-26	61,569				61,569	90,352	19,492	90,400	9,395	276	209,915	209,915	3,716	1%	213,631	463.1	62.0%	6	332
Nov-26	61,510				61,510	70,430	17,216	83,498	9,015	274	180,434	180,434	(5,068)	-4%	175,366	387.6	62.8%	69	166
Dec-26	61,833				61,833	68,681	15,580	79,972	9,039	273	173,545	173,545	(109)	1%	173,435	384.3	60.7%	186	80
Jan-27	61,762				61,762	75,441	15,105	71,655	9,100	276	171,576	171,576	3,972	1%	175,548	428.2	55.1%	206	54
Feb-27	61,780				61,780	63,670	14,916	71,749	8,923	271	159,529	159,529	425	-1%	159,954	399.7	59.5%	125	76
Mar-27	62,114				62,114	59,580	14,987	73,518	8,846	274	157,205	157,205	20,266	12%	177,471	384.3	62.1%	45	179
Apr-27	62,347				62,347	64,853	15,987	77,649	9,014	273	167,776	167,776	26,952	8%	194,728	447.4	60.5%	7	287
May-27	62,436				62,436	79,235	17,769	83,496	9,465	277	190,243	190,243	43,383	17%	233,625	491.6	63.9%	-	457
Jun-27	62,480				62,480	103,884	20,378	94,199	9,935	275	228,671	228,671	19,722	9%	248,393	503.1	68.6%	-	545
Jul-27	62,467				62,467	116,640	21,963	97,735	10,206	276	246,821	246,821	10,562	3%	257,383	509.6	67.9%	-	601
Aug-27	62,742				62,742	114,514	22,723	97,151	10,311	277	244,976	244,976	22,738	12%	267,713	532.7	67.5%	-	603
Sep-27	62,880				62,880	113,849	22,265	99,525	10,072	280	245,990	245,990	(7,056)	-2%	238,934	516.0	64.3%	-	494
Oct-27	62,951				62,951	93,502	19,919	93,114	9,610	281	216,426	216,426	3,773	1%	220,198	477.8	61.9%	6	332
Nov-27	62,891				62,891	72,888	17,595	86,014	9,222	280	185,999	185,999	(5,242)	-4%	180,757	398.8	63.0%	69	166
Dec-27	63,221				63,221	71,081	15,923	82,392	9,246	278	178,920	178,920	(153)	1%	178,767	395.4	60.8%	186	80
Jan-28	63,122				63,122	78,075	15,441	73,829	9,309	281	176,936	176,936	4,170	1%	181,106	440.6	55.3%	206	54
Feb-28	63,141				63,141	65,896	15,248	73,934	9,129	276	164,484	164,484	533	-1%	165,017	411.3	57.6%	125	76
Mar-28	63,483				63,483	61,667	15,322	75,766	9,051	279	162,084	162,084	21,005	12%	183,089	395.4	62.2%	45	179
Apr-28	63,721				63,721	67,127	16,346	80,032	9,223	279	173,007	173,007	27,886	8%	200,893	460.8	60.6%	7	287
May-28	63,811				63,811	82,018	18,170	86,068	9,684	282	196,223	196,223	44,799	17%	241,022	506.4	64.0%	-	457
Jun-28	63,857				63,857	107,538	20,838	97,112	10,166	280	235,933	235,933	20,324	9%	256,257	518.2	68.7%	-	545
Jul-28	63,843				63,843	120,748	22,461	100,768	10,443	281	254,702	254,702	10,829	3%	265,531	524.9	68.0%	-	601
Aug-28	64,124				64,124	118,552	23,240	100,177	10,551	282	252,802	252,802	23,386	12%	276,189	548.7	67.7%	-	603
Sep-28	64,266				64,266	117,869	22,773	102,636	10,306	285	253,870	253,870	(7,371)	-2%	246,499	531.5	64.4%	-	494
Oct-28	64,337				64,337	96,808	20,375	96,036	9,834	286	223,339	223,339	3,831	1%	227,170	492.2	62.0%	6	332
Nov-28	64,276				64,276	75,469	17,998	88,723	9,437	285	191,913	191,913	(5,433)	-4%	186,479	412.8	62.7%	69	166
Dec-28	64,613				64,613	73,601	16,290	84,996	9,463	283	184,632	184,632	(206)	1%	184,427	409.3	60.6%	186	80

