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AmerenUE

Integrated Resource Plan

Load Forecast Data and Methodology

PUBLIC VERSION

Corporate Planning Department

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NP

2005 Load Forecast Data

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Forecast Introduction

The responsibility of forecasting, both sales and demand, lies with the Corporate Planning- Corporate Analysis group. While Corporate Analysis has the responsibility to develop and issue the sales and demand forecasts, it employs the expertise of many individuals from various departments and functions within the Company as well as insights from sources outside the Company.

The primary uses of the sales and demand forecasts are for budgeting and resource planning. In the budgeting process, the sales forecast is used as an input to perfect revenues and fuel expenditures. In the resource planning process, forecasted peak demand is used in planning for the installation of generation facilities or alternatives to generation. Forecasted load shapes, demand and sales for the planning period are necessary in determining the type of capacity (base, intermediate, peaking) that is needed and the economics of this capacity and potential alternatives.

This reference guide provides information about;

- National and regional economic outlook
- Statistically Adjusted End Use models
- 2005 monthly electric sales forecast.
- 2005-2014 annual electric and gas sales forecast.

If you have any questions about the information provided in this documentation, please contact any one of the Corporate Analysis forecasting team members:

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National Outlook

After slowing in the spring quarter, U.S. economic growth now appears to be rebounding to a moderately above-trend pace. Despite the gradual waning of fiscal and monetary stimulus, and still-high energy costs, Gross Domestic Product (GDP) growth is expected to pick up modestly in the second half of this year to near 4 percent, and to continue at that pace over 2005 before slowing to roughly 3.5 percent in 2006. Unemployment rate is expected to edge down from the current 5.4 percent to around 5.25 percent by the end of this year and to 5.1 percent by the end of next year.

Supporting growth later this year, but especially through 2005 and 2006, will be a reversal of the long decline in U.S. net exports. The drop in the real exchange rate since early 2002, and a further expected decline, will continue to put upward pressure on import prices and improve the competitiveness of U.S. producers. Housing activity likely is near its peak and, as mortgage rates rise, residential investment is the one component of aggregate demand that is expected to contract outright over the next two years. Government spending is expected to expand, but more slowly than overall GDP.

After jumping earlier this year, with the 3-month annualized change in the core Consumer Price Index (CPI) rocketing to 3.3 percent in April, core inflation is subsiding. Core inflation is expected to remain below 2 percent over the second half of this year before gradually rising again next year as the unemployment rate slips below "full employment," as a cyclical deceleration of productivity contributes to a cyclical acceleration of unit labor costs and as a decline in the dollar boosts the price of imports. An expected reversal of the recent spike in energy prices will contribute to a decline in overall inflation later this year.

Continued solid growth of business investment in equipment and software is expected to underpin the second-half firming in growth. Favorable capital costs combined with expanding business volumes and cash flow over the past couple of years will provide the impetus for strong capital spending. Business investment in equipment and software is expected to grow at roughly an 11.8 percent rate in the second half of this year after rising at an equally healthy 10.8 percent pace in the first half. Spending on business structures, which declined slightly during the first half of the year, is expected to remain roughly flat during the second half, but rise about 4 percent next year.

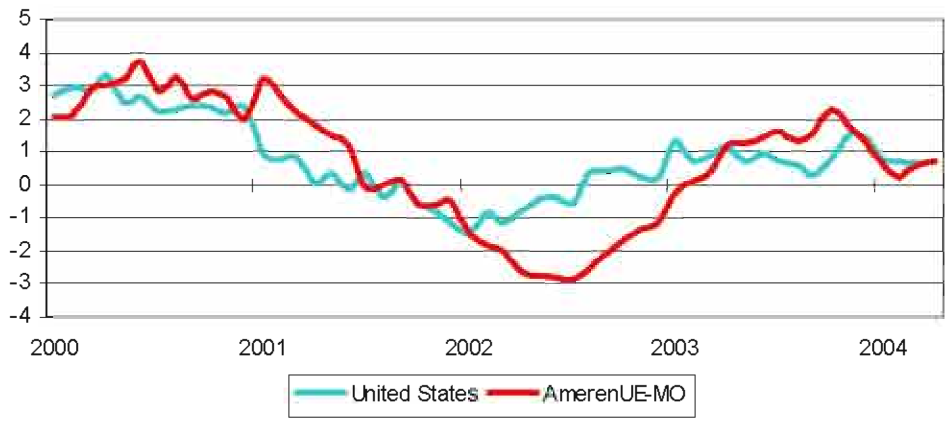
Briefly, generally positive contributions to growth from rising consumer spending and capital spending, augmented by rising net exports (starting next year) and government spending will account for continued GDP growth near or slightly above trend the next couple of years. Housing construction is the one activity expected to decline outright.

Regional Outlook – AmerenUE Missouri

AmerenUE Missouri is a diverse region. Much of its diversity comes from its large exposure to a broad array of traditionally important industries such as defense-related manufacturing, food manufacturing, automobiles, transportation, and banking. However, heavy exposure to these same industries, and conversely only light exposure to emerging industries, will constrain the region's growth in the outlook. In essence, the region's industrial structure has more in common with the nation's recent past, rather than what the nation will look like in future.

AmerenUE Missouri is experiencing its strongest job growth since the middle of 2000. The service area's employment base is growing at a pace on par with that of the nation. All major industries other than manufacturing are adding jobs, and the drag on the economy from manufacturing layoffs is lessening. AmerenUE Missouri's service industries are enjoying very strong growth since the fourth quarter of 2003. While the current unemployment rate of 4 percent is above the area's typical lows near 3 percent, it continues to trend downward, remaining well below the national rate of 5.4 percent.

Employment Growth (Year-to-year percent change)



Source: Bureau of Labor Statistics

The loss in manufacturing jobs over the previous decade has caused slow growth in the St. Louis region, but now biotechnology industry is emerging as the new economy. Missouri economic development efforts have included the idea of a life sciences triangle with Kansas City, St. Louis and Columbia as the corners. All three areas have enjoyed some significant success in this arena. Though on the rise, biotechnology employment is too small to offset the decline in the manufacturing employment yet. St. Louis has a strong research base and a strong presence of agricultural sciences; if the region can continue to build its R&D base and commercialize the science, it can be a leader in the plant and life sciences.

One of the weaknesses of AmerenUE Missouri economy is the region's exposure to the auto industry. Projected growth in worldwide demand for autos will be insufficient to support all of the U.S. facilities currently in operation and those under construction. Therefore, the global industry will remain under pressure to increase efficiencies, keep a lid on prices, and reduce capacity. More than 16,500 workers are employed in motor vehicle and equipment manufacturing in St. Louis, and more than 2,500 are employed at Ford Motor Company's Hazelwood plant. Ford had planned to close the Hazelwood plant by mid-decade as part of a larger plant closing nationwide; efforts by the Ford Hazelwood task force, other city leaders and state incentives led to the company leaving the plant open. Just recently, Ford announced that it will be cutting one of the shifts in January 2005 as the sales and the projected sales have decreased.

AmerenUE Missouri's finance sector, particularly the brokerage side of the industry, represents a source of future growth. The longer-term outlook is better as rising household wealth and the aging of the baby boomers should help investing regain its popularity among households. Already, the financial services industry has rebounded to pre-recession levels.

Population and household growth provide little stimulus to the region's economy; population growth is typically slow, though net-migration was positive in 2003.

Overall, the pace of residential construction was very high in 2003 and did not slow down in the first quarter of 2004. Multifamily construction also rose above the previous year's pace. However, with mortgage rates set to rise and still weak underlying demographic trends, St. Louis Standard Metropolitan Statistical Area may see slower construction and sales going forward, removing a potential growth driver later in the expansion period.

AmerenUE Missouri, while not as inexpensive as some of its Midwestern regions, has costs that are favorable compared to the national average. Lower than average costs should positively affect growth over the long-term outlook.

Peak Demand Forecast

Itron, a leading technology provider, has developed an Hourly Electric Load Model (HELM) replacement product called *MetrixLT*. *MetrixLT* has been developed to construct a "bottom-up" load forecast and to calibrate the bottom-up forecast to actual system load or short-term system hourly load forecasts. The overall forecasting approach is similar to the HELM approach. The steps are outlined below:

Construct Revenue Class Long-Term Hourly Load Forecasts

In the first task, revenue class sales and revenue class hourly load shapes are imported from the *MetrixND* project file. Class energy and hourly shape forecasts are then integrated using *MetrixLT Batch Transforms*. A separate transform is constructed for each revenue class.

Generate initial bottom-up system hourly load forecast

The next step is to add the revenue class load forecasts through another Batch Transform. A bottom-up forecast will generally provide a more accurate long-term forecast as the resulting shape will reflect changes in sector energy growth over time. The "bottom-up" forecast will cover a ten-year period.

Construct a short-term aggregate system load forecast

Short-term peak forecasts estimated as outlined above will also be imported from *MetrixND* project files. A short-term system hourly load forecast will also be estimated in *MetrixND* and imported into *MetrixLT*. The short-term system hourly load forecast is then calibrated to the system monthly peak forecast within another Batch Transform. The system hourly load forecast will cover a two-year forecast horizon.

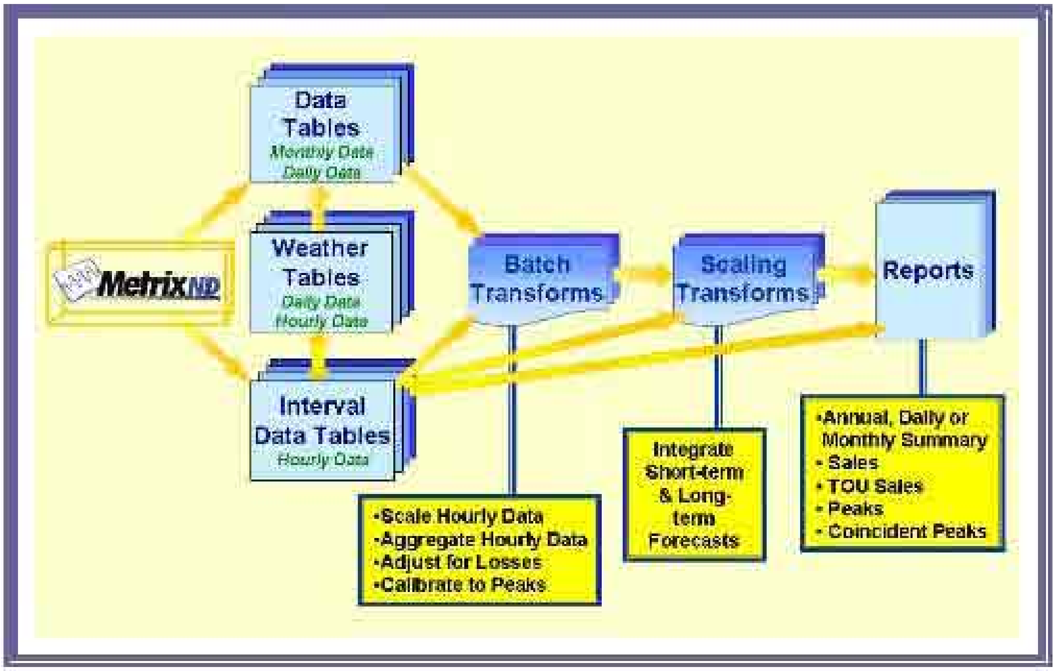
Calibrate the Bottom-Up Forecast

Using a *Scaling Transform*, the bottom-up hourly load forecast will be overlaid on the short-term load forecast for the two-year short-term forecast period. *MetrixLT* calculates a set of calibration factors that are then used to generate a calibrated bottom-up system load forecast over the ten-year forecast period. If end-use hourly load shapes are available for the primary end-uses – heating, cooling, and other use, the same approach can be used to construct a long-term hourly load forecast from end-use estimates from the Statistically Adjusted End-use (SAE) sales forecast models.

Generate Reports

The last *MetrixLT* implementation step is to generate forecast reports. *MetrixLT* Reports are constructed from interval data forecasts. Reports provide monthly summaries: including monthly energy, peaks, and load factors. Summarized reports and interval data can then be exported to Excel. Interval data can also be exported as standard Edison Electric Institute (EEI) formatted text files.

Long-Term Forecast System Overview



Historical Weather Normalization Methodology

Beginning in January 1992 AmerenUE, with the aid of ICF Resources, co-developed the weather normalization (billing cycle analysis) enhancement to HELM-PC. Monthly weather normalized energy values by class prepared by Corporate Planning personnel become the inputs into the forecasting data series described earlier in this document. HELM-PC allowed the user to input load research data, daily temperature data, calendar data, and customer billing data by rate class and revenue class to produce monthly actual and normal calendar month and billing month sales. Load research data was used to create weather response functions that capture the seasonality and variability of the demand for electricity.

HELM-PC Inputs

The inputs required during the preparation process include: billing data, calendar data, temperature data, and load research. A file containing billing data by jurisdiction, rate class, revenue class, and cycle was prepared monthly by the AmerenUE Methods Department. The weather measure was the two-day weighted mean temperature and was calculated as twice the average temperature for the subject day plus the previous day's average temperature divided by three. Monthly temperature data was compiled by the AmerenUE Marketing Services Division.

Calendar data required as an input to the process depends on the number of day-types modeled for each class. Day-types can be defined as: Monday, Tuesday, etc.; Weekday, Weekend; Weekday, Saturday, Sunday; or whatever the user defines. Day-types can also vary by class. Residential loads typically have a two day-type representation (Weekday, Weekend) while Industrial loads have a different day-type for every day of the week. Holidays and low load days can also be modeled.

Load research data is the driver input to the HELM-PC billing cycle analysis process. Load versus two-day weighted mean temperature regressions were developed by taking the non-linear relationships into account. Depending on the detail by class of available load research data, the user defined which major class or subclass is modeled. The more classes that were modeled, the better the results. The added time to disaggregate a major class, *i.e.*, commercial into large general service, small general service and primary service, greatly improved the results of the analysis as load data for these subclasses is very diverse. The rate and revenue classes that were modeled are as follows: Residential; Commercial: Small General Service (SGS), Large General Service (LGS), Primary and Dusk-to-Dawn; Industrial: SGS, LGS and Primary; Interruptible; Street Lighting; and Wholesale.

By grouping day-types into seasons, the "V-shaped" load versus temperature relationship could be analyzed through piece-wise linear regressions. Using the Load Shape Representation Tool in HELM-PC, this scatter diagram could be modeled with up to five pieces, depending where the break points are located. This grouping of day-type daily load values into two-day weighted mean temperature regions transfers the non-linear relationship into an acceptable piece-wise linear relationship. However, the more seasons and day-types chosen, the fewer points available to be used in the regressions.

The last and possibly most vital piece of input data required for this process is the billing cycle data. This information depicts the energy sales distribution for a billing month as recorded by jurisdiction, district, state, rate class, revenue class, and cycle. Also included was energy data for special customers whose meters are read on the first working day or the last working day of the month. Once the format was established, this file was created automatically on a monthly basis when the accounting department completes the journals for the month.

For a complete description of the preparation of inputs using AmerenUE's load research data, refer to Development of Union Electric Load Shape Representations, ICF Resources, Inc., 1993.

Billed/Actual/Unbilled Sales – Using HELM-PC

A special feature added to the billing cycle analysis section of the program was the inclusion of calendar and unbilled actual and weather normalized sales. Since budgets and forecasts are usually based on a calendar sales and not billing, the program was enhanced to calculate the calendar component of the monthly billing sales. When the billing cycle analysis is performed, the daily temperatures for the current month are known values. Using the load versus two-day weighted mean temperature regressions embedded in the HELM-PC program, the predicted loads to the end of the month can then be determined. Therefore, the sum of the loads for the days in a calendar month becomes the reported calendar energy sales for that class. Another step in this process is to determine unbilled sales, which are defined as the amount of energy generated but not yet billed to the customer. Of course, all energy sales values are adjusted to account for line losses.

For a theoretical description of the mathematical functions of the billing cycle analysis, refer to the HELM-PC User's Guide and Tutorial, ICF Resources, Inc., May 1993, pages 5-59 through 5-64.

Update to Weather Normalization Methodology

Ameren updated their customer billing system in 1998 to better handle customer billing. One of the results of this change was the inability to obtain billing cycle data for the classes and subclasses modeled within HELM-PC. Ameren chose to replace the HELM-PC tool with a new set of tools from Itron, due to the ability of the Itron toolset to handle the new format of the customer billing data. The Itron tools currently used by AmerenUE consist of MetrixND, Forecast Manager, the Billed/Unbilled Calculator, and the recent addition of MetrixLT.

MetrixND is used to forecast monthly sales. Forecast Manager is the central data repository. The Itron Billed/Unbilled Calculator is the replacement for the HELM-PC Billing Cycle Analysis tool, and is currently designed to work with billing month data. The MetrixLT is used to forecast daily energy profiles and peaks.

One of the major advantages of the Itron toolset, in addition to the ability to handle the current format of the customer billing information, is the use of a centralized data repository - Forecast Manager. The toolset has been developed to interfaces seamlessly with the standard Microsoft Office tools such as Access and Excel.