REGRESSION EQUATION OUTPUT

Figure B - 1
Forecast Equation Variable Index

VARIABLE NAME	DESCRIPTION
Economic Variables	
CAM_EMPL	County Total Employment
CAM_HH	County Households
CAM_PY	County Total Household Income
CAM_PYHH	County Mean Household Income
PR_RES	Real Average Residential Price of Electricity
Weather Variables	
W_PKPRMAX	Weighted Average Peak Temperature (60% peak day, 40% prior day)
W_PEAKHUM	Peak Day Relative Humidity (Percentage)
WCDD	Cooling Degree Days: Base=65 dF
WHDD	Heating Degree Days: Base=65 dF
Other Variables	
C	Constant Term
D	Delta or difference between observations
LN	Natural Log
LF_TREND	Variable that increments by 1 each year to capture a minor trend in load factor associated with variations in winter weather
MA	Moving Average (of given period)
T_RESCUST	Trend Term Capturing Residential Customer Growth

Figure B - 2
Forecast Equations - Residential Customers

Dependent Variable: D(CUST_RES/CAM_HH)
Method: Least Squares
Date: 07/10/09   Time: 17:02
Sample (adjusted): 1995 2008
Included observations: 14 after adjustments
Newey-West HAC Standard Errors & Covariance (lag truncation=2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.343	0.153	47.90	0.000
BINARY: YEAR<1997	0.064	0.014	4.56	0.000

R-squared	0.644	Mean dependent var	0.001
Adjusted R-squared	0.614	S.D. dependent var	0.003
S.E. of regression	0.002	Akaike info criterion	(9.56)
Sum squared resid	0.000	Schwarz criterion	(9.47)
LN likelihood	68.9	F-statistic	21.7
Durbin-Watson stat	1.925	Prob(F-statistic)	0.001

Figure B - 3
Forecast Equations - Average Residential Use

Dependent Variable: LOG(USE_RES)
Method: Least Squares
Date: 06/19/09   Time: 15:14
Sample (adjusted): 1994 2008
Included observations: 15 after adjustments
Newey-West HAC Standard Errors & Covariance (lag truncation=2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	(0.71)	0.57	(1.24)	0.246
LOG(CAM_PYHH)	0.92	0.06	15.15	0.000
LOG(MA(PR_RES,2))	(0.19)	0.05	(3.51)	0.007
WCDD	0.00	0.00	2.96	0.016
WHDD	1.44E-04	6.35E-05	2.26	0.050
BINARY: YEAR=2008	-4.40E-02	1.41E-02	(3.12)	0.012

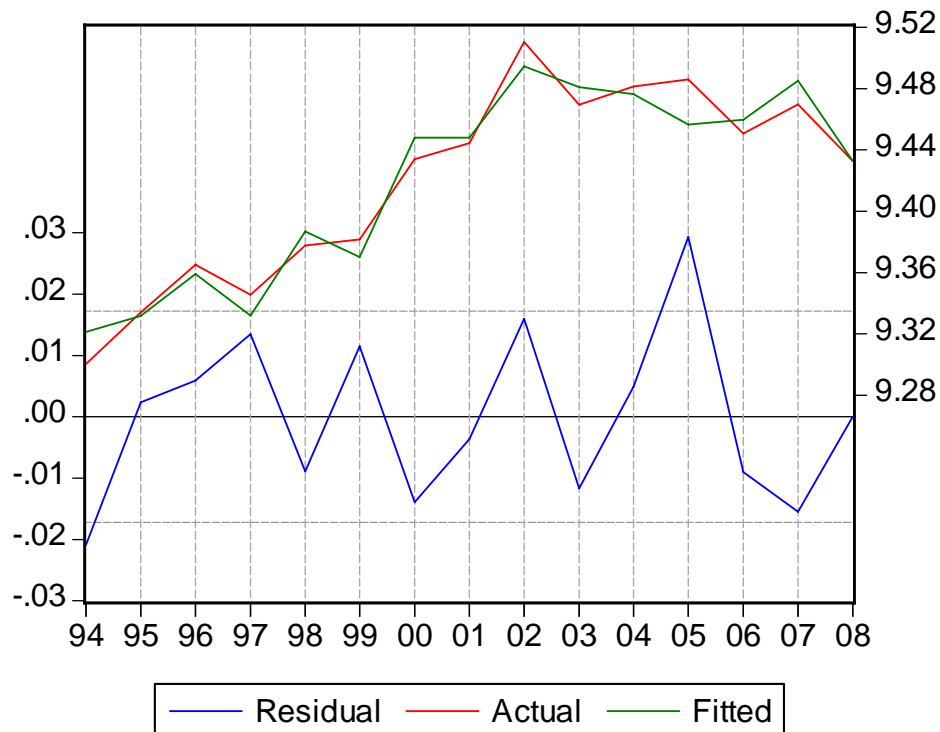|			
R-squared	0.953	Mean dependent var	9.419
Adjusted R-squared	0.927	S.D. dependent var	0.064
S.E. of regression	0.017	Akaike info criterion	(5.00)
Sum squared resid	0.003	Schwarz criterion	(4.71)
Log likelihood	43.5	F-statistic	0.0
Durbin-Watson stat	2.262	Prob(F-statistic)	0.000

Figure B - 4
Forecast Equations - General Service Non-demand Sales

Dependent Variable: LOG(SAL_GSND)
Method: Least Squares
Date: 07/09/09   Time: 18:11
Sample (adjusted): 1994 2008
Included observations: 15 after adjustments
Newey-West HAC Standard Errors & Covariance (lag truncation=2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.440	0.790	5.62	0.000
LOG(CAM_EMPL)	1.290	0.175	7.37	0.000
BINARY: YEAR>1996	1.172	0.035	33.21	0.000

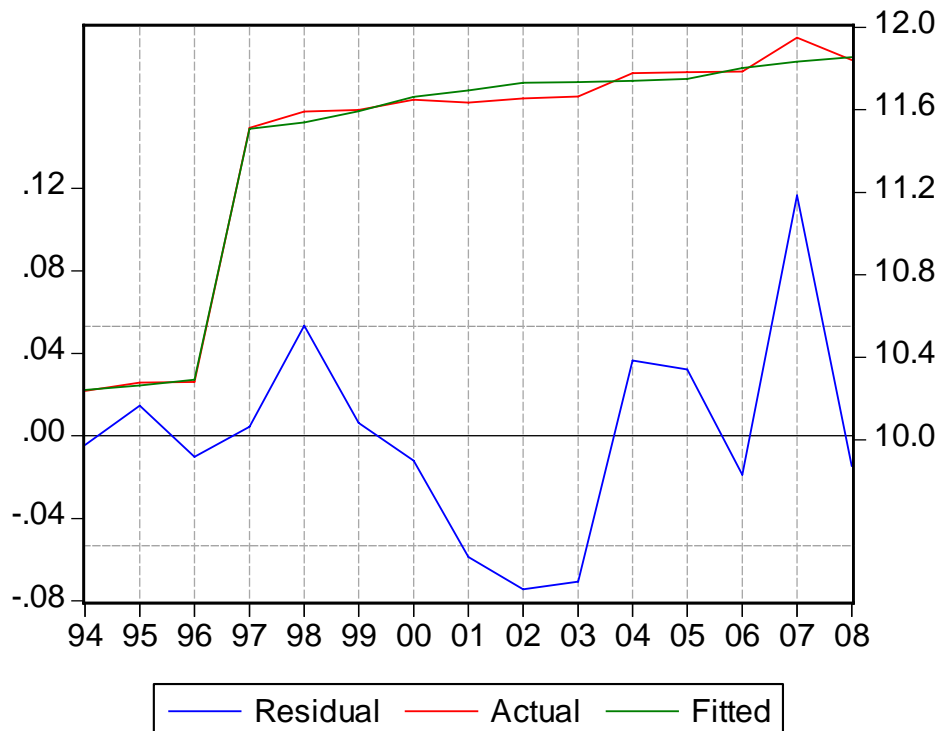|			
R-squared	0.993	Mean dependent var	11.416
Adjusted R-squared	0.992	S.D. dependent var	0.606
S.E. of regression	0.053	Akaike info criterion	(2.85)
Sum squared resid	0.034	Schwarz criterion	(2.71)
Log likelihood	24.4	F-statistic	901.9
Durbin-Watson stat	1.720	Prob(F-statistic)	0.000