As part of an ongoing process of reviewing and improving the forecast methodology, AmerenUE will be performing side by side comparisons of the results of HELM-PC with the Itron toolset to compare results and minimize errors in the forecast. AmerenUE has also made some improvements to the customer billing system, making it possible to produce customer usage information in a more detailed billing cycle format. AmerenUE is currently working with Itron to enhance the forecasting toolset to take advantage of the data in this new format. The result of the improvement will be a forecast process that produces more accurate results which would be in close agreement with those produced historically by the HELM-PC tool.

Normal Weather. The AmerenUE peak normal weather variable is defined as the 1971 – 2000 weighted average of the current day normal temperature and prior-day normal temperature (with two-thirds current day weight and one-third prior day weight).

Meter Read Schedule (MRS). The meter read schedule can also be imported from an Excel data input file. The meter read schedule is entered in *MeterSchedHistory* worksheet. The user must input the following information:

- Billing Year (RevYear)
- Billing Month (RevMonth)
- Billing Cycle (Cyclenum)
- The Billing Cycle Start Date (StrtDate)
- The Billing Cycle End Date (StopDate)

The billing cycle information will be imported and used to update and calculate the billing cycle weights based on the number of Active Billing Cycles on a given day. New data will be appended to the meter read table. Existing data in the Access table will be overwritten.

Calculate Billed, Unbilled and Weather Normalized Sales
Billed, unbilled, and weather-normalized sales are calculated in the *Billed/Unbilled Calculator*. The user first opens the *Billed/Unbilled Calculator*. The application then presents the user with the *Main Menu*.

Import Data. The first task is to import data. When Import Data is executed, data in an Excel input spreadsheet are imported into the Access database. Imported data are appended to historical sales and weather data tables. Existing data in the database are updated with data from the input spreadsheet. Import MRS will import any new meter read information from the Excel input spreadsheet while Calc Cycle Weights updates the cycle weight calculations.

Run Models. The next step is to calculate daily estimated sales for actual and normal weather conditions. The user must first select the appropriate month and year. The user then presses the *Run Models* button. *Run Models* executes two *MetrixND* project files.

Daily estimated loads for actual and normal weather are calculated and returned to Access tables.

Review Results. Review Results executes queries that calculate billed, unbilled, and weather normal sales. Results are displayed in the user interface.

Save System Unbilled. The *Save System Unbilled* button will overwrite actual unbilled data with the system estimate. *Review Results* must be run first.

Export Report. The *Export Report* button exports billed, unbilled, and weather normal sales calculation to the Excel spreadsheet *ExportData.xls*. Billed and unbilled sales are exported to one worksheet, calendar-month weather normal sales to another worksheet, and revenue-month weather normal sales to a third worksheet.

Estimating Weather Response Models
Weather response models are estimated using *MetrixND*. There are two *MetrixND* project files: one is used to estimate AmerenUE weather response models and to simulate average use given actual weather conditions; the other is used to simulate AmerenUE rate class models given normal weather.

Estimating Weather Response Models
The weather response function models link to the following data:

- Historical load research UPC data
- Temperature data
- A calendar file
- Sunrise and sunset times

Through a set of *MetrixND* transformation tables, data are translated into model weather and calendar variables. Use Per Customer (UPC) models for each rate class are specified using the model variables. Models may be regression or Artificial Neural Network (ANN) models. The models are executed through the Group Forecast object. The *Billed/Unbilled Calculator* calls the daily profile project files and retrieves predicted UPC from the *Group Forecast* object.

The weather normal project files generate daily UPC given normal weather conditions. In addition to calendar files, these files are linked to AmerenUE normal weather data. The *Billed/Unbilled Calculator* calls daily weather normal project files and retrieves predicted UPC from the *Group Forecast* object.

Users can re-estimate models in the daily profile project files. Making a copy of the original project file before re-estimating the models is recommended. Once estimated, the models can be copied to the weather normal calculation project files.

The system is now ready to execute with the new project files.

Methodology

Billed and Unbilled Sales Calculation
Billed and unbilled sales are generated for each primary AmerenUE revenue class. The calculations rely on a set of daily weather response functions estimated from historical load research data. In addition, the following data must be input into the Billed/Unbilled calculator:

- Net system energy for the current calendar-month (*Net Energy*)
- Current revenue-month sales by revenue class
- Current meter read schedule

Calculate Calendar-Month Sales
Calendar-month sales for each primary revenue class are estimated using daily weather response functions estimated with *MetrixND*. Models are estimated using historical *UPC* load research data where:

$$Predicted\_UPC_d = f\,(Weather_d, Season_d, Holidays_d, Dayof\ theWeek_d)$$

Models can be either regression or artificial neural network models. Once models are estimated, predicted average use for the calendar-month is derived by simulating historical daily use with actual daily weather data and calendar information.

Results of the model runs are used to estimate calendar-month sales for month *t*:

$$CaMo\_UPC_{rt} = \Sigma_d Predicted\_UPC_{rtd}$$

Model-estimated revenue-month average use is derived by applying billing cycle weights to the daily predicted values and summing cycle weighted values over revenue-month *t*:

$$RevMo\_UPC_{rt} = \Sigma_d Predicted\_UPC_{rtd} * CycleWeight_{td}$$

Preliminary calendar-month sales estimates are then calculated as:

$$CalMoSales\_P_{rt} = RevMoSales_{rt} * (CalMo\_UPC_{rt} / RevMo\_UPC_{rt})$$

Final calendar-month sales estimates are calculated by calibrating the initial estimate to the current month net system energy:

$$CalMoSales_{rt} = NetEnergy_t * CalMoSales\_P_{rm} / \Sigma_r CalMoSales\_P_{rm}$$

Calculate Billed and Unbilled Energy
Once calendar-month sales are calculated, unbilled sales are calculated as:

$$UnbillSales_{rt} = (CalMoSales_{rt} + UnbillSales_{rt-1}) - RevMoSales_{rt}$$

Billed sales are calculated as:

$$BillSales_{rt} = CalMoSales_{rt} - UnbillSales_{rt}$$

Calculate Calendar-Month Weather-Normal Sales
To weather normalize sales, the estimated revenue class weather response models are simulated using normal daily weather. The estimated models return weather normalized daily-predicted use for each rate and revenue class ($Predicted\_WN\_UPC_{rtd}$).

Monthly average use for normal weather conditions ($CalMo\_WN\_UPC_{rt}$) is calculated as:

$$CalMo\_WN\_UPC_{rt} = \Sigma_d Predicted\_WN\_UPC_{rtd}$$

A weather adjustment factor is then calculated as:

$$WN\_CalAdj_{rt} = CalMo\_WN\_UPC_{rt} / RevMo\_UPC_{rt}.$$

Preliminary weather-normal calendar-month sales ($WNCalMoSales\_P_{rt}$) are calculated as:

$$WNCalMoSales\_P_{rt} = WN\_CalAdj_{rt} * RevMoSales_{rt}$$

Finally, weather-normal revenue class sales are calibrated to a net energy level by applying net energy calibration factors to *WNCalMoSales_P*. The net energy calibration factor (k_{rt}) is calculated as:

$$k_{rt} = CalMoSales_{rt} / CalMoSales\_P_{rt}$$

$CalMoSales\_P_{rt}$ and $CalMoSales_{rt}$ are calculated as part of the calendar-month sales calculation algorithm. Final calendar-month weather-normal sales ($WNCalMOSales_{rt}$) are then equal to:

$$WNCalMoSales_{rt} = k_{rt} * WNCalMoSales\_P_{rt}$$

Calculate Revenue-Month Weather-Normal Sales
The same logic used for weather- normalizing calendar-month sales will be applied to normalizing revenue-month sales.

First, the estimated weather response function will be used to estimate daily average revenue class use over the revenue-month period for normal daily weather. The revenue-month period will begin the first day following the last read date of the previous revenue-month, and end with the last read date of the current revenue-month; this will typically cover a 60- to 62-day period. The predicted daily values are weighted by billing cycles to yield a cycle-weighted monthly average use for normal weather conditions:

$$RevMo\_WN\_UPC_{rt} = \Sigma Predicted\_WN\_UPC_{rtd} * CycleWeight_{td}$$

Once the revenue-month average use is calculated, we can then estimate a revenue-month weather normal adjustment ratio as:

$$WN\_RevMoAdj_{rt} = RevMo\_WN\_UPC_{rt} / RevMo\_UPC_{rt}.$$

Finally, weather-normal sales ($WNRevMoSales_{rt}$) are calculated by applying the weather-normal adjustment factors to actual revenue-class sales:

$$WNRevMoSales_{rt} = WN\_RevMoAdj_{rt} * RevMoSales_{rt}$$

Summer and Winter Peak Demand Forecasts

The peak demand forecast is utilized in the planning of generating capacity or its alternatives, generating unit maintenance, and short-term power transactions. In addition, the peak demand forecast is used in determining future transmission and distribution facility requirements.

The peak demand forecast begins with the preparation of historical demand data. Each historical year's peak demand is adjusted to a peak demand consistent with normal weather conditions.

In the past, the peak demand was forecast by performing various time series and linear regressions and projecting demand based on the model with the best predictive power. The time series models employed were various forms of exponential smoothing and Box-Jenkins, and linear regressions. Judgment was also used to incorporate adjustments to the forecast.

Currently, AmerenUE makes use of plots of peak making energy versus two day weighted mean temperatures to predict the peak for the system. Future work in this area will make use of the Itron MetrixLT and MetrixND models to produce the peak forecasts. The forecasts of summer and winter peak demand are prepared separately, but follow a similar procedure. For purposes of this document, the methodology refers to both summer and winter peak demands, except where noted.

Historical Temperature Correction of Summer Peak

Air conditioning demand varies quite substantially on an hourly basis with changing weather conditions (particularly temperature). To provide a reliable and consistent method for evaluating year-to-year changes in this demand, it is necessary to establish a method to evaluate what each year's demand would be under some standard condition.

The temperature correction is designed to determine the expected load at an 88^{0}F two-day weighted mean temperature. The 88^{0} two-day weighted mean temperature standard is based on an analysis of historical data for the years 1906 to 1983, which indicates that the standard is achieved or exceeded in 50 percent of the summers for which the weather data is available. The formula for calculating the two-day weighted mean temperature (TDWTM) is as follows:

TDWTM = (2 x current day mean temp. + 1 x prior day mean temp.)/3

Temperatures used in calculating this weather measure are based on daily mean temperatures as reported by the National Weather Service at Lambert International Airport.

In order to determine the temperature corrected summer peak demand, the summer weekday peak demands are plotted against the corresponding two-day weighted temperature. (Note: Saturday, Sunday, and holiday demands are excluded from the plot because they have lower base demands and are not likely to produce an annual peak. However, Sunday, and holiday temperatures are considered in calculating the weighted two-day temperature). The demand versus temperature plot resembles an "S," illustrating the effect of non-temperature sensitive demand at moderate temperatures and the loss of diversity of air conditioning demands at higher temperatures.

A curve is drawn through the points of the plot. In addition, an upper and lower bound of the majority of data points is drawn to provide an envelope in which the data points lay. This analysis is aided by various computer based curve fitting techniques, as well as by graphical cross plot of points selected from the temperature response curve shapes from prior years. The intersection of the curve with the 88^{0}F TDWTM is defined as the temperature corrected summer peak. In those years in which the 88^{0}F TDWTM is not reached, the curve is extrapolated by applying temperature response curve shapes from previous summers to achieve an 88^{0}F intersection.

Note that the temperature correction procedure also incorporates data adjustments for known variations in the peak demand such as interruptible demands or large customers operating at abnormal demand levels. Under contractual agreement, service to several of AmerenUE's industrial customers may be interrupted upon notification by AmerenUE. Since these customers are usually interrupted only during times of high demand, an adjustment to the summer peak demand may be necessary in any given year to account for demand interrupted at time of peak. To determine the amount of the adjustment, the magnitudes of the demands on the hour preceding the notification of interruption of service and on the hour the service was returned are evaluated, and an assessment of demand that would have occurred at time of peak without the interruption is made.

Besides the interruptible customers, other large customers are investigated for abnormal demand levels at time of peak. Any adjustments are included in the determination of the temperature corrected peak demand.

Update to Temperature Correction of Summer Peak

The 88^{0} two-day weighted mean temperature standard is based on an analysis of historical data for the years 1906 to 1983, which indicates that the standard is achieved or exceeded in 50 percent of the summers for which the weather data is available. However using a more recent time horizon, 1980-1999, indicates that 89^{0} is a more representative temperature.

Historical Temperature Correction of Winter Peak

In recent years, the winter peaks have been consistently occurring, on or near, the days of coldest temperature, primarily due to electric heating demand. In order to perform the temperature correction of the winter peak, a plot of daily peak demand versus daily mean temperature for all non-holiday weekdays during the months of December, January, and February is constructed. A regression analysis is performed on these points to standardize the winter peak demand to a daily mean temperature of 6°F. The 6°F temperature is selected since that temperature or lower is expected to occur 50 percent of the winters, based on data from 1908 to 1983. The demand intersection of the regression equation at 6°F is selected as the temperature corrected winter peak.

Update to Temperature Correction of Winter Peak

Mid-America Interconnected Network (MAIN) Guide #4 outlines some principles for its members to follow for "Demand and Energy Forecasts." The purpose of these principles is to achieve some uniformity and comparability of forecasting approaches among members in the reliability council so a meaningful regional forecast can be computed. A couple of the catalysts for calculating the "AmerenUE Winter Peak Normal" are two principles in MAIN Guide #4:

- Forecasts of demand shall assume average peak making weather.
- Forecasts shall be calculated in such a way that there is an almost equal probability of exceeding or falling short of the forecast when the assumed weather does occur.

Another catalyst is the "Weekly Reserve Report." The report contains peak load for each week in the year. This information is used for scheduling maintenance and planning outages for the generating plants. The normalized peaks are the summer and winter "anchors" for this report.

For several years, AmerenUE has struggled with winter peak normalization. The same method and explanatory variables were used for both the winter and summer peak normalization. This analysis investigates the use of various weather related explanatory variables and examines the difference in characteristics of the winter and summer design temperatures.

The fundamental purpose for the analysis is to define a methodology for calculating the Winter Peak Analysis. In addition to establishing a methodology, the analysis yielded a deeper understanding of "peak making" winter weather and difference between winter and summer "peak making" weather.

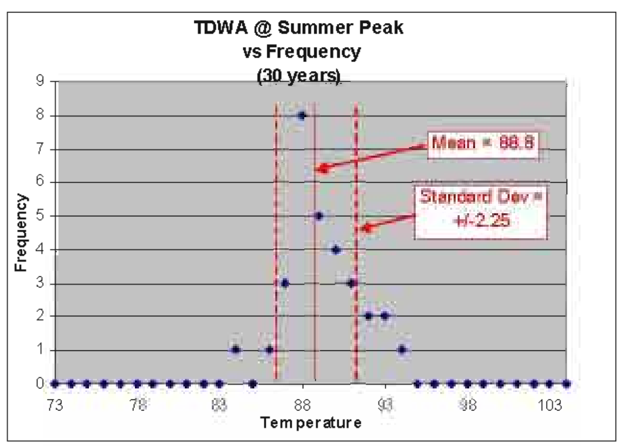


Figure 1 Frequency of occurences versus Two-day Weighted Average Maximium Tempature at summer peak

Analysis:

The first step in the peak normalization process is to gather control area load and weather (temperature) data. The data is filtered for daily load peaks on non-holiday and non-weekend days. Various weather variables are calculated. These variables will be tested for correlation to load peaks while building the model.

The next step is to determine the design temperature. Conceptually, design temperature is the average (or median) seasonal peak temperature. Therefore, the temperature at peak has an almost equal probability of exceeding or falling short of design temperature. Temperature prior to the time of system peak contributes significantly to "peak making" weather for an electrical system. In order to give consideration to this characteristic, AmerenUE uses the "two-day weighted average" temperatures (TDWA) in determining the seasonal peak temperature. In calculating design temperature, AmerenUE uses the 20- or 30-year median of the seasonal maximum TDWA. The current summer design temperature, using 20 years, is 89.5º (see table in appendix A).

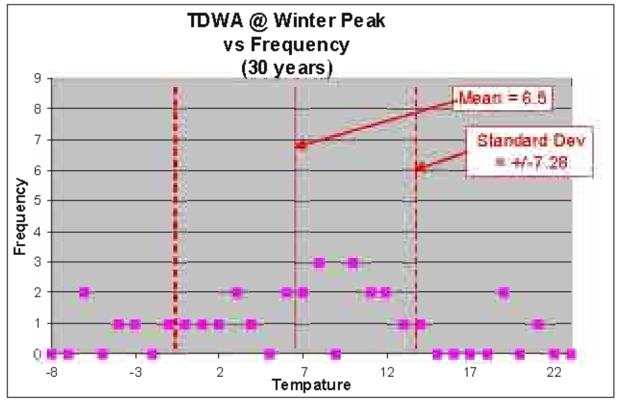


Figure 2 Frequency of occurences versus Two-day Weighted Average Maximium Tempature at winter peak

In order to gain insight into the probability and distribution for the 30-year sample of the summer season maximum TDWA, a chart of frequency versus TDWA was developed (Figure 1).

The data points indicate that the 30-year sample is a normal distribution with a mean of 88.8º and a seemingly small standard deviation of 2.25º.