Figure B - 5
Forecast Equations - General Service Demand Sales

Dependent Variable: LOG(SAL_GSD)
Method: Least Squares
Date: 06/22/09   Time: 15:42
Sample (adjusted): 1994 2008
Included observations: 15 after adjustments
Newey-West HAC Standard Errors & Covariance (lag truncation=2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.781	0.188	25.39	0.000
LOG(CAM_EMPL)	1.758	0.045	38.86	0.000
WCDD	4.03E-05	1.61E-05	2.51	0.029
BINARY: YEAR>1996	(0.218)	0.012	(18.06)	0.000

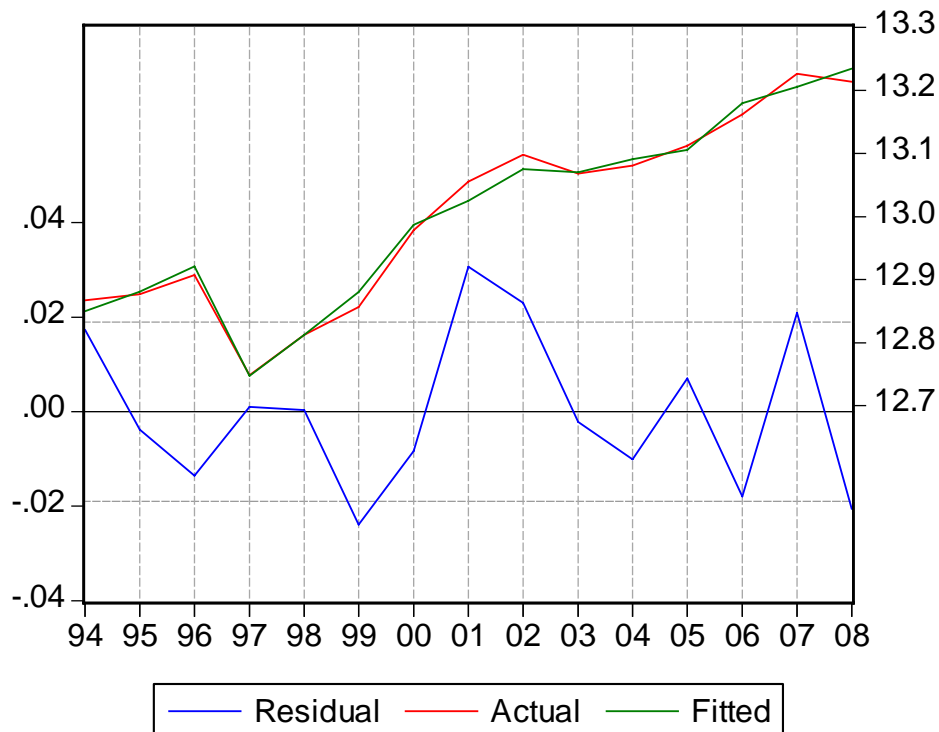|			
R-squared	0.988	Mean dependent var	13.004
Adjusted R-squared	0.984	S.D. dependent var	0.151
S.E. of regression	0.019	Akaike info criterion	(4.87)
Sum squared resid	0.004	Schwarz criterion	(4.68)
Log likelihood	40.6	F-statistic	0.0
Durbin-Watson stat	2.030	Prob(F-statistic)	0.000