The same chart for the winter yielded significantly different results (Figure 2). The distribution for the winter chart has some characteristics of a uniform distribution. With an even distribution, the extreme values with in the range are equally likely as the mean value.

The standard deviation for the summer is 1.9 versus 7.3 for the winter (about three times larger). Another interesting difference is the range between the lowest and highest values (Table 1) for each season. The summer has a range of 6.5º and the winter has a range of 27.5º, more than four times larger.

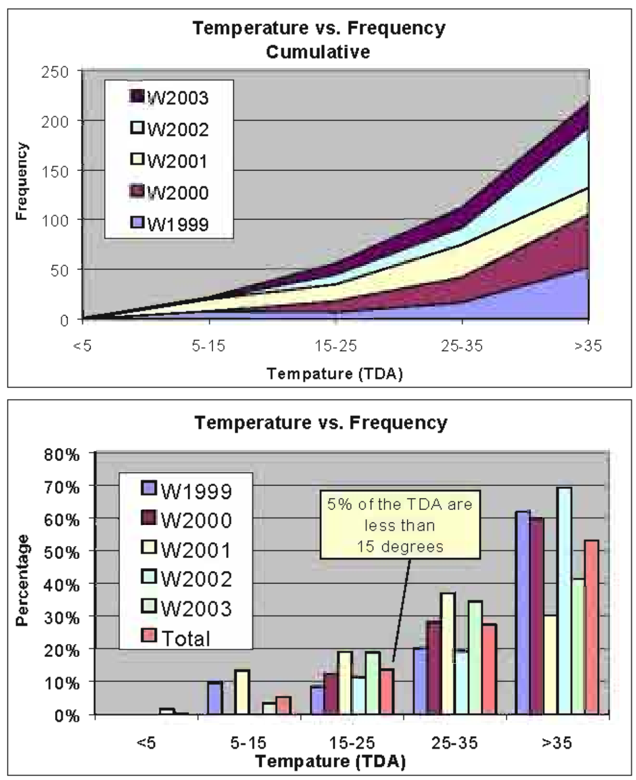


Figure 3: Winter temperature (Two-Day Average) frequency for 1999-2003

Table 1: Statistical Evaluation of Seasonal Maximum TDWA

	Summer	Winter	
	20 yr	30 yr	20 yr
Mode	89.7	11.0	11.0
Median	89.5	7.2	8.7
Mean	89.4	6.5	8.2
Std	1.9	7.3	7.3
Lowest	86.0	-6.5	-6.2
Highest	92.5	21.0	21.0
Range	6.5	27.5	27.2

Mode - the data value that occurs with greatest frequency
Median - the data value in middle when data is arranged in rank order
Mean - the average value (central location)

The combination of a seemingly uniform distribution and large range of TDWA implies more volatile winter TDWA minimum temperatures compared to summer TDWA maximum temperatures.

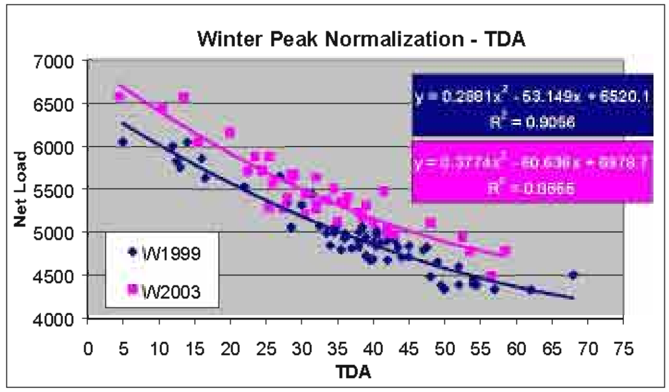


Figure 4: Winter Normalization Model using Two Day Average

Once the winter design temperature has been calculated, the actual temperatures at system peak can be reviewed for the years under analysis (1999-2003). Less than 5% of the daily temperatures during the daily peak are below the winter design temperature of 7.2° for the years 1999-2003 (Figure 3). For the years 2000 and 2002, there were zero data points less than 15°.

The lack of data points around the design temperature creates difficulties in normalizing the winter peak. For years without actual temperatures near or below the design temperature, the model will be even more speculative and less reliable than a year that contains data points in that range. This uncertainty in that year's model should lead one to place less credibility in its results. For years that the temperature drops considerably below the design temperature, the model will be more reliable.

The next step in the normalization analysis is to build models for each year. Given the difficulties experienced in some of the past analysis, the database was built with a variety of possible explanatory variables (*i.e.* two-day average, two-day weighted average, temperature at peak, etc.) for testing. The explanatory variable that yielded the highest R-Squared is the Two-Day Average (TDA) (Figure 4). Using TDA, the R-Squared ranged from .79 to .89. This range is fairly good for a model using one explanatory variable.

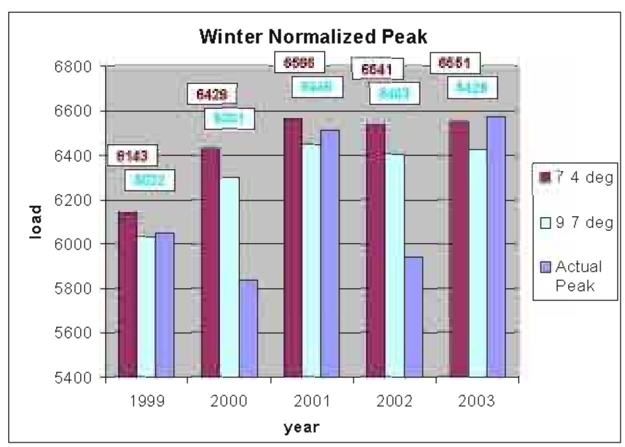


Figure 5: Winter Normalized and Actual Peaks

The "Winter Normalized and Actual Peak" graph (Figure 5) shows the difference between design temperatures using 30 and 20 years. Since the 20 year median of 8.7° is significantly more than the 30 year median of 7.2°, its winter normalized peak will be considerably more (120 -140 MW).

Note that in the years that the temperature did not reach the design temperature, the actual peak will be adjusted up to reach the normalized peak. In those years peak temperature exceed design temperature, the peak is adjusted down. Both kinds of adjustments are to be expected.

Lastly, sanity checks were performed to compare the winter season's temperature and load relationship to the summer. One of these checks compared the correlation between temperature and peak load for both seasons. The correlation coefficient ranges from -1 to 1. Values close to -1 or 1 indicate strong linear relationship. The closer the correlation is to zero, the weaker the relationship. In all years, the correlation coefficient (Table 2) indicates that the summer has a stronger relationship to temperature than the winter.
The winters correlation based only on temperature is still strong (-.66 to -80).

Table 2: Correlation

	Winter	Summer
1999	-0.80	0.89
2000	-0.76	0.90
2001	-0.74	0.92
2002	-0.66	0.88
2003	-0.78	

Table 3: Model Slopes

	Winter	Summer
1999	-29.52	132.49
2002	-25.09	134.86

Another check compared load volatility at peak for the two seasons. A linear model was developed for each winter and summer. The slope of the linear model is the incremental MW for each degree of change. For example, the slope in the linear model for the winter of 1999 is -29.52. Therefore, for every degree of temperature at peak drops, the load will increase by 29.52. For the summer of 1999, for every degree of temperature at peak rises, the load will increase by 132.49. Based only on this comparison, the summer appears to be more volatile.

However, if range of temperatures for each season (Table 1) is added to the analysis, the range for peak load is about the same (800-900MW).

Table 4: Seasonal Volatility

Winter	30* MW / °	X	27.5°	=	812	or	+/- 406 MW
Summer	135* MW / °	X	6.5°	=	861	or	+/- 430 MW

*** Approximation based on five year's history (1999-2003)**

The probability distributions for the temperature (Figure 1 & 2) are the characteristic that makes the winter normalization more volatile. Since the winter temperature distribution is uniform (compared to normal for summer), the winter peak temperature is just as likely to be at an extreme as it is to be at the median; whereas the summer's peak temperature is more likely to be near the median.

Summary:

The purpose of this report is to define a methodology for calculating the Winter Peak Normalization. However, any analysis that did not outline differences between summer and winter peaking weather and normalization methodologies would be incomplete. This report has attempted to do both. Below are the conclusions for this analysis.

Since the winter normalization has a greater probability of being extreme than the summer, it is recommended that a 30-year median be used for calculating the Winter Design Temperature (7.2º).

The Winter Temperature Normalized Peaks for 1999-2003 are as follows:

Years	**Peak Load (MW)**
1999	6143
2000	6429
2001	6566
2002	6541
2003	6551

2000 and 2002 had zero data points less than 15º; therefore, the model may not be accurate for the design temperature of 7.2º.

Winter Temperature at Peak load tends to be uniformly distributed; whereas, Summer Temperature at Peak Load tends to be normally distributed.

Summer Peak Load is very closely related to temperature. Winter Peak Load is not as closely related to temperature.

The range of load adjustment is the same for winter and summer (approximately 400-430 MW).

Appendix A – Seasonal Peak Temperature

	TDWA						TDA					
	Max Temp	30 yr Ranking for Max	20 yr Ranking for Max	Min Temp	30 yr Ranking for Min	20 yr Ranking for Min	Max Temp	30 yr Ranking for Max	20 yr Ranking for Max	Min Temp	30 yr Ranking for Min	20 yr Ranking for Min
1971	87.5			10.3			88.0			9.0		
1972	86.5			0.7			87.0			-2.0		
1973	84.0	30		8.3			85.0	30		6.0		
1974	86.5	27		0.5	24		87.0	28		-3.0	23	
1975	87.2	21		11.7	6		89.0	15		7.5	12	
1976	86.8	26		2.7	21		87.5	23		-0.5	21	
1977	87.8	18		-3.0	27		88.0	20		-7.0	26	
1978	86.3	28		7.0	16		87.5	23		3.0	17	
1979	87.2	21		4.0	20		87.5	23		3.0	17	
1980	93.5	1		9.5	12		94.5	1		9.0	8	
1981	87.2	21		5.5	18		87.5	23		-1.5	22	
1982	88.7	14		-0.3	25		89.5	12		-8.0	27	
1983	92.3	3	2	-6.5	30		93.0	3	2	-8.5	28	
1984	92.5	2	1	5.3	19	15	94.5	1	1	3.0	17	15
1985	88.2	17	15	-4.0	28	19	88.5	17	14	-8.5	28	19
1986	89.7	9	8	11.3	7	6	91.0	9	8	8.0	11	10
1987	90.7	7	6	9.7	11	10	91.5	8	7	8.5	10	9
1988	92.0	4	3	7.7	13	11	92.5	4	3	6.0	13	11
1989	88.5	15	13	-6.2	29	20	88.5	17	14	-8.5	28	19
1990	90.7	7	6	6.2	17	14	92.0	5	4	4.5	15	13
1991	89.7	9	8	18.5	3	3	90.0	10	9	13.5	3	3
1992	87.2	21	18	21.0	1	1	87.5	23	19	19.0	1	1
1993	87.7	19	16	9.8	10	9	88.5	17	14	9.5	7	7
1994	87.3	20	17	1.5	23	17	88.0	20	17	-3.0	23	17
1995	91.0	6	5	13.3	4	4	92.0	5	4	10.0	5	5
1996	86.0	29	20	-1.8	26	18	87.0	28	20	-3.0	23	17
1997	89.0	13	12	2.3	22	16	89.5	12	11	2.0	20	16
1998	89.5	11	10	13.0	5	5	89.5	12	11	12.5	4	4
1999	91.8	5	4	7.3	15	13	92.0	5	4	5.0	14	12
2000	87.0	25	19	11.0	8	7	87.5	22	18	8.5	9	8
2001	88.3	16	14	11.0	8	7	89.0	15	13	10.0	5	5
2002	89.5	11	10	18.7	2	2	90.0	10	9	15.0	2	2
2003				7.5	14	12	53.5			4.5	15	13

Summer			Winter		
	30 yr - TWDA	88.5		30 yr - TWDA	7.3
	30 yr - TDA	89		30 yr - TDA	4.5
	20 yr - TWDA	89.5		20 yr - TWDA	9.7
	20 yr - TDA	90		20 yr - TDA	8.5

High-Case and Low-Case Load Forecasts

AmerenUE has conducted an in depth study regarding load forecast variability. Please see the Risk Analysis and Strategy Selection section of the Integrated Resource Analysis.

Statistically Adjusted End-Use Models

The models developed for the 2005-2014 monthly sales forecast use the statistically adjusted end use (SAE) approach. The traditional approach to forecasting monthly sales is to develop an econometric model that relates monthly sales to weather, seasonal variables, and economic conditions. The strength of econometric models is that they are well suited to identifying historical trends and to projecting these trends into the future. In contrast, the strength of the end-use modeling approach is the ability to identify the end-use factors that are driving energy use. By incorporating end-use structure into an econometric model, the statistically adjusted end-use modeling framework exploits the strengths of both approaches.

Residential SAE Model

The SAE modeling framework defines energy use in residential sector ($USE_{y,m}$) in year (y) and month (m) as the sum of energy used by heating equipment ($Heat_{y,m}$), cooling equipment ($Cool_{y,m}$) and other equipment ($Other_{y,m}$). Formally,

$$Use_{y,m} = Heat_{y,m} + Cool_{y,m} + Other_{y,m} \tag{1}$$

Although monthly sales are measured for individual customers, the end-use components are not. Substituting estimates for the end-use elements gives Equation 2.

$$Use_{y,m} = a + b_1 \times XHeat_{y,m} + b_2 \times XCool_{y,m} + b_3 \times XOther_{y,m} + \varepsilon_{y,m} \tag{2}$$

where $XHeat_{y,m}$, $XCool_{y,m}$, and $XOther_{y,m}$ are explanatory variables constructed from end-use information, weather data, and market data. As shown below, the equations used to construct these X variables are simplified end-use models, and the X variables are the estimated usage levels for each of the major end-use based on these models. The estimated model can then be thought of as a statistically adjusted end-use model, where the estimated slopes are the adjustment factors.

Constructing XHeat-Electric

Energy use by space-heating systems depends on heating degree days, heating equipment share levels, heating equipment operating efficiencies, billing days, average household size, household income, and energy price. The heating variable is represented as the product of an annual equipment index and a monthly usage multiplier. That is,

$$XHeat_{y,m} = HeatIndex_y \times HeatUse_{y,m} \tag{3}$$

where $XHeat_{y,m}$ is estimated heating energy use in year (y) and month (m), $HeatIndex_y$ is the annual index of heating equipment and $HeatUse_{y,m}$ is the monthly usage multiplier.
The HeatIndex is defined as a weighted average across equipment saturation levels normalized by operating efficiency levels. Given a set of fixed weights, the index will change over time with changes in equipment saturations (Sat) and operating efficiencies (Eff). Formally, the equipment index is defined as:

$$HeatIndex_y = \sum_{Type} Weight^{Type} \times \frac{\left(Sat_y^{Type} / Eff_y^{Type} \right)}{\left(Sat_{98}^{Type} / Eff_{98}^{Type} \right)} \tag{4}$$

In the above expression, 1998 is used as a base year for normalizing the index. The ratio on the right is equal to 1.0 in 1998. In other years, it will be greater than 1 if equipment saturation levels are above their 1998 level. This will be counteracted by higher efficiency levels, which will drive the index downward. The weights are defined as follows:

$$\text{Weight}^{\text{Type}} = \frac{\text{Energy}_{98}^{\text{Type}}}{\text{HH}_{98}} \times \text{HeatShare}_{98}^{\text{Type}} \tag{5}$$

The end-use saturation and efficiency trends are developed from the Energy Information Administration (EIA)'s regional projections.

Heating system usage levels are impacted on a monthly basis by several factors, including weather, household size, income levels, prices and billing days. Since the heating degree days used in these models are in revenue month cycle, billing degree days is not used as a variable. Using the Residential End-use Energy Planning Systems (REEPS) default elasticity parameters, the estimates for space heating equipment usage levels are computed as follows:

$$\text{HeatUse}_{y,m} = \left(\frac{\text{Price}_{y,m}}{\text{Price}_{98}}\right)^{-0.20} \times \left(\frac{\text{Income}_{y,m}}{\text{Income}_{98}}\right)^{0.25} \times \left(\frac{\text{HHSize}_{y,m}}{\text{HHSize}_{98}}\right)^{0.25} \times \left(\frac{\text{HDD}_{y,m}}{\text{HDD}_{98}}\right) \tag{6}$$

where $\text{Price}_{y,m}$ is the average residential real price of electricity in year (y) and month (m), Price_{98} is the average residential real price of electricity in 1998, $\text{Income}_{y,m}$ is the average real income per household in a year (y) and month (m), Income_{98} is the average real income per household in 1998, $\text{HHSize}_{y,m}$ is the average household size in a year (y) and month (m), HHSize_{98} is the average household size in 1998, $\text{HDD}_{y,m}$ is the revenue month heating degree days in year (y) and month (m), and HDD_{98} is the annual heating degree days for 1998.

By construction, the $\text{HeatUse}_{y,m}$ variable has an annual sum that is close to one in the base year (1998). The HDD term serves to allocate annual values to months of the year. The remaining terms average to one in the base year. In other years, the values will reflect changes in the economic driver changes, as transformed through the end-use elasticity parameters. For example, if the real price of electricity goes up 10 percent relative to the base year value, the price term will contribute a multiplier of about .98 (computed as 1.10 to the -0.20 power).

Constructing XCool-Electric

Energy use by space cooling systems depends on cooling degree days, cooling equipment share levels, cooling equipment operating efficiencies, billing days, average household size, household income, and energy price. The cooling variable is represented as the product of an annual equipment index and a monthly usage multiplier. That is,

$$\text{XCool}_{y,m} = \text{CoolIndex}_{y} \times \text{CoolUse}_{y,m} \tag{3}$$

where $XCool_{y,m}$ is estimated cooling energy use in year (y) and month (m), $CoolIndex_y$ is the annual index of cooling equipment, and $CoolUse_{y,m}$ is the monthly usage multiplier.
The CoolIndex is defined as a weighted average across equipment saturation levels normalized by operating efficiency levels. Given a set of fixed weights, the index will change over time with changes in equipment saturations (Sat) and operating efficiencies (Eff). Formally, the equipment index is defined as:

$$CoolIndex_y = \sum_{Type} Weight^{Type} \times \frac{\left(Sat_y^{Type} \big/ Eff_y^{Type} \right)}{\left(Sat_{98}^{Type} \big/ Eff_{98}^{Type} \right)} \qquad (4)$$

In the above expression, 1998 is used as a base year for normalizing the index. The ratio on the right is equal to 1.0 in 1998. In other years, it will be greater than 1 if equipment saturation levels are above their 1998 level. This will be counteracted by higher efficiency levels, which will drive the index downward. The weights are defined as follows:

$$Weight^{Type} = \frac{Energy_{98}^{Type}}{HH_{98}} \times CoolShare_{98}^{Type} \qquad (5)$$

The end-use saturation and efficiency trends are developed from the EIA's regional projections.

Cooling system usage levels are impacted on a monthly basis by several factors, including weather, household size, income levels, prices and billing days. Since the cooling degree days used in these models are in revenue month cycle, billing degree days is not used as a variable. Using the REEPS default elasticity parameters, the estimates for space cooling equipment usage levels are computed as follows:

$$CoolUse_{y,m} = \left(\frac{Price_{y,m}}{Price_{98}} \right)^{-0.20} \times \left(\frac{Income_{y,m}}{Income_{98}} \right)^{0.25} \times \left(\frac{HHSize_{y,m}}{HHSize_{98}} \right)^{0.25} \times \left(\frac{CDD_{y,m}}{CDD_{98}} \right) \qquad (6)$$

where $Price_{y,m}$ is the average residential real price of electricity in year (y) and month (m), $Price_{98}$ is the average residential real price of electricity in 1998, $Income_{y,m}$ is the average real income per household in a year (y) and month (m), $Income_{98}$ is the average real income per household in 1998, $HHSize_{y,m}$ is the average household size in a year (y) and month (m), $HHSize_{98}$ is the average household size in 1998, $CDD_{y,m}$ is the revenue month Cooling degree days in year (y) and month (m), and CDD_{98} is the annual Cooling degree days for 1998.

By construction, the $CoolUse_{y,m}$ variable has an annual sum that is close to one in the base year (1998). The CDD term serves to allocate annual values to months of the year. The remaining terms average to one in the base year. In other years, the values will reflect changes in the economic driver changes, as transformed through the end-use elasticity parameters. For example, if the real price of electricity goes up 10 percent relative to the base year value, the price term will contribute a multiplier of about .98 (computed as 1.10 to the -0.20 power).

Constructing XOther-Electric

Monthly estimates of non-weather sensitive sales can be derived in a similar fashion to space heating and cooling. Based on end-use concepts, other sales are driven by appliance and equipment saturation levels, appliance efficiency levels, average household size, real income, real prices, and billing days. The explanatory variable for other uses is defined as follows:

$$\text{XOther}_{y,m} = \text{OtherIndex}_{y} \times \text{OtherUse}_{y,m}$$

The methodology for constructing XOther index is the same as heating and cooling indices except for the fact that there is no weather variable used in this index.

Residential Model Specification

Residential Sales Model Specification

$$Use_{y,m} = a + b_1 \times XHeat_{y,m} + b_2 \times XCool_{y,m} + b_3 \times XOther_{y,m} + b_4 \times May\_01 + b_5 \times AR(1) + \varepsilon_{y,m}$$

where *AR(1)* is a first order autoregressive variable for the error term
May_01 is a binary variable equal to 1 only for May 2001

The results are as follows:
$R^2 = 0.987$
Adjusted $R^2 = 0.986$

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	139453.011	48016.894	2.904	0.47%
XHeat	53.002	1.390	38.143	0.00%
XCool	5.253	0.081	65.042	0.00%
XOther	0.725	0.101	7.182	0.00%
BinaryVars.May_01	-62879.657	27450.038	-2.291	2.46%
AR(1)	0.360	0.110	3.268	0.16%

Residential Customer Model Specification

$$Use_{y,m} = a + b_1 \times HH + b_2 \times AR(1) + b_3 \times SAR(1) + b_4 \times MA(1) + \varepsilon_{y,m}$$

where *HH* is the number of households in the AmerenUE Missouri service territory
AR(1) is a first order autoregressive variable for the error term
SAR(1) is a first order seasonal autoregressive variable for the error term
MA(1) is a first order moving average variable for the error term

The results are as follows:
$R^2 = 0.997$
Adjusted $R^2 = 0.997$

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	968849.062	321796.284	3.011	0.33%
Economics.HH	173.210	560.510	0.309	75.80%
AR(1)	0.992	0.013	76.194	0.00%
SAR(1)	0.665	0.090	7.354	0.00%
MA(1)	-0.172	0.106	-1.625	10.74%

Commercial SAE Model

The SAE modeling framework defines energy use in commercial sector ($USE_{y,m}$) in year (y) and month (m) as the sum of energy used by heating equipment ($Heatl_{y,m}$), cooling equipment ($Cool_{y,m}$) and other equipment ($Other_{y,m}$). Formally,

$$\text{Use}_{\text{y,m}} = \text{Heat}_{\text{y,m}} + \text{Cool}_{\text{y,m}} + \text{Other}_{\text{y,m}} \tag{1}$$

Substituting estimates for the end-use elements gives Equation 2.

$$Use_{y,m} = a + b_1 \times XHeat_{y,m} + b_2 \times XCool_{y,m} + b_3 \times XOther_{y,m} + \varepsilon_{y,m} \tag{2}$$

where $XHeat_{y,m}$, $XCool_{y,m}$, and $XOther_{y,m}$ are explanatory variables constructed from end-use information, weather data, and market data.

Constructing XHeat-Electric

Energy use by space heating systems depends on heating degree days, heating equipment share levels, heating equipment operating efficiencies, billing days, commercial output, and energy price. The heating variable is represented as the product of an annual equipment index and a monthly usage multiplier. That is,

$$\text{XHeat}_{\text{y,m}} = \text{HeatIndex}_{\text{y}} \times \text{HeatUse}_{\text{y,m}} \tag{3}$$

where $XHeat_{y,m}$ is estimated heating energy use in year (y) and month (m), $HeatIndex_y$ is the annual index of heating equipment, and $HeatUse_{y,m}$ is the monthly usage multiplier.

The *HeatIndex* is composed of electric space heating saturation levels normalized by operating efficiency levels. The index will change over time with changes in equipment saturations (*Sat*) and operating efficiencies (*Eff*). Formally, the equipment index is defined as:

$$HeatIndex_y = \left(\frac{kWh}{Sqft}\right)_{heating} \times \frac{\left(Sat_y \big/ Eff_y\right)}{\left(Sat_{98} \big/ Eff_{98}\right)} \quad (4)$$

In the above expression, 1998 is used as a base year for normalizing the index. The ratio on the right is equal to 1.0 in 1998. In other years, it will be greater than one if equipment saturation levels are above their 1998 level. This will be counteracted by higher efficiency levels, which will drive the index downward. The average space heating intensity is given in energy sales for space heating per square feet area.

The end-use saturation and efficiency trends are developed from the EIA's regional projections.

Heating system usage levels are impacted on a monthly basis by several factors, including weather, commercial level economic activity, prices and billing days. Since the heating degree days used in these models are in revenue month cycle, billing degree days is not used as a variable. Using the default elasticity parameters, the estimates for space heating equipment usage levels are computed as follows:

$$\text{HeatUse}_{y,m} = \left(\frac{\text{Price}_{y,m}}{\text{Price}_{98}}\right)^{-0.05} \times \left(\frac{\text{GMPPerEmp}_{y,m}}{\text{GMPPerEmp}_{98}}\right)^{0.35} \times \left(\frac{\text{HDD}_{y,m}}{\text{HDD}_{98}}\right) \quad (5)$$

where $Price_{y,m}$ is the average commercial real price of electricity in year (y) and month (m), $Price_{98}$ is the average commercial real price of electricity in 1998, $HDD_{y,m}$ is the revenue month heating degree days in year (y) and month (m), and HDD_{98} is the annual heating degree days for 1998.

By construction, the $HeatUse_{y,m}$ variable has an annual sum that is close to one in the base year (1998). The *HDD* term serves to allocate annual values to months of the year. The remaining terms average to one in the base year. In other years, the values will reflect changes in the economic driver changes, as transformed through the end-use elasticity parameters. For example, if the real price of electricity goes up 10 percent relative to the base year value, the price term will contribute a multiplier of about .99 (computed as 1.10 to the -0.05 power).

Constructing XCool-Electric

To construct XCool index, the same procedures as in XHeat index are followed; the only difference is that cooling degree days are used instead of heating degree days.

Constructing XOther-Electric

Monthly estimates of non-weather sensitive sales can be derived in a similar fashion to space heating and cooling. Based on end-use concepts, other sales are driven by equipment saturation levels, efficiency levels, commercial output, prices, and billing days. The explanatory variable for other uses is defined as follows:

$$XOther_{y,m} = OtherIndex_{y} \times OtherUse_{y,m}$$

The methodology for constructing other index is the same as heating and cooling indices except for the fact that there is no weather variable used in this index.

Commercial Model Specification

SGS Sales Model Specification

$$Use_{y,m} = a + b_1 \times XHeat_{y,m} + b_2 \times XCool_{y,m} + b_3 \times XOther_{y,m} + b_4 \times Sep\_95 + b_5 \times Aug\_96$$
$$+ b_6 \times Jul\_98 + b_7 \times Apr\_99 + b_8 \times May\_99 + b_9 \times Jan\_00 + b_{10} \times Mar\_00 + b_{11} \times Jun\_00$$
$$+ b_{12} \times Aug\_01 + b_{13} \times Apr\_02 + b_{14} \times May\_02 + b_{15} \times Jun\_02 + b_{16} \times Aug\_02 + b_{17} \times Nov\_02$$
$$+ b_{18} \times Dec\_02 + b_{19} \times Jan\_03 + b_{20} \times Mar\_03 + b_{21} \times AR(1) + \varepsilon_{y,m}$$

where *Sep_95* is a binary variable equal to 1 only for September 1995
Aug_96 is a binary variable equal to 1 only for August 1996
Jul_98 is a binary variable equal to 1 only for July 1998
Apr_99 is a binary variable equal to 1 only for April 1999
May_99 is a binary variable equal to 1 only for May 1999
Jan_00 is a binary variable equal to 1 only for January 2000
Mar_00 is a binary variable equal to 1 only for March 2000
Jun_00 is a binary variable equal to 1 only for June 2000
Aug_01 is a binary variable equal to 1 only for August 2001
Apr_02 is a binary variable equal to 1 only for April 2002
May_02 is a binary variable equal to 1 only for May 2002
Jun_02 is a binary variable equal to 1 only for June 2002
Aug_02 is a binary variable equal to 1 only for August 2002
Nov_02 is a binary variable equal to 1 only for November 2002
Dec_02 is a binary variable equal to 1 only for December 2002
Jan_03 is a binary variable equal to 1 only for January 2003
Mar_03 is a binary variable equal to 1 only for March 2003
AR(1) is a first order autoregressive variable for the error term

The results are as follows:
$R^2 = 0.949$
Adjusted $R^2 = 0.937$

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	93701.804	11624.864	8.060	0.00%
XHeat_SGS	0.001	0.000	14.503	0.00%
XCool_SGS	0.001	0.000	30.835	0.00%
XOther_SGS	0.000	0.000	8.969	0.00%
BinaryVars.Sep_95	17291.587	9819.849	1.761	8.17%
BinaryVars.Aug_96	-12234.949	9880.884	-1.238	21.88%
BinaryVars.Jul_98	-15569.983	9856.898	-1.580	11.77%
BinaryVars.Apr_99	22092.854	9872.658	2.238	2.77%
BinaryVars.May_99	45864.929	9916.330	4.625	0.00%
BinaryVars.Jan_00	52275.503	9809.646	5.329	0.00%
BinaryVars.Mar_00	-23134.306	9731.632	-2.377	1.96%
BinaryVars.Jun_00	28736.011	9714.970	2.958	0.40%
BinaryVars.Aug_01	-28735.828	9963.223	-2.884	0.49%
BinaryVars.Apr_02	13367.902	9987.519	1.338	18.41%
BinaryVars.May_02	50101.820	10083.954	4.968	0.00%
BinaryVars.Jun_02	-61549.639	9856.457	-6.245	0.00%
BinaryVars.Aug_02	36647.786	9944.827	3.685	0.04%
BinaryVars.Nov_02	109137.082	9933.805	10.986	0.00%
BinaryVars.Dec_02	-102908.763	10145.222	-10.144	0.00%
BinaryVars.Jan_03	-48940.500	10139.907	-4.827	0.00%
BinaryVars.Mar_03	34905.704	9733.385	3.586	0.05%
AR(1)	0.163	0.105	1.543	12.63%

SGS Customer Model Specification

$$Use_{y,m} = a + b_1 \times NonManEmp_{y,m} + b_2 \times Lag(SGS\_Cust)_{y,m-1} + b_3 \times Dec\_02$$
$$+ b_4 \times Jan\_03 + b_5 \times AR(1) + \varepsilon_{y,m}$$

where *NonManEmp* is Non-Manufacturing Employment for the AmerenUE service territory
Lag(SGS_Cust) is a one month lag of the dependant variable
Dec_02 is a binary variable equal to 1 only for December 2002
Jan_03 is a binary variable equal to 1 only for January 2003
AR(1) is a first order autoregressive variable for the error term

The results are as follows:
$R^2 = 0.999$
Adjusted $R^2 = 0.999$

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	-1909.239	1463.338	-1.305	19.48%
NonManEmp	3.066	1.796	1.707	9.08%
Lag(SGS_Cust)	0.981	0.011	92.543	0.00%
BinaryVars.Dec_02	7849.175	296.049	26.513	0.00%
BinaryVars.Jan_03	-6348.990	312.961	-20.287	0.00%
AR(1)	0.141	0.096	1.471	14.44%

LGS Sales Model Specification

$$Use_{y,m} = a + b_1 \times XCool_{y,m} + b_2 \times XOther_{y,m} + b_3 \times TrendVar + b_4 \times Sep\_95 + b_5 \times Dec\_98$$
$$+ b_6 \times Apr\_99 + b_7 \times Feb\_00 + b_8 \times Mar\_00 + b_9 \times Jun\_00 + b_{10} \times Jan\_01 + b_{11} \times Nov\_01$$
$$+ b_{12} \times Feb\_02 + b_{13} \times Mar\_02 + b_{14} \times Nov\_03 + b_{15} \times Dec\_03 + b_{16} \times AR(1) + \varepsilon_{y,m}$$

where *TrendVar* is variable that captures unexplained positive or negative trends
Sep_95 is a binary variable equal to 1 only for September 1995
Dec_98 is a binary variable equal to 1 only for December 1998
Apr_99 is a binary variable equal to 1 only for April 1999
Feb_00 is a binary variable equal to 1 only for February 2000
Mar_00 is a binary variable equal to 1 only for March 2000
Jun_00 is a binary variable equal to 1 only for June 2000
Jan_01 is a binary variable equal to 1 only for January 2001
Nov_01 is a binary variable equal to 1 only for November 2001
Feb_02 is a binary variable equal to 1 only for February 2002
Mar_02 is a binary variable equal to 1 only for March 2002
Nov_03 is a binary variable equal to 1 only for November 2003
Dec_03 is a binary variable equal to 1 only for December 2003
AR(1) is a first order autoregressive variable for the error term

The results are as follows:
$R^2 = 0.917$
Adjusted $R^2 = 0.899$

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	137963.015	32116.971	4.296	0.01%
XCool_LGS	0.589	0.038	15.485	0.00%
XOther_LGS	0.376	0.068	5.504	0.00%
BinaryVars.TrendVar	10844.979	1556.620	6.967	0.00%
BinaryVars.Sep_95	0.000	0.000	0.000	100.00%
BinaryVars.Dec_98	-118169.984	19344.833	-6.109	0.00%
BinaryVars.Apr_99	45721.770	19061.256	2.399	1.91%
BinaryVars.Feb_00	56722.065	19888.473	2.852	0.57%
BinaryVars.Mar_00	-25756.704	19761.243	-1.303	19.67%
BinaryVars.Jun_00	55611.700	19382.363	2.869	0.54%
BinaryVars.Jan_01	105698.698	19799.464	5.338	0.00%
BinaryVars.Nov_01	-48151.575	19096.289	-2.522	1.39%
BinaryVars.Feb_02	79932.642	19880.779	4.021	0.01%
BinaryVars.Mar_02	-70207.964	19902.971	-3.528	0.07%
BinaryVars.Nov_03	-30750.686	20714.703	-1.484	14.21%
BinaryVars.Dec_03	38698.858	20262.233	1.910	6.02%
AR(1)	0.276	0.121	2.280	2.56%