Figure B - 6
Forecast Equations - Public Use Sales

Dependent Variable: LOG(SAL_MUN)
Method: Least Squares
Date: 07/10/09   Time: 17:56
Sample (adjusted): 1994 2008
Included observations: 15 after adjustments
Newey-West HAC Standard Errors & Covariance (lag truncation=2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.77	0.56	8.46	0.000
LOG(CAM_MEDC_PY)	0.72	0.07	10.91	0.000

R-squared	0.921	Mean dependent var	10.985
Adjusted R-squared	0.915	S.D. dependent var	0.126
S.E. of regression	0.037	Akaike info criterion	(3.65)
Sum squared resid	0.017	Schwarz criterion	(3.56)
Log likelihood	29.4	F-statistic	152.3
Durbin-Watson stat	1.140	Prob(F-statistic)	0.000
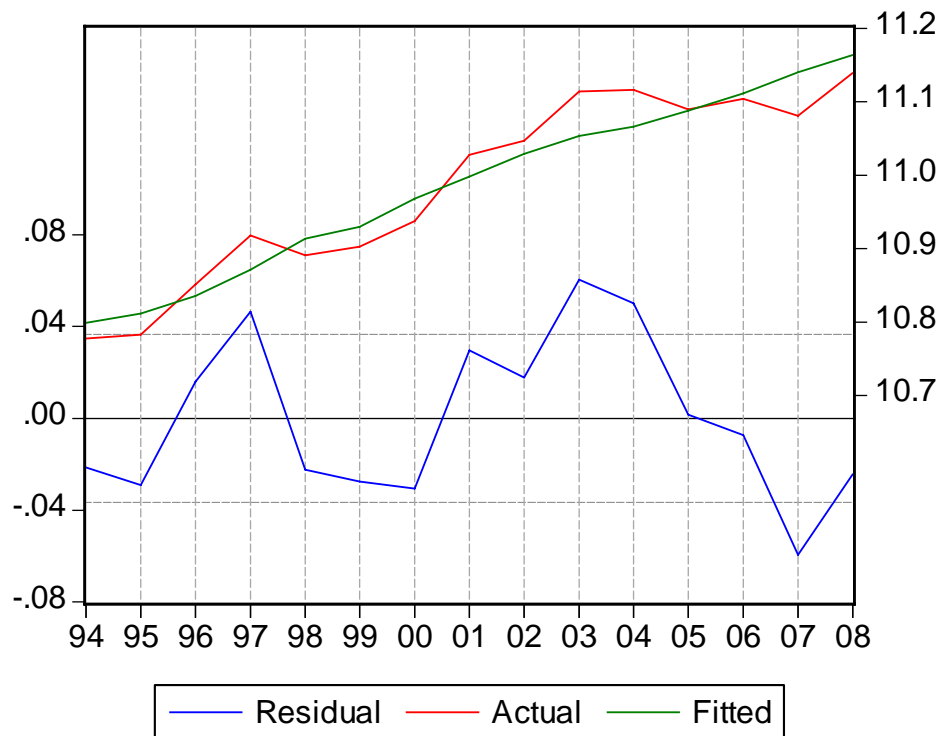
Figure B - 7
Forecast Equations - Annual Peak Load Factor