LGS Customer Model Specification

$$Use_{y,m} = a + b_1 \times Lag(LGS\_Cust)_{y,m-1} + b_2 \times GDP_{y,m} + b_3 \times Dec\_98 + b_4 \times Jan\_99$$
$$+ b_5 \times Mar\_99 + b_6 \times Jan\_01 + b_7 \times AR(1) + \varepsilon_{y,m}$$

where *Lag(LGS_Cust)* is a one month lag of the dependant variable
GDP is the GDP for the AmerenUE service territory
Dec_98 is a binary variable equal to 1 only for December 1998
Jan_99 is a binary variable equal to 1 only for January 1999
Mar_99 is a binary variable equal to 1 only for March 1999
Jan_01 is a binary variable equal to 1 only for January 2001
AR(1) is a first order autoregressive variable for the error term

The results are as follows:
R^2 = 0.994
Adjusted R^2 = 0.993

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	20724.618	74063.281	0.280	78.02%
Lag(LGS_Cust)	-0.073	0.073	-1.005	31.71%
Economics.GDP	0.007	0.038	0.177	85.96%
BinaryVars.Dec_98	-1706.829	55.030	-31.016	0.00%
BinaryVars.Jan_99	-682.280	108.878	-6.266	0.00%
BinaryVars.Mar_99	-180.559	53.758	-3.359	0.11%
BinaryVars.Jan_01	305.499	47.191	6.474	0.00%
AR(1)	0.998	0.008	125.518	0.00%

Primary Service Sales Model Specification

Total commercial primary sales were modeled using an econometric approach. The small primary service was modeled using an exponential trend, and then its share of the total was calculated. Applying that share to the modeled total primary sales yields the final forecast for both small and large primary service sales.

$$Use_{y,m} = a + b_1 \times CDD_{y,m} + b_2 \times GDP_{y,m} + b_3 \times Jan\_00 + b_4 \times Feb\_00 + b_5 \times Feb\_01$$
$$+ b_6 \times Mar\_01 + b_7 \times May\_01 + b_8 \times Mar\_02 + b_9 \times Apr\_02 + b_{10} \times Dec\_02 + b_{11} \times Jan\_03$$
$$+ b_{12} \times AR(1) + b_{13} \times MA(1) + \varepsilon_{y,m}$$

where *CDD* is the number of cooling degree days in revenue month (m)and year (y)
GDP is the GDP of the AmerenUE service territory
Jan_00 is a binary variable equal to 1 only for January 2000
Feb_00 is a binary variable equal to 1 only for February 2000
Feb_01 is a binary variable equal to 1 only for February2001

Mar_01 is a binary variable equal to 1 only for March 2001
Mar_02 is a binary variable equal to 1 only for March 2002
Apr_02 is a binary variable equal to 1 only for April 2002
Dec_02 is a binary variable equal to 1 only for December 2002
Jan_03 is a binary variable equal to 1 only for January 2003
AR(1) is a first order autoregressive variable for the error term
MA(1) is a first order moving average variable for the error term

The results are as follows:
R^2 = 0.946
Adjusted R^2 = 0.910

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	-26645.35	66411.67	-0.40	69.11%
CDD	144.14	11.62	12.40	0.00%
Economics.GDP	2.72	0.59	4.62	0.01%
BinaryVars.Jan_00	86858.09	15565.03	5.58	0.00%
BinaryVars.Feb_00	77402.97	20053.71	3.86	0.06%
BinaryVars.Feb_01	68901.47	12977.72	5.31	0.00%
BinaryVars.Mar_01	-58872.00	12863.85	-4.58	0.01%
BinaryVars.May_01	-51435.90	12738.20	-4.04	0.03%
BinaryVars.Mar_02	41549.35	13547.33	3.07	0.46%
BinaryVars.Apr_02	-52515.80	12853.36	-4.09	0.03%
BinaryVars.Dec_02	-24992.02	13190.71	-1.89	6.78%
BinaryVars.Jan_03	38094.69	12782.72	2.98	0.57%
AR(1)	-0.67	0.18	-3.82	0.06%
MA(1)	1.27	0.20	6.53	0.00%

Primary Service Customer Model Specification

Total commercial primary customers were modeled using an econometric approach. The small primary service was modeled using an exponential trend, and then its share of the total was calculated. Applying that share to the modeled total primary customers yields the final forecast for both small and large primary service customers.

$$Use_{y,m} = a + b_1 \times NonManEmp_{y,m} + b_2 \times Lag(SPS\_Cust)_{y,m-1} + b_3 \times Dec\_98 + b_4 \times Jan\_99$$
$$+ b_5 \times Oct\_99 + b_6 \times Nov\_99 + b_7 \times Jan\_00 + b_8 \times Mar\_00 + b_9 \times Jan\_01 + b_{10} \times Mar\_01$$
$$+ b_{11} \times Apr\_02 + b_{12} \times Dec\_02 + b_{13} \times AR(1) + b_{14} \times MA(1) + \varepsilon_{y,m}$$

where *NonManEmp* is the Non-Manufacturing Empl. Index for the AmerenUE Service territory
Lag(SPS_Cust) is a one month lag of the dependant variable
Dec_98 is a binary variable equal to 1 only for December 1998
Jan_99 is a binary variable equal to 1 only for January 1999
Oct_99 is a binary variable equal to 1 only for October 1999

Nov_99 is a binary variable equal to 1 only for March 1999
Jan_00 is a binary variable equal to 1 only for January 2000
Mar_00 is a binary variable equal to 1 only for March 2000
Jan_01 is a binary variable equal to 1 only for January 2001
Mar_01 is a binary variable equal to 1 only for March 2001
Apr_02 is a binary variable equal to 1 only for April 2002
Dec_02 is a binary variable equal to 1 only for December 2002
AR(1) is a first order autoregressive variable for the error term
MA(1) is a first order moving average variable for the error term

The results are as follows:
$R^2 = 0.959$
Adjusted $R^2 = 0.953$

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	-70.729	17.406	-4.063	0.01%
NonManEmp_Ind	123.778	23.192	5.337	0.00%
Lag(SPS_Cust)	0.830	0.029	28.796	0.00%
BinaryVars.Dec_98	-234.156	9.183	-25.498	0.00%
BinaryVars.Jan_99	107.183	12.853	8.339	0.00%
BinaryVars.Oct_99	-33.949	9.617	-3.530	0.06%
BinaryVars.Nov_99	-42.585	9.759	-4.364	0.00%
BinaryVars.Jan_00	36.544	8.778	4.163	0.01%
BinaryVars.Mar_00	-17.780	8.104	-2.194	3.06%
BinaryVars.Jan_01	8.830	8.126	1.087	27.99%
BinaryVars.Mar_01	-24.181	8.099	-2.986	0.36%
BinaryVars.Apr_02	-21.583	7.980	-2.705	0.81%
BinaryVars.Dec_02	11.923	8.378	1.423	15.79%
AR(1)	-0.287	0.180	-1.589	11.54%
MA(1)	-0.345	0.190	-1.816	7.25%

Dusk-to-Dawn Sales Model Specification

$$Use_{y,m} = a + b_1 \times Jan + b_2 \times Feb + b_3 \times Mar + b_4 \times Apr + b_5 \times May + b_6 \times Jun$$
$$+ b_7 \times Jul + b_8 \times Aug + b_9 \times Sep + b_{10} \times Oct + b_{11} \times Nov + b_{12} \times GDP_{y,m} + b_{13} \times Jan\_02$$
$$+ b_{14} \times May\_02 + b_{15} \times Jun\_02 + b_{16} \times Aug\_02 + b_{17} \times Jan\_03 + b_{18} \times Feb\_03$$
$$+ b_{19} \times Jan\_04 + b_{20} \times Feb\_04 + b_{21} \times AR(1) + \varepsilon_{y,m}$$

where *Jan* is a binary variable equal to 1 only for January
Feb is a binary variable equal to 1 only for February
Mar is a binary variable equal to 1 only for March
Apr is a binary variable equal to 1 only for April
May is a binary variable equal to 1 only for May

Jun is a binary variable equal to 1 only for June
Jul is a binary variable equal to 1 only for July
Aug is a binary variable equal to 1 only for August
Sep is a binary variable equal to 1 only for September
Oct is a binary variable equal to 1 only for October
Nov is a binary variable equal to 1 only for November
GDP is the GDP for the AmerenUE service territory
Jan_02 is a binary variable equal to 1 only for January 2002
May_02 is a binary variable equal to 1 only for May 2002
Jun_02 is a binary variable equal to 1 only for June 2002
Aug_02 is a binary variable equal to 1 only for August 2002
Jan_03 is a binary variable equal to 1 only for January 2003
Feb_03 is a binary variable equal to 1 only for February 2003
Jan_04 is a binary variable equal to 1 only for January 2004
Feb_04 is a binary variable equal to 1 only for February 2004
AR(1) is a first order autoregressive variable for the error term

The results are as follows:
$R^2 = 0.986$
Adjusted $R^2 = 0.983$

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	8226.802	551.927	14.906	0.00%
BinaryVars.Jan	-191.733	71.674	-2.675	0.89%
BinaryVars.Feb	-1580.090	81.442	-19.402	0.00%
BinaryVars.Mar	-1596.438	85.047	-18.771	0.00%
BinaryVars.Apr	-2656.298	89.590	-29.649	0.00%
BinaryVars.May	-3266.550	93.551	-34.917	0.00%
BinaryVars.Jun	-3767.572	94.289	-39.958	0.00%
BinaryVars.Jul	-3498.294	92.163	-37.958	0.00%
BinaryVars.Aug	-2976.585	92.829	-32.065	0.00%
BinaryVars.Sep	-2373.044	87.169	-27.223	0.00%
BinaryVars.Oct	-1434.874	78.742	-18.222	0.00%
BinaryVars.Nov	-879.399	62.018	-14.180	0.00%
Economics.GDP	0.017	0.005	3.270	0.15%
BinaryVars.Jan_02	-218.456	153.791	-1.420	15.89%
BinaryVars.May_02	-535.922	169.447	-3.163	0.21%
BinaryVars.Jun_02	327.040	169.033	1.935	5.62%
BinaryVars.Aug_02	-395.693	151.342	-2.615	1.05%
BinaryVars.Jan_03	742.548	172.777	4.298	0.00%
BinaryVars.Feb_03	722.820	170.484	4.240	0.01%
BinaryVars.Jan_04	894.668	172.516	5.186	0.00%
BinaryVars.Feb_04	580.417	170.354	3.407	0.10%
AR(1)	0.619	0.083	7.473	0.00%

Dusk-to-Dawn Customer Model Specification

$$Use_{y,m} = a + b_1 \times Price + b_2 \times After\_02 + b_3 \times Before\_Oct98 + b_4 \times Jan02thruJun03 + b_5 \times AR(1) + b_6 \times MA(1) + \varepsilon_{y,m}$$

where *Price* is the 12-month moving average real price for Dusk-to-Dawn service
After_02 is a binary variable equal to 1 only for data after 2002
Before_Oct98 is a binary variable equal to 1 only for data before October 1998
Jan02thruJun03 is a binary variable equal to 1 only data from Jan. 202 thru June 2003
AR(1) is a first order autoregressive variable for the error term
MA(1) is a first order moving average variable for the error term

The results are as follows:
$R^2 = 0.997$
Adjusted $R^2 = 0.996$

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	53346.256	13051.223	4.087	0.01%
CDtD_Prc_Ind	-857.397	11697.358	-0.073	94.17%
BinaryVars.Aft02	797.652	1761.424	0.453	65.16%
BinaryVars.BeforeOct98	-52675.005	6635.927	-7.938	0.00%
BinaryVars.Jan02thruJun03	-41297.291	1269.541	-32.529	0.00%
AR(1)	0.977	0.020	49.943	0.00%
MA(1)	0.077	0.531	0.144	88.56%

Street Lighting and Public Authority Sales Model Specification

$$Use_{y,m} = a + b_1 \times Feb + b_2 \times Mar + b_3 \times Apr + b_4 \times May + b_5 \times Jun + b_6 \times Jul + b_7 \times Aug + b_8 \times Sep + b_9 \times Oct + b_{10} \times Nov + b_{11} \times GDP_{y,m} + b_{12} \times 99\text{thru}01 + b_{13} \times AR(1) + \varepsilon_{y,m}$$

where *Feb* is a binary variable equal to 1 only for February
Mar is a binary variable equal to 1 only for March
Apr is a binary variable equal to 1 only for April
May is a binary variable equal to 1 only for May
Jun is a binary variable equal to 1 only for June
Jul is a binary variable equal to 1 only for July
Aug is a binary variable equal to 1 only for August
Sep is a binary variable equal to 1 only for September
Oct is a binary variable equal to 1 only for October
Nov is a binary variable equal to 1 only for November

GDP is the GDP index for the AmerenUE service territory
99thru01 is a binary variable equal to 1 for data from 1999 thru 2001
AR(1) is a first order autoregressive variable for the error term

The results are as follows:
$R^2 = 0.965$
Adjusted $R^2 = 0.959$

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	8996.751	664.407	13.541	0.00%
BinaryVars.Feb	-917.115	197.454	-4.645	0.00%
BinaryVars.Mar	-1469.330	220.614	-6.660	0.00%
BinaryVars.Apr	-2219.231	197.135	-11.257	0.00%
BinaryVars.May	-3053.603	203.346	-15.017	0.00%
BinaryVars.Jun	-3307.591	196.961	-16.793	0.00%
BinaryVars.Jul	-3499.637	196.741	-17.788	0.00%
BinaryVars.Aug	-3261.269	210.742	-15.475	0.00%
BinaryVars.Sep	-2719.414	216.093	-12.584	0.00%
BinaryVars.Oct	-1940.267	211.509	-9.173	0.00%
BinaryVars.Nov	-1189.889	204.887	-5.808	0.00%
EconVars.GDP_Ind	2771.369	530.348	5.226	0.00%
BinaryVars.Year1999thru2001	-4631.730	120.856	-38.325	0.00%
AR(1)	0.072	0.034	2.087	3.98%

Street Lighting and Public Authority Customer Model Specification

$$Use_{y,m} = a + b_1 \times 99thru01 + b_2 \times Jan\_Apr02 + b_3 \times Dec\_98 + b_4 \times Dec\_02 + b_5 \times Pop$$
$$+ b_6 \times AR(1) + \varepsilon_{y,m}$$

where *99thru01* is a binary variable equal to 1 for data from 1999 thru 2001
Jan_Apr02 is a binary variable equal to 1 for data from Jan. 2002 thru April 2002
Dec_98 is a binary variable equal to 1 only for December 1998
Dec_02 is a binary variable equal to 1 only for December 2002
AR(1) is a first order autoregressive variable for the error term

The results are as follows:
$R^2 = 0.977$
Adjusted $R^2 = 0.976$

Variable	Coefficient	StdErr	T-Stat	P-Value
BinaryVars.Year99_to_01	-104.539	10.231	-10.217	0.00%
BinaryVars.Jan_Apr02	112.346	9.296	12.085	0.00%
BinaryVars.Dec_98	-284.837	9.338	-30.505	0.00%
BinaryVars.Dec_02	21.894	7.844	2.791	0.62%
Economics.Pop	1.156	0.009	122.087	0.00%
AR(1)	0.914	0.038	24.124	0.00%

Wholesale Sales Model Specification

$$Use_{y,m} = a + b_1 \times HDD_{y,m} + b_2 \times CDD_{y,m} + b_3 \times Feb + b_4 \times NonManEmp_{y,m} + b_5 \times Jul\_03$$
$$+ b_6 \times Dec\_03 + b_7 \times AR(1) + \varepsilon_{y,m}$$

where *HDD* is the number of heating degree days in any given revenue month and year
CDD is the number of cooling degree days in any given revenue month and year
Feb is a binary variable equal to 1 only for February
NonManEmp is the Non-Manufacturing Empl. Index for the AmerenUE service territory
Jul_03 is a binary variable equal to 1 only for July 2003
Dec_03 is a binary variable equal to 1 only for December 2003
AR(1) is a first order autoregressive variable for the error term

The results are as follows:
R^2 = 0.858
Adjusted R^2 = 0.845

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	115887.842	148941.932	0.778	43.88%
CalWthrVars.HDD	16.546	2.129	7.772	0.00%
CalWthrVars.CDD	64.466	4.166	15.473	0.00%
BinaryVars.Feb	-3860.363	1205.488	-3.202	0.20%
EconVars.NonManEmp_Ind	-57263.904	124343.635	-0.461	64.64%
BinaryVars.Jul_03	-17191.686	3298.129	-5.213	0.00%
BinaryVars.Dec_03	-7959.858	3267.090	-2.436	1.71%
AR(1)	0.819	0.078	10.518	0.00%

Industrial Model Specification

Total industrial sales were modeled using an econometric approach. The individual revenue class sales within the industrial class were modeled using an exponential trend, and then their respective shares of the total were calculated. Applying those shares to the modeled total industrial sales yields the final forecast for the individual revenue classes.

Industrial Sales Model Specification

$$Use_{y,m} = a + b_1 \times CoolingVar_{y,m} + b_2 \times After2000 + b_3 \times Sep\_96 + b_4 \times Dec\_98 + b_5 \times Jan\_99$$
$$+ b_6 \times Feb\_99 + b_7 \times Apr\_99 + b_8 \times May\_99 + b_9 \times Sep\_99 + b_{10} \times Oct\_99 + b_{11} \times Nov\_99$$
$$+ b_{12} \times Dec\_99 + b_{13} \times Jan\_00 + b_{14} \times Apr\_00 + b_{15} \times Aug\_00 + b_{16} \times Jan\_01 + b_{17} \times Feb\_01$$
$$+ b_{18} \times Mar\_01 + b_{19} \times Sep\_01 + b_{20} \times Dec\_01 + b_{21} \times Jan\_02 + b_{22} \times Mar\_02 + b_{23} \times Apr\_02$$
$$+ b_{24} \times Jul\_02 + b_{25} \times Dec\_02 + \varepsilon_{y,m}$$

where *CoolingVar* is an interaction variable between the industrial price elasticity and CDD
After2000 is a binary variable equal to 1 only for data after 2000

Sep_96 is a binary variable equal to 1 only for September 1996
Dec_98 is a binary variable equal to 1 only for December 1998
Jan_99 is a binary variable equal to 1 only for January 1999
Feb_99 is a binary variable equal to 1 only for February 1999
Apr_99 is a binary variable equal to 1 only for April 1999
May_99 is a binary variable equal to 1 only for May 1999
Sep_99 is a binary variable equal to 1 only for September 1999
Oct_99 is a binary variable equal to 1 only for October1999
Nov_99 is a binary variable equal to 1 only for November 1999
Dec_99 is a binary variable equal to 1 only for December 1999
Jan_00 is a binary variable equal to 1 only for January 2000
Apr_00 is a binary variable equal to 1 only for April 2000
Aug_00 is a binary variable equal to 1 only for August 2000
Jan_01 is a binary variable equal to 1 only for January 2001
Feb_01 is a binary variable equal to 1 only for February 2001
Mar_01 is a binary variable equal to 1 only for March 2001
Sep_01 is a binary variable equal to 1 only for September 2001
Dec_01 is a binary variable equal to 1 only for December 2001
Jan_02 is a binary variable equal to 1 only for January 2002
Mar_02 is a binary variable equal to 1 only for March 2002
Apr_02 is a binary variable equal to 1 only for April 2002
Jul_02 is a binary variable equal to 1 only for July 2002
Dec_02 is a binary variable equal to 1 only for December 2002

The results are as follows:
$R^2 = 0.936$
Adjusted $R^2 = 0.918$

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	504581.954	2685.256	187.908	0.00%
RevStrucVars.CoolingVar	159.181	10.974	14.506	0.00%
BinaryVars.After2000	-30825.009	3774.714	-8.166	0.00%
BinaryVars.Sep_96	160955.185	17616.118	9.137	0.00%
BinaryVars.Dec_98	-265252.085	17552.013	-15.112	0.00%
BinaryVars.Jan_99	-117285.954	17552.526	-6.682	0.00%
BinaryVars.Feb_99	129524.046	17552.526	7.379	0.00%
BinaryVars.Apr_99	58791.115	17541.534	3.352	0.12%
BinaryVars.May_99	122794.475	17517.892	7.010	0.00%
BinaryVars.Sep_99	41945.450	17579.322	2.386	1.92%
BinaryVars.Oct_99	19502.768	17498.979	1.115	26.81%
BinaryVars.Nov_99	-59344.982	17536.565	-3.384	0.11%
BinaryVars.Dec_99	92022.823	17550.393	5.243	0.00%
BinaryVars.Jan_00	66671.046	17552.526	3.798	0.03%
BinaryVars.Apr_00	68780.565	17551.767	3.919	0.02%
BinaryVars.Aug_00	20282.249	17686.322	1.147	25.46%
BinaryVars.Jan_01	61624.055	17682.012	3.485	0.08%
BinaryVars.Feb_01	128686.055	17682.012	7.278	0.00%
BinaryVars.Mar_01	-43723.945	17682.012	-2.473	1.54%

BinaryVars.Sep_01	48953.872	17753.909	2.757	0.71%
BinaryVars.Dec_01	64556.055	17682.012	3.651	0.04%
BinaryVars.Jan_02	-29341.945	17682.012	-1.659	10.06%
BinaryVars.Mar_02	97773.932	17682.012	5.530	0.00%
BinaryVars.Apr_02	-120819.877	17653.170	-6.844	0.00%
BinaryVars.Jul_02	-58196.940	18011.405	-3.231	0.17%
BinaryVars.Dec_02	-215066.757	17682.012	-12.163	0.00%

Industrial General Service Customer Model Specification

Total industrial general service customers were modeled using an econometric approach. The small general service customers were modeled using an exponential trend, and then its share of the total general service was calculated. Applying that share to the modeled general service customers yields the final forecast for both the small and large general service customers.

$$Use_{y,m} = a + b_1 \times Jan\_99 + b_2 \times Feb\_99 + b_3 \times Feb\_00 + b_4 \times Mar\_00 + b_5 \times Jan\_01$$
$$+ b_6 \times Jan\_02 + b_7 \times Dec\_02 + b_8 \times Jan\_03 + b_9 \times Feb\_03 + b_{10} \times Pop_{y,m} + b_{11} \times AR(1) + \varepsilon_{y,m}$$

where *Jan_99* is a binary variable equal to 1 only for January 1999
Feb_99 is a binary variable equal to 1 only for February 1999
Feb_00 is a binary variable equal to 1 only for February 2000
Mar_00 is a binary variable equal to 1 only for March 2000
Jan_01 is a binary variable equal to 1 only for January 2001
Jan_02 is a binary variable equal to 1 only for January 2002
Dec_02 is a binary variable equal to 1 only for December 2002
Jan_03 is a binary variable equal to 1 only for January 2003
Feb_03 is a binary variable equal to 1 only for February 2003
Pop is the population for the AmerenUE service territory
AR(1) is a first order autoregressive variable for the error term

The results are as follows:
$R^2 = 0.979$
Adjusted $R^2 = 0.976$

Variable	Coefficient	StdErr	T-Stat	P-Value
BinaryVars.Jan_99	-39.122	30.317	-1.290	20.25%
BinaryVars.Feb_99	78.478	20.712	3.789	0.04%
BinaryVars.Feb_00	-57.270	16.349	-3.503	0.09%
BinaryVars.Mar_00	-35.603	16.349	-2.178	3.39%
BinaryVars.Jan_01	66.527	14.155	4.700	0.00%
BinaryVars.Jan_02	48.028	14.155	3.393	0.13%
BinaryVars.Dec_02	265.826	17.333	15.336	0.00%
BinaryVars.Jan_03	257.603	20.014	12.871	0.00%
BinaryVars.Feb_03	141.331	17.333	8.154	0.00%
Economics.Pop	3.185	1.958	1.627	10.96%
AR(1)	0.992	0.023	44.084	0.00%

Economic Data

AmerenUE – Missouri

Service Territory Economic Data

[redacted]

Service Territory Economic Data

Total Employment

[redacted]

AmerenUE – Missouri

Service Territory Economic Data

Manufacturing Employment

[redacted]

AmerenUE - Missouri
Employment

[redacted]

AmerenUE – Missouri
Service Territory Economic Data

Total GDP

[redacted]

AmerenUE – Missouri
Service Territory Economic Data

Manufacturing GDP

[redacted]

AmerenUE - Missouri
GDP

[redacted]

AmerenUE – Missouri
Service Territory Economic Data

Real Personal Income

[redacted]

AmerenUE - Missouri
Real Persoanl Income

[redacted]

AmerenUE – Missouri
Service Territory Economic Data

Population

[redacted]

AmerenUE - Missouri
Population

[redacted]

AmerenUE – Missouri
Service Territory Economic Data

Households

[redacted]

AmerenUE - Missouri
Households

[redacted]

AmerenUE – Missouri
Service Territory Economic Data

Household Size

[redacted]

AmerenUE - Missouri

Household Size

[redacted]

AmerenUE – Missouri
Service Territory Economic Data

Household Income

[redacted]

AmerenUE - Missouri
Household Income

[redacted]

Total System Energy Usage, Demand, and Customers

AmerenUE – Missouri

Total System Energy Use (GWh) by Sector

Total System (GWh)				
Year	Residential	Commercial	Industrial	Total
1995	N.A.	11,152.4	6,056.5	N.A.
1996	N.A.	11,577.0	6,409.0	N.A.
1997	10,938.5	11,674.4	6,365.3	28,978.1
1998	11,443.0	12,554.8	6,137.9	30,135.6
1999	11,329.4	13,598.9	6,616.6	31,544.9
2000	11,669.1	13,732.9	6,511.3	31,913.4
2001	12,147.6	13,902.5	6,248.9	32,299.0
2002	12,811.7	14,212.0	5,730.7	32,754.3
2003	12,300.3	14,226.0	5,864.1	32,390.4
[redacted]				
*1997 Commercial does not include Wholesale				

AmerenUE – Missouri

Total System Energy Use (GWh) – Revenue Month

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
1996	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1997	2,707	2,519	2,323	2,155	1,965	2,198	2,876	3,031	2,744	2,320	2,237	2,493	*N.A.*
1998	2,739	2,476	2,401	2,184	2,121	2,685	3,123	2,986	2,938	2,443	2,180	1,861	*1.9%*
1999	2,638	2,683	2,438	2,426	2,322	2,641	3,089	3,399	2,935	2,309	2,137	2,528	*4.7%*
2000	2,955	2,830	2,286	2,228	2,157	2,655	3,019	3,091	3,147	2,415	2,336	2,793	*1.2%*
2001	3,294	2,871	2,436	2,312	2,274	2,585	3,114	3,376	3,087	2,304	2,175	2,470	*1.2%*
2002	2,891	2,697	2,598	2,281	2,300	2,593	3,308	3,504	3,192	2,576	2,438	2,375	*1.4%*
2003	2,887	2,879	2,707	2,262	2,214	2,392	3,129	3,236	3,145	2,416	2,383	2,741	*-1.1%*

[redacted]

*Commercial Wholesale data begins March 1997

AmerenUE – Missouri

Total System Summer/Nonsummer Energy Use (GWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	10,849	N.A.	18,719	N.A.
1998	11,732	8.1%	18,404	-1.7%
1999	12,064	2.8%	19,481	5.9%
2000	11,912	-1.3%	20,001	2.7%
2001	12,162	2.1%	20,137	0.7%
2002	12,598	3.6%	20,157	0.1%
2003	11,901	-5.5%	20,490	1.7%

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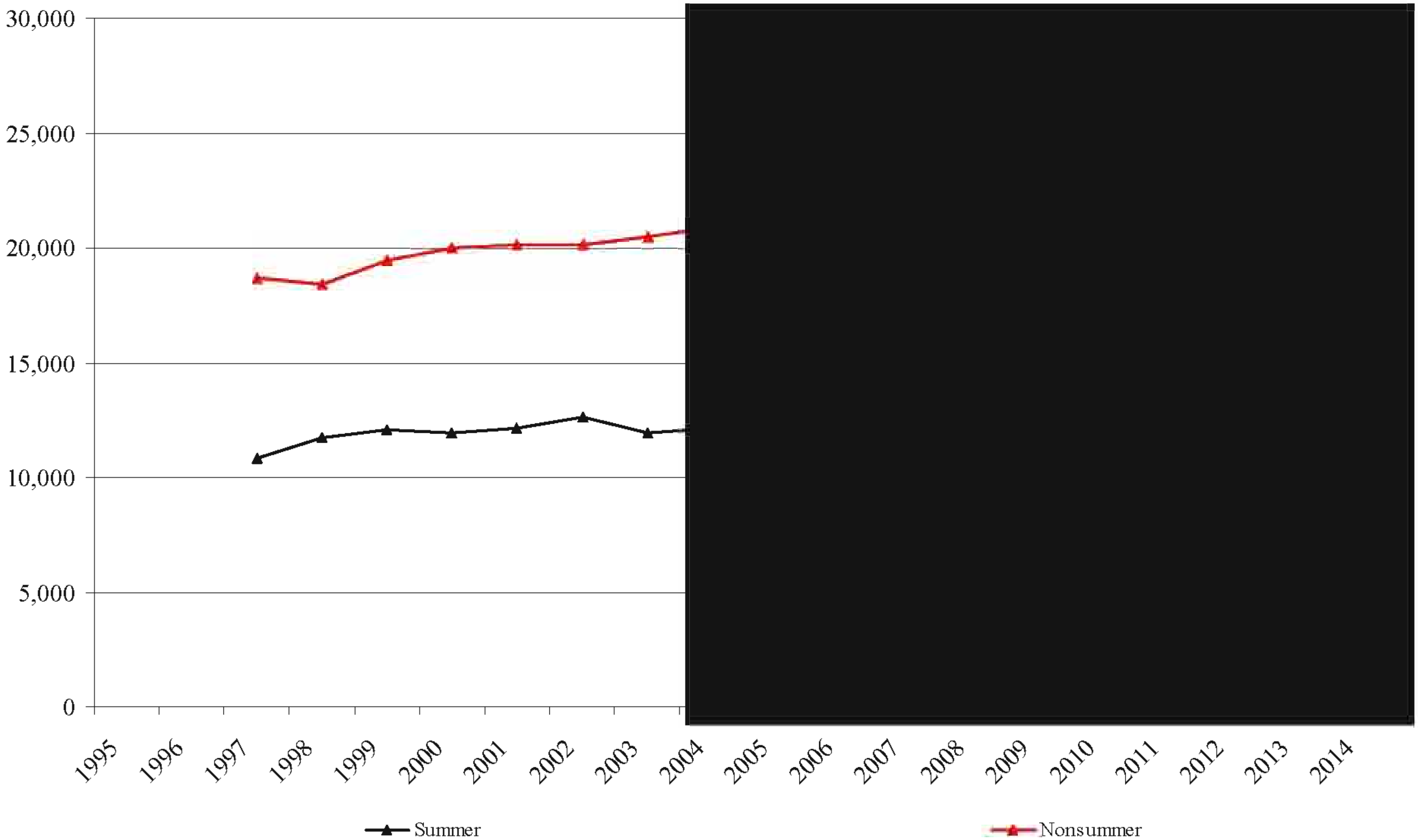
AmerenUE - Missouri
Total System Energy Use (GWh)



[redacted]

AmerenUE – Missouri

Net System Peak Demand

[redacted]

Net System Peak Demand
Summer & Winter Peak

[redacted]