Dependent Variable: LOADFACTOR
Method: Least Squares
Date: 06/25/09   Time: 16:36
Sample: 1992 2008
Included observations: 15
Newey-West HAC Standard Errors & Covariance (lag truncation=2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.876	0.096	9.17	0.000
WCDD	4.84E-05	5.17E-06	9.36	0.000
LF_TREND*WHDD	2.81E-06	4.98E-07	5.65	0.000
W_PEAKHUM	-4.58E-04	2.71E-04	(1.69)	0.125
W_PKPRMAX	(0.005)	0.001	(6.03)	0.000
MA(PR_RES,2)	(0.005)	0.001	(3.19)	0.011

R-squared	0.869	Mean dependent var	0.550
Adjusted R-squared	0.797	S.D. dependent var	0.010
S.E. of regression	0.0046	Akaike info criterion	(7.62)
Sum squared resid	0.0002	Schwarz criterion	(7.34)
Log likelihood	63.2	F-statistic	12.0
Durbin-Watson stat	2.057	Prob(F-statistic)	0.001
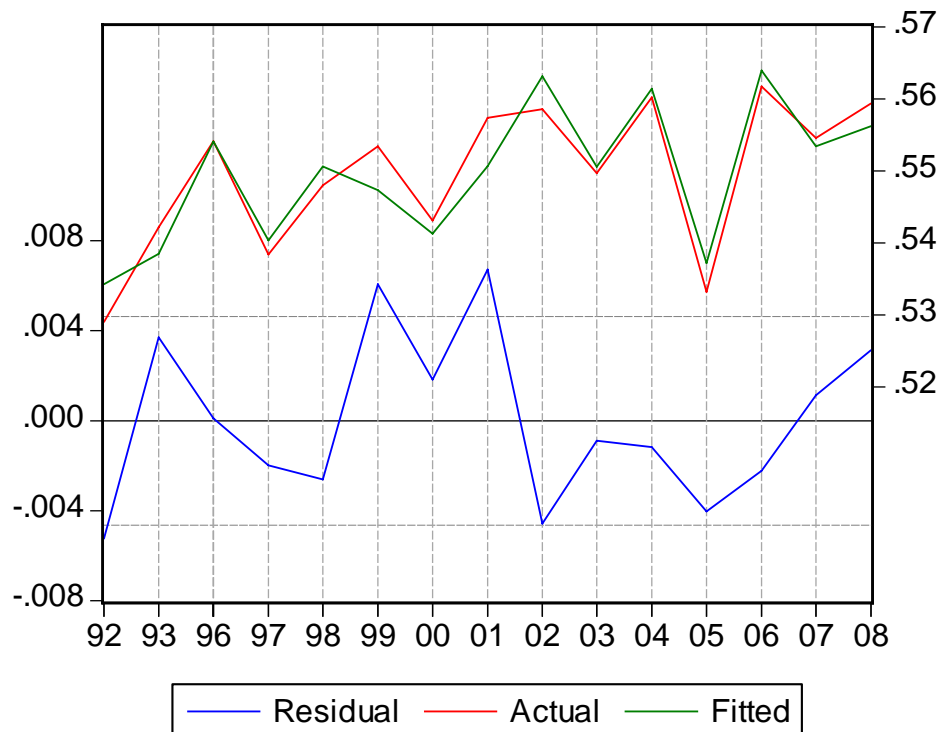
Appendix C
ECONOMIC DATA

Table C-1

BPUB 2009 Load Forecast

Historical and Projected Economic Trends of Cameron County

(Source: Moody's Economy.com) [1]