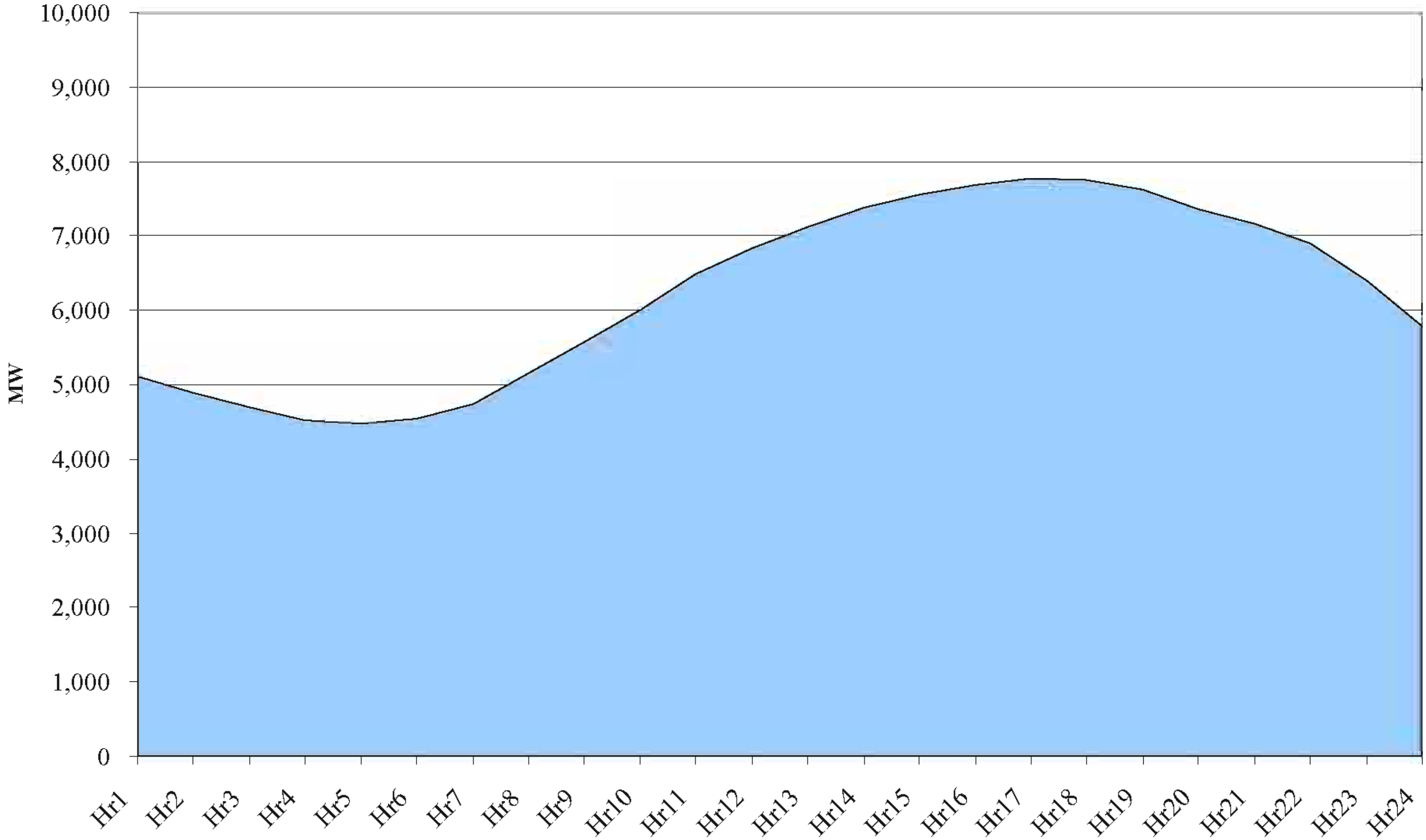
AmerenUE – Missouri

Total System Summer/Winter Peak Load Profiles

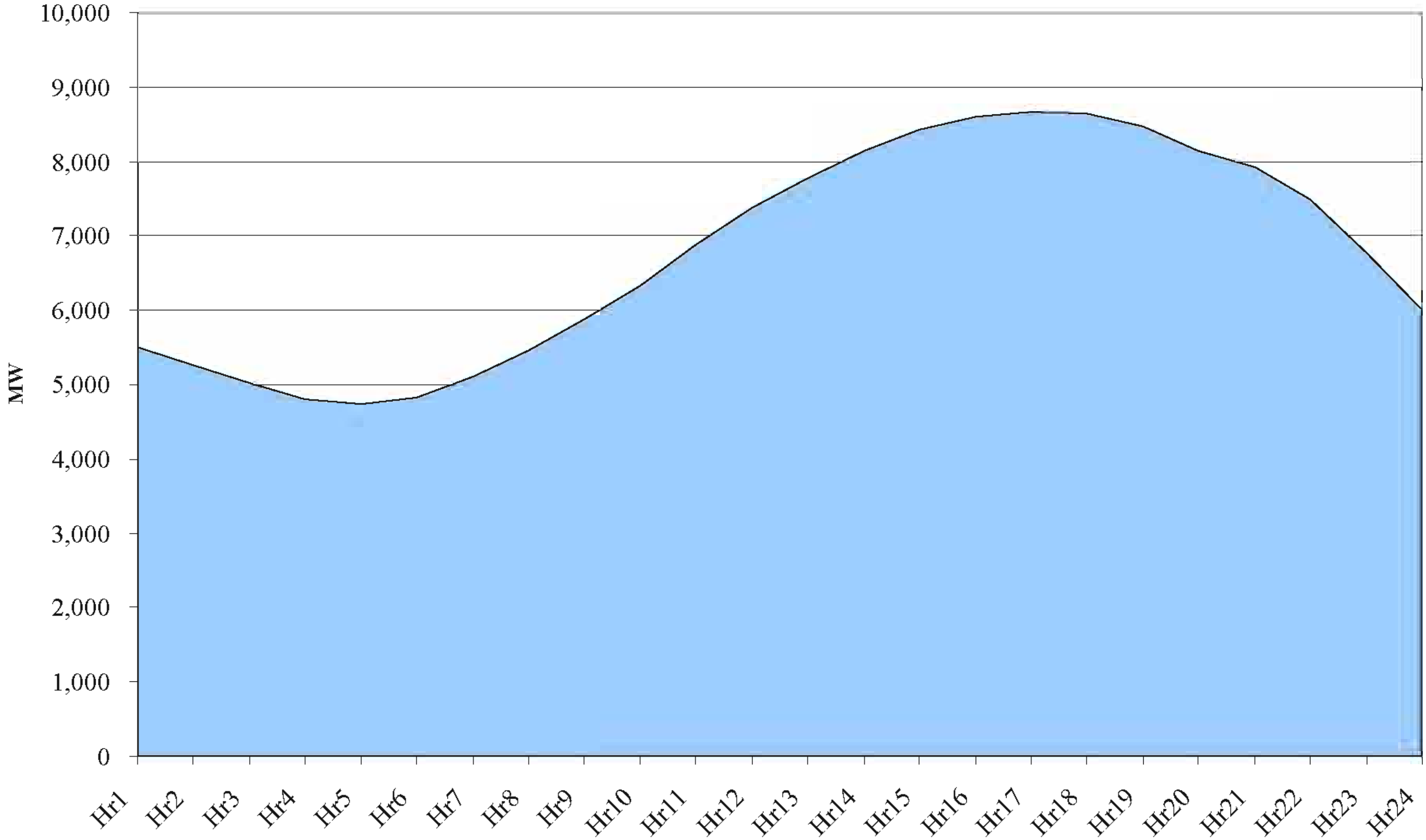
	Summer			Winter		
Hour	1999 MW	2003 MW	2014 MW	1999 MW	2003 MW	2014 MW
1	5,111	5,498	[redacted]	4,280	4,623	[redacted]
2	4,882	5,270	[redacted]	4,262	4,589	[redacted]
3	4,685	5,024	[redacted]	4,329	4,625	[redacted]
4	4,514	4,814	[redacted]	4,386	4,666	[redacted]
5	4,481	4,735	[redacted]	4,502	4,783	[redacted]
6	4,552	4,832	[redacted]	4,789	5,101	[redacted]
7	4,733	5,117	[redacted]	5,207	5,530	[redacted]
8	5,142	5,461	[redacted]	5,362	5,654	[redacted]
9	5,574	5,872	[redacted]	5,302	5,581	[redacted]
10	5,998	6,324	[redacted]	5,207	5,479	[redacted]
11	6,474	6,873	[redacted]	5,131	5,396	[redacted]
12	6,845	7,381	[redacted]	5,020	5,278	[redacted]
13	7,128	7,779	[redacted]	4,909	5,153	[redacted]
14	7,373	8,154	[redacted]	4,815	5,056	[redacted]
15	7,545	8,423	[redacted]	4,726	4,971	[redacted]
16	7,682	8,600	[redacted]	4,738	4,980	[redacted]
17	7,765	8,677	[redacted]	4,895	5,142	[redacted]
18	7,746	8,646	[redacted]	5,215	5,507	[redacted]
19	7,617	8,469	[redacted]	5,292	5,606	[redacted]
20	7,348	8,139	[redacted]	5,252	5,579	[redacted]
21	7,162	7,934	[redacted]	5,199	5,521	[redacted]
22	6,896	7,493	[redacted]	5,069	5,364	[redacted]
23	6,403	6,779	[redacted]	4,847	5,086	[redacted]
24	5,788	6,009	[redacted]	4,568	4,789	[redacted]

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Total System Summer Peak Load Profile



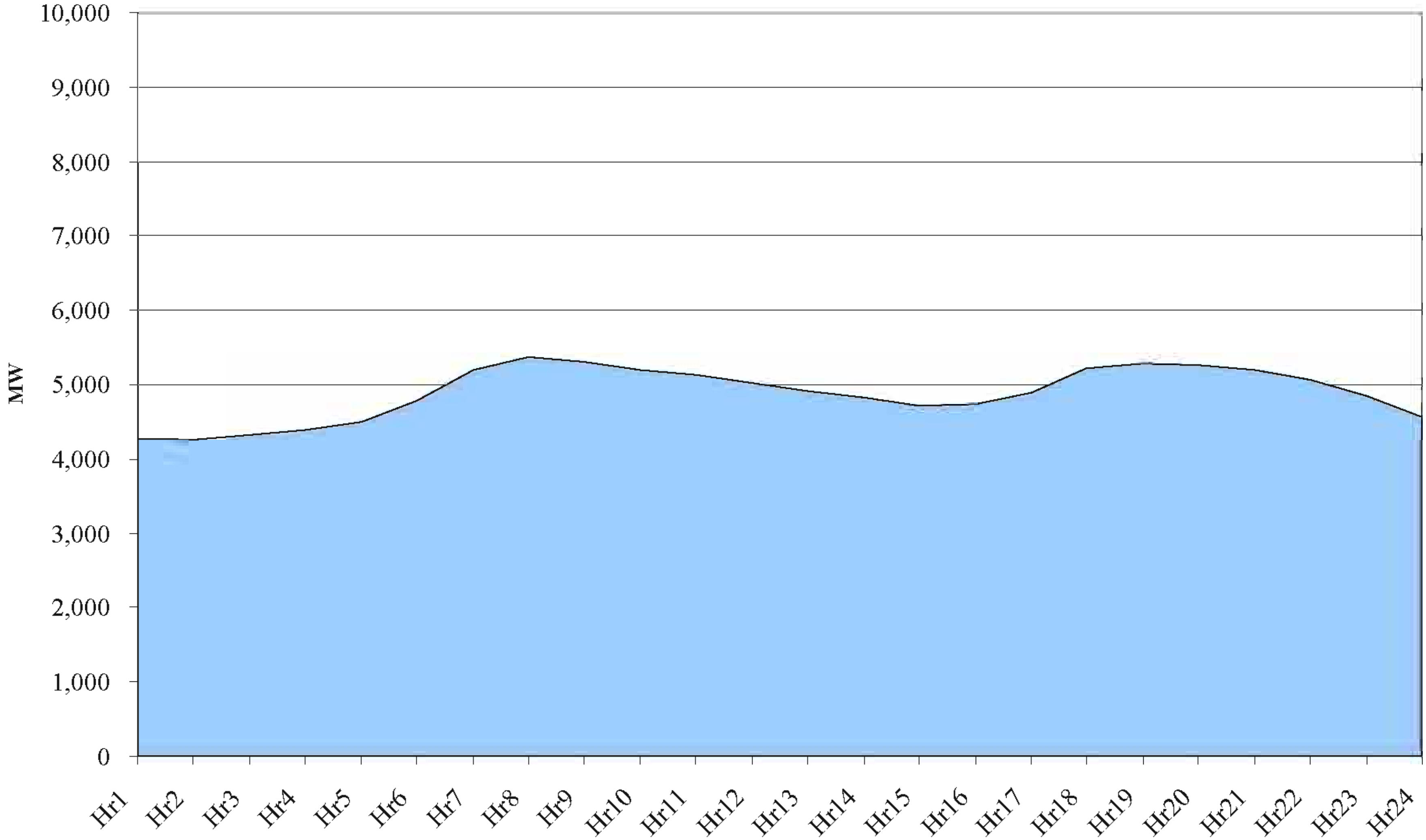
2003 Total System Summer Peak Load Profile



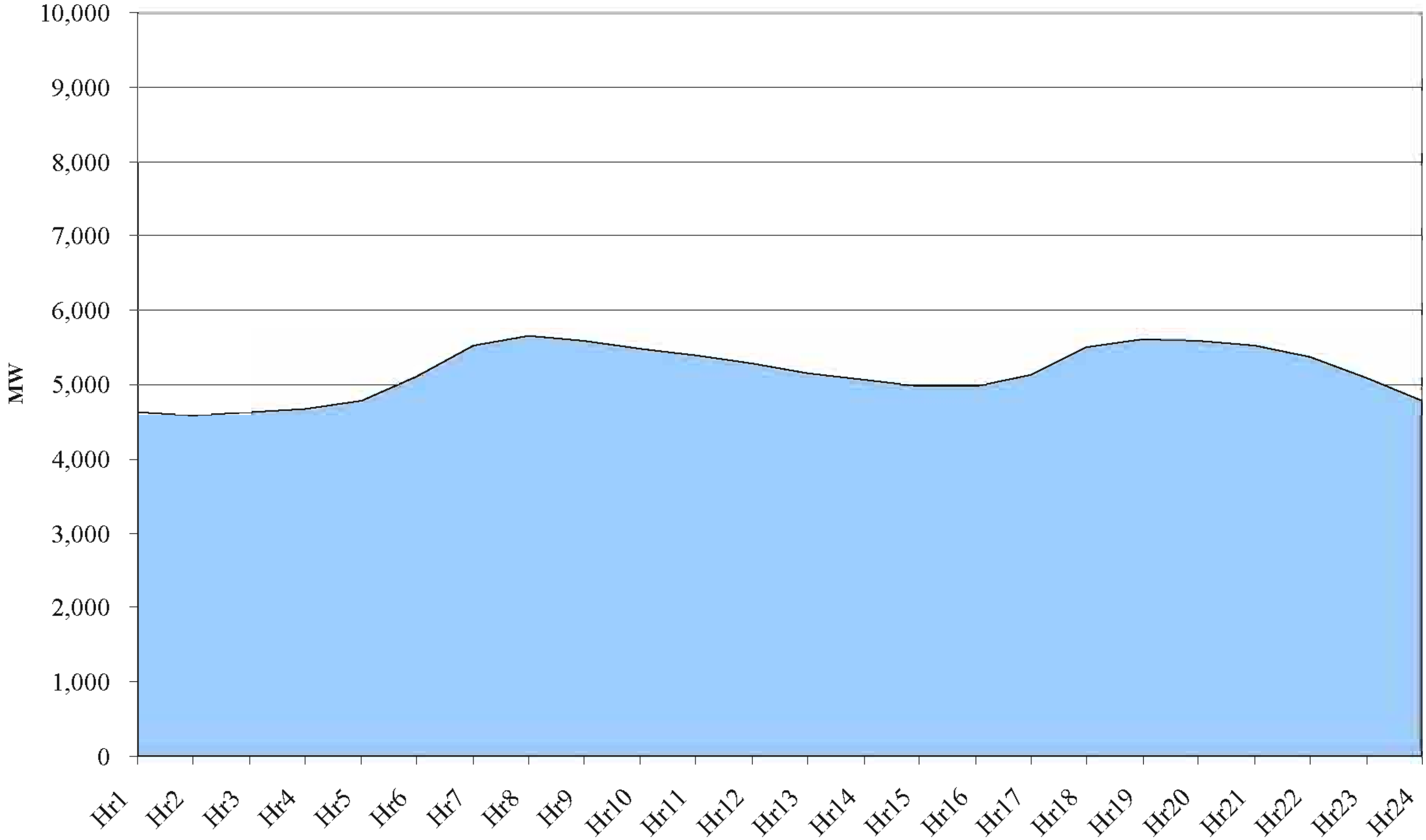
2014 Total System Summer Peak Load Profile

[redacted]

1999 Total System Winter Peak Load Profile



2003 Total System Winter Peak Load Profile



2014 Total System Winter Peak Load Profile

[redacted]

AmerenUE – Missouri

Total System Customers by Sector

Total System				
Year	Residential	Commercial	Industrial	Total
1995	933,589	123,019	5,937	1,062,545
1996	939,004	125,500	5,864	1,070,367
1997	945,607	128,627	5,827	1,080,061
1998	953,120	137,566	5,668	1,096,354
1999	961,048	175,193	5,368	1,141,608
2000	969,485	181,226	5,318	1,156,029
2001	975,924	184,051	5,183	1,165,158
2002	983,792	146,888	5,216	1,135,896
2003	994,669	169,331	5,123	1,169,124

[redacted]

AmerenUE – Missouri

Total System Customers

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	1,060,750	1,061,142	1,063,082	1,062,557	1,061,359	1,060,883	1,060,718	1,061,049	1,063,332	1,064,325	1,065,020	1,066,321	
1996	1,068,287	1,069,171	1,070,499	1,070,425	1,069,849	1,068,517	1,068,121	1,068,669	1,070,158	1,071,260	1,073,485	1,075,967	*0.7%*
1997	1,077,526	1,078,512	1,079,178	1,079,756	1,079,256	1,078,898	1,079,407	1,080,039	1,081,165	1,079,968	1,081,957	1,085,070	*0.9%*
1998	1,087,229	1,089,030	1,090,707	1,091,095	1,090,168	1,089,482	1,090,448	1,090,960	1,091,989	1,080,530	1,133,104	1,131,506	*1.5%*
1999	1,136,434	1,139,058	1,139,983	1,140,432	1,139,981	1,140,071	1,140,813	1,141,327	1,142,998	1,144,072	1,145,665	1,148,466	*4.1%*
2000	1,151,793	1,154,187	1,155,408	1,155,579	1,154,578	1,153,959	1,154,612	1,155,419	1,156,950	1,158,577	1,159,470	1,161,810	*1.3%*
2001	1,164,066	1,164,572	1,165,247	1,165,476	1,163,969	1,162,954	1,163,199	1,164,222	1,165,795	1,166,306	1,167,337	1,168,752	*0.8%*
2002	1,131,247	1,132,473	1,133,462	1,133,652	1,134,769	1,134,261	1,134,636	1,135,240	1,136,886	1,137,672	1,138,729	1,147,723	*-2.5%*
2003	1,146,277	1,146,322	1,147,133	1,147,859	1,146,430	1,145,924	1,189,070	1,188,011	1,191,078	1,192,604	1,192,311	1,196,470	*2.9%*