	Population (Ths.)		Households (Ths.)		Total Employment (Ths.)		Manufacturing Employment (Ths.)		Personal Income, ($M; $2004)		Income per Household ($2004)		Gross Regional Product ($M; $2004)		Retail Sales ($M; $2004)	
	Value	% Chg	Value	% Chg	Value	% Chg	Value	% Chg	Value	% Chg	Value	% Chg	Value	% Chg	Value	% Chg
1992	277.3	-	78.6	-	81.6	-	11.1	-	3,895	-	49,545	-	4,997	-	2,583.5	-
1993	288.3	4.0%	82.0	4.3%	85.3	4.5%	12.4	11.6%	4,127	6.0%	50,336	1.6%	5,211	4.3%	2,670.3	3.4%
1994	297.3	3.1%	84.8	3.4%	89.7	5.2%	13.1	5.5%	4,308	4.4%	50,790	0.9%	5,470	5.0%	2,763.1	3.5%
1995	304.9	2.6%	87.2	2.9%	91.3	1.7%	13.3	1.4%	4,382	1.7%	50,235	-1.1%	5,659	3.5%	2,647.6	-4.2%
1996	312.1	2.3%	89.5	2.6%	93.2	2.1%	13.2	-0.8%	4,529	3.3%	50,579	0.7%	5,951	5.2%	2,608.6	-1.5%
1997	318.3	2.0%	91.6	2.3%	96.5	3.6%	13.0	-1.6%	4,760	5.1%	51,980	2.8%	6,359	6.8%	2,631.9	0.9%
1998	324.6	2.0%	93.6	2.3%	98.8	2.4%	12.8	-1.2%	5,046	6.0%	53,884	3.7%	6,636	4.4%	2,757.9	4.8%
1999	330.3	1.8%	95.6	2.1%	103.0	4.3%	12.3	-3.6%	5,163	2.3%	54,027	0.3%	7,132	7.5%	3,044.2	10.4%
2000	336.5	1.9%	97.6	2.2%	108.8	5.6%	12.3	-0.7%	5,445	5.5%	55,760	3.2%	7,593	6.5%	3,204.1	5.3%
2001	342.6	1.8%	99.4	1.8%	111.5	2.5%	11.3	-7.6%	5,677	4.3%	57,105	2.4%	7,931	4.4%	3,404.0	6.2%
2002	350.1	2.2%	101.6	2.2%	114.7	2.9%	10.2	-9.7%	5,927	4.4%	58,325	2.1%	8,225	3.7%	3,549.7	4.3%
2003	358.0	2.2%	103.9	2.3%	115.1	0.4%	9.1	-10.7%	6,130	3.4%	58,984	1.1%	8,331	1.3%	3,637.3	2.5%
2004	365.3	2.1%	106.1	2.1%	115.6	0.4%	7.8	-14.9%	6,236	1.7%	58,781	-0.3%	8,457	1.5%	3,768.4	3.6%
2005	372.2	1.9%	108.1	1.9%	116.5	0.7%	7.3	-6.4%	6,430	3.1%	59,488	1.2%	8,529	0.9%	3,881.5	3.0%
2006	379.1	1.9%	110.1	1.9%	121.4	4.2%	7.8	7.0%	6,642	3.3%	60,327	1.4%	8,906	4.4%	4,147.3	6.8%
2007	386.2	1.9%	112.2	1.9%	124.1	2.3%	7.7	-1.6%	6,915	4.1%	61,633	2.2%	9,226	3.6%	4,270.7	3.0%
2008	394.0	2.0%	114.2	1.8%	126.3	1.8%	7.3	-4.2%	7,140	3.3%	62,515	1.4%	9,516	3.2%	4,163.1	-2.5%
2009	398.8	1.2%	116.0	1.5%	125.0	-1.1%	6.5	-11.1%	7,304	2.3%	62,977	0.7%	9,500	-0.2%	3,946.9	-5.2%
2010	406.6	1.9%	118.3	2.0%	127.5	2.0%	6.5	-0.8%	7,559	3.5%	63,870	1.4%	9,759	2.7%	4,143.4	5.0%
2011	414.6	2.0%	120.8	2.1%	131.2	2.9%	6.7	4.2%	7,888	4.4%	65,288	2.2%	10,181	4.3%	4,407.4	6.4%
2012	422.1	1.8%	123.8	2.4%	135.3	3.1%	7.1	5.2%	8,272	4.9%	66,838	2.4%	10,703	5.1%	4,656.4	5.6%
2013	430.0	1.9%	126.6	2.3%	139.2	2.9%	7.3	2.5%	8,675	4.9%	68,507	2.5%	11,122	3.9%	4,818.5	3.5%
2014	438.4	2.0%	129.4	2.2%	142.5	2.4%	7.3	0.0%	9,042	4.2%	69,854	2.0%	11,518	3.6%	4,959.2	2.9%
2015	447.3	2.0%	132.3	2.2%	145.7	2.2%	7.2	-0.6%	9,403	4.0%	71,091	1.8%	11,973	4.0%	5,119.4	3.2%
2016	456.7	2.1%	135.2	2.2%	148.9	2.2%	7.2	-0.6%	9,774	3.9%	72,300	1.7%	12,442	3.9%	5,271.1	3.0%
2017	466.1	2.1%	138.1	2.1%	151.9	2.0%	7.1	-0.6%	10,141	3.8%	73,439	1.6%	12,888	3.6%	5,419.2	2.8%
2018	475.3	2.0%	140.9	2.0%	154.8	1.9%	7.1	-0.6%	10,503	3.6%	74,558	1.5%	13,313	3.3%	5,543.9	2.3%
2019	484.4	1.9%	143.6	1.9%	157.5	1.8%	7.0	-0.7%	10,857	3.4%	75,632	1.4%	13,706	3.0%	5,658.2	2.1%
2020	493.4	1.9%	146.2	1.9%	160.1	1.7%	7.0	-0.7%	11,214	3.3%	76,684	1.4%	14,090	2.8%	5,767.3	1.9%
2021	502.5	1.8%	148.9	1.8%	162.7	1.6%	6.9	-0.8%	11,575	3.2%	77,747	1.4%	14,471	2.7%	5,876.7	1.9%
2022	511.5	1.8%	151.5	1.7%	165.1	1.5%	6.9	-0.8%	11,940	3.2%	78,825	1.4%	14,849	2.6%	5,986.7	1.9%
2023	520.6	1.8%	154.1	1.7%	167.6	1.5%	6.8	-0.8%	12,306	3.1%	79,868	1.3%	15,211	2.4%	6,093.7	1.8%
2024	529.8	1.8%	156.7	1.7%	170.0	1.5%	6.8	-0.8%	12,677	3.0%	80,893	1.3%	15,567	2.3%	6,195.0	1.7%
2025	538.8	1.7%	159.2	1.6%	172.5	1.5%	6.7	-0.8%	13,058	3.0%	82,004	1.4%	15,946	2.4%	6,300.8	1.7%
2026	548.1	1.7%	161.8	1.6%	175.3	1.6%	6.7	-0.8%	13,468	3.1%	83,214	1.5%	16,368	2.6%	6,418.5	1.9%
2027	557.6	1.7%	164.5	1.6%	178.2	1.7%	6.6	-0.8%	13,896	3.2%	84,481	1.5%	16,814	2.7%	6,541.4	1.9%
2028	567.1	1.7%	167.1	1.6%	181.3	1.8%	6.6	-0.8%	14,346	3.2%	85,847	1.6%	17,299	2.9%	6,670.6	2.0%
Average Percent Change																
1999-2008		2.0%		2.0%		2.3%		-5.6%		3.7%		1.6%		3.3%		3.5%
2009-2018		2.0%		2.2%		2.4%		0.9%		4.1%		1.9%		3.8%		3.8%
2019-2028		1.8%		1.7%		1.6%		-0.8%		3.1%		1.4%		2.6%		1.8%

[1] Adjustments have been made to the forecast period (2009-2028) based on comparison to another source of economic projections as discussed within this report.