[redacted]

Residential Energy Usage, Demand, and Customers

AmerenUE – Missouri

Residential Energy Use

	Revenue Month				Calendar Month	
Year	Res GWh	Res WN GWh	Res Custs	Res Avg Use KWh	Res WN GWh	Res GWh
1995			933,589			
1996			939,004			
1997	10,938.5	10,817.7	945,607	11,568.1		
1998	11,443.0	11,147.2	953,120	12,008.1	11,139.0	11,109.8
1999	11,329.4	11,368.1	961,048	11,790.9	11,362.5	11,325.5
2000	11,669.1	11,627.6	969,485	12,037.2	11,653.9	11,590.3
2001	12,147.6	11,753.3	975,924	12,449.3	11,754.1	11,771.2
2002	12,811.7	12,010.3	983,792	13,023.8	11,987.8	11,977.7
2003	12,300.3	12,378.3	994,669	12,367.1	12,367.2	12,339.4

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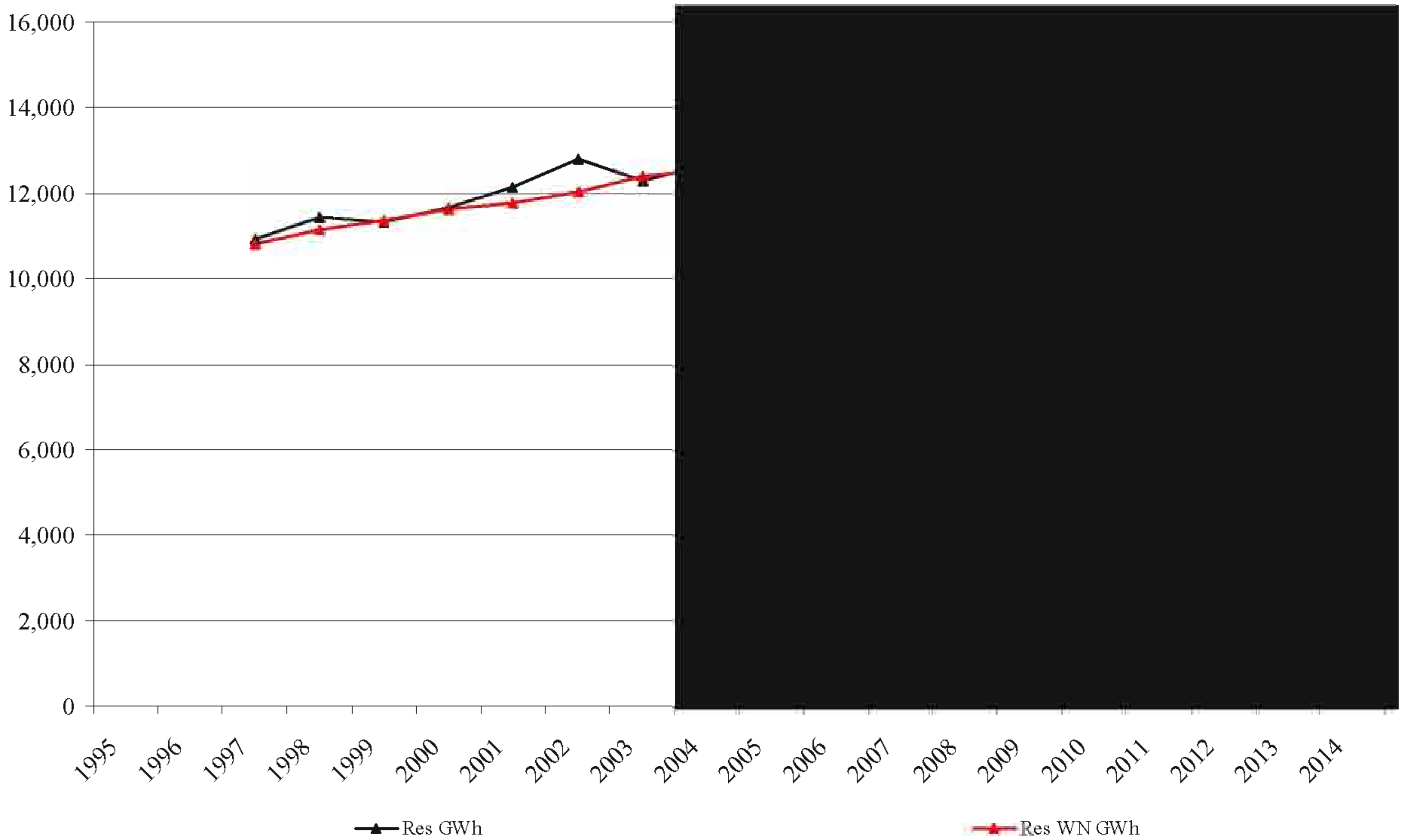
AmerenUE - Missouri
Residential Energy Use (GWh)



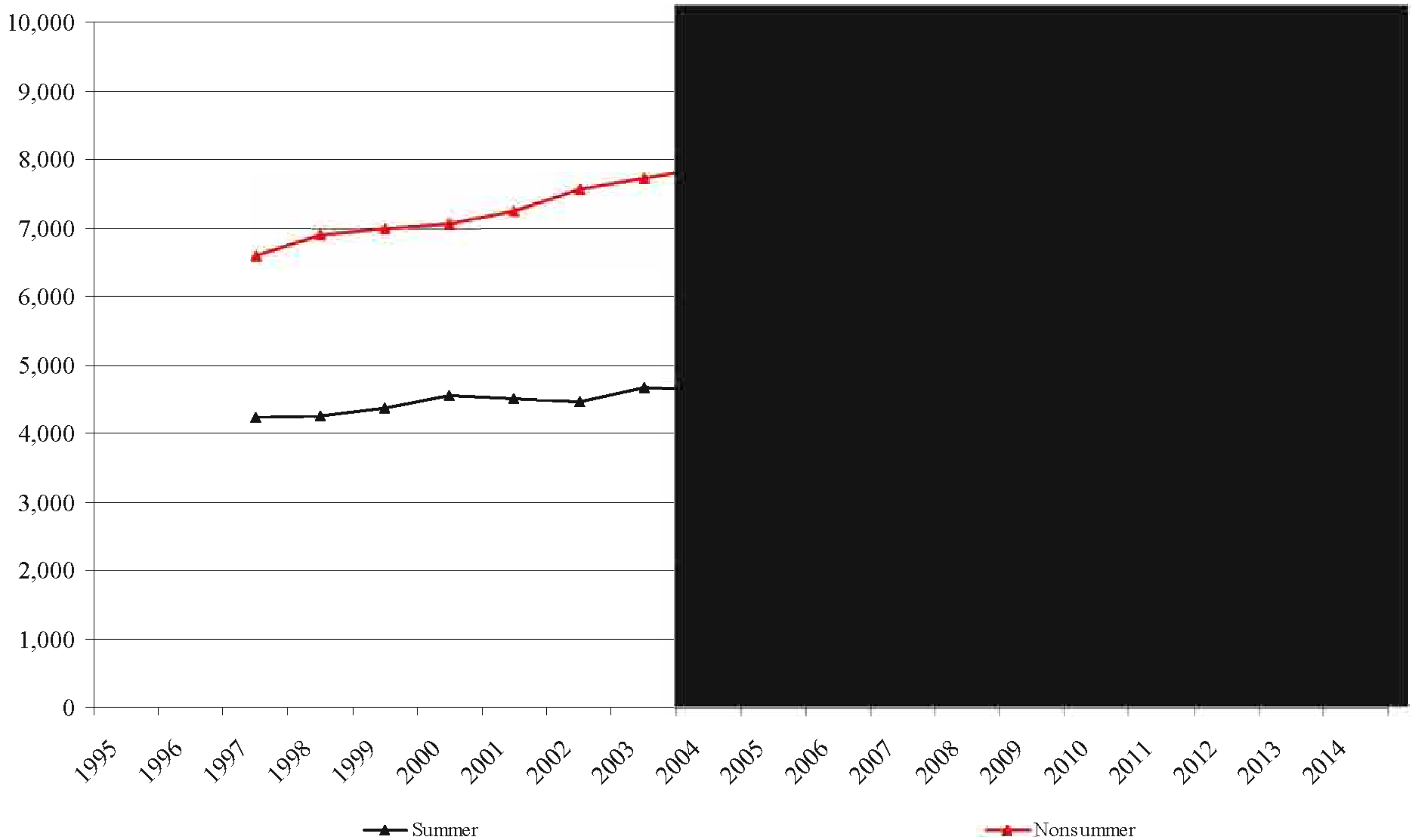
AmerenUE – Missouri

Residential Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	4,220,566	N.A.	6,597,090	N.A.
1998	4,259,387	0.9%	6,887,843	4.4%
1999	4,378.063	2.8%	6,990,053	1.5%
2000	4,560,118	4.2%	7,067,503	1.1%
2001	4,503,356	-1.2%	7,249,953	2.6%
2002	4,454,316	-1.1%	7,556,020	4.2%
2003	4,656,511	4.5%	7,721,791	2.2%

[redacted]

AmerenUE - Missouri
Residential Energy Use (GWh) - Weather Normalized



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AmerenUE – Missouri

Residential Energy Use (MWh) – Revenue Month

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
1996	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1997	1,156,709	1,063,799	853,248	718,231	598,780	674,352	1,132,997	1,266,418	1,028,779	747,796	758,612	938,795	*N.A.*
1998	1,128,372	981,159	890,761	724,945	674,443	978,297	1,320,757	1,213,032	1,169,104	841,719	678,305	842,060	*4.6%*
1999	1,217,312	969,941	902,759	754.623	651.832	888,685	1,236,919	1,423,440	1,057,797	704,506	666,385	855.231	*-1.0%*
2000	1,110,764	1,067,068	818,143	692,216	681,855	906,398	1,209,755	1,253,135	1,289,006	794,542	731,164	1,115,076	*3.0%*
2001	1,444,118	1,098,165	988,979	795,559	740,588	890,070	1,266,552	1,423,151	1,205,020	731,301	700,667	863,470	*4.1%*
2002	1,255,325	1,022,448	984,850	869,535	698,263	985,654	1,432,976	1,483,369	1,300,537	853,579	802,540	1,122,585	*5.5%*
2003	1,222,996	1,243,657	1,098,795	770,254	707,114	786,546	1,292,963	1,357,920	1,268,505	723,885	761,035	1,066,628	*-4.0%*

[redacted]

AmerenUE – Missouri
Residential Energy Use (MWh) – Revenue Month

Weather Normalized

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
1996	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1997	1,156,709	1,002,900	869,733	733,501	591,228	838,991	1,110,839	1,192,824	1,077,913	694,606	641,205	907,207	*N.A.*
1998	1,202,603	1,047,748	865,630	742,628	650,967	836,227	1,160,297	1,205,224	1,057,638	712,500	696,498	969,270	*3.0%*
1999	1,161,883	1,089,904	891,071	770,625	669,179	848,811	1,202,905	1,222,054	1,104,293	730,987	717,137	959,267	*2.0%*
2000	1,205,049	1,071,645	919,835	744,640	656,147	903,972	1,242,720	1,288,840	1,124,586	768,078	731,667	970,443	*2.3%*
2001	1,243,828	1,094,117	923,282	734,925	672,985	892,375	1,236,259	1,237,444	1,137,279	791,331	758,925	1,030,561	*1.1%*
2002	1,317,366	1,153,500	978,710	790,513	696,918	885,592	1,195,952	1,224,705	1,148,067	776,612	746,793	1,095,607	*2.2%*
2003	1,274,120	1,179,760	1,013,259	820,226	729,683	945,703	1,265,125	1,294,936	1,150,746	794,971	799,508	1,110,263	*3.1%*

[redacted]

Note that the above figures represent weather normalized sales from forecast models.

AmerenUE – Missouri

Residential Energy Use (MWh) – Calendar Month
Weather Normalized

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
1996	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1997		904,375	817,261	610,038	566,932	1,066,166	1,308,932	1,249,685	786,535	576,000	755,432	1,032,566	*N.A.*
1998	1,175,894	933,948	812,640	620,926	624,657	1,068,155	1,361,691	1,265,660	775,907	590,910	813,209	1,095,375	*N.A.*
1999	1,144,644	983,194	837,902	630,873	645,983	1,082,960	1,407,825	1,282,249	818,577	608,696	832,843	1,086,796	*2.0%*
2000	1,193,641	971,669	864,410	625,170	627,049	1,145,184	1,451,399	1,348,215	833,508	643,576	855,653	1,094,398	*2.6%*
2001	1,217,271	976,256	870,393	603,677	647,951	1,135,103	1,446,055	1,298,197	827,241	668,420	888,770	1,174,773	*0.9%*
2002	1,287,683	1,042,337	932,274	627,322	673,018	1,131,686	1,408,212	1,289,871	832,486	648,276	877,970	1,236,630	*2.0%*
2003	1,249,762	1,070,112	955,546	689,336	705,905	1,197,025	1,482,906	1,361,365	826,706	663,155	923,294	1,242,097	*3.2%*

[redacted]

Note that the above figures represent weather normalized sales from forecast models.

AmerenUE – Missouri

Residential Coincident Peak Demand

[redacted]

Residential Coincident Demand
Summer & Winter Peak

[redacted]

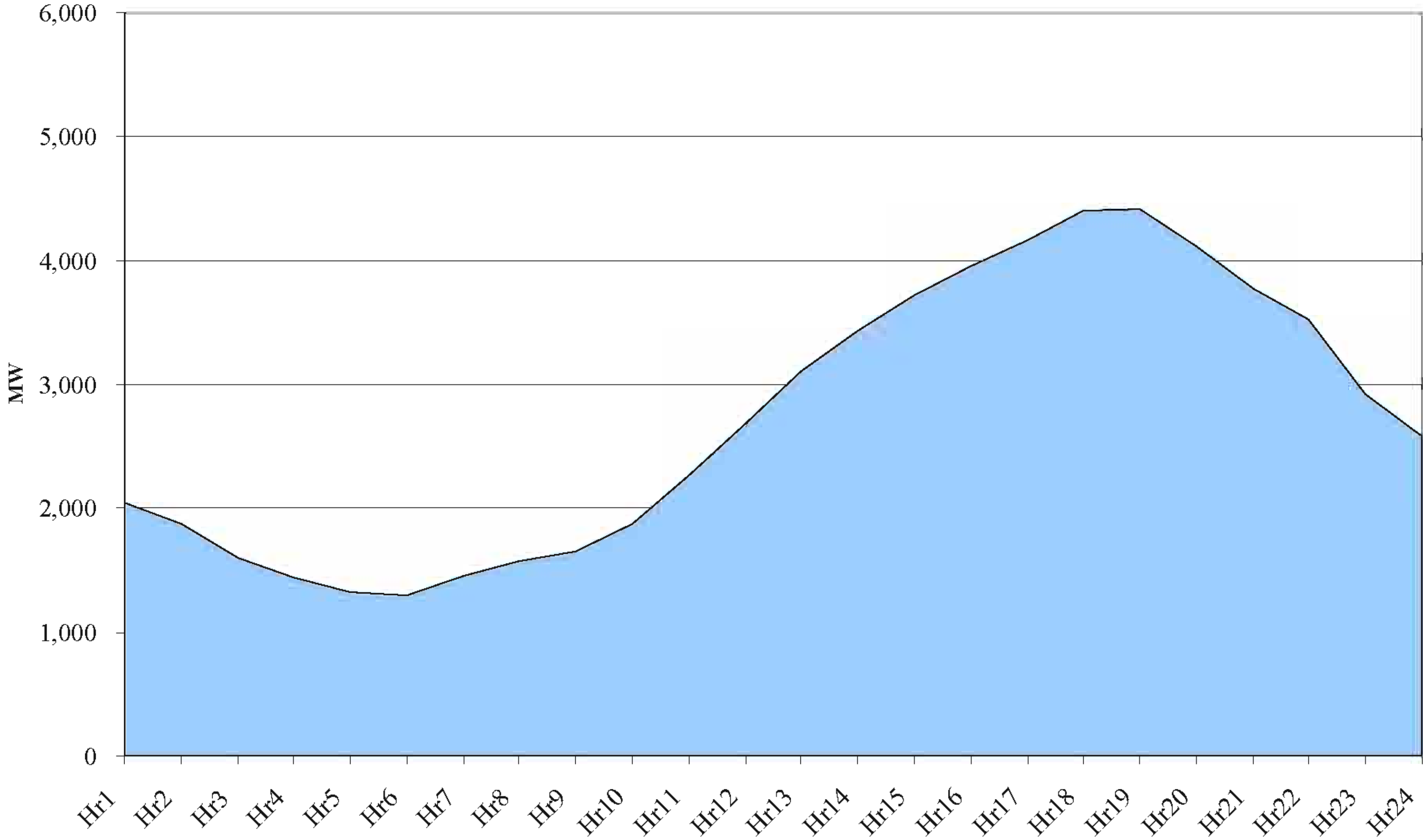
AmerenUE – Missouri

Residential Summer/Winter Coincident Load Profiles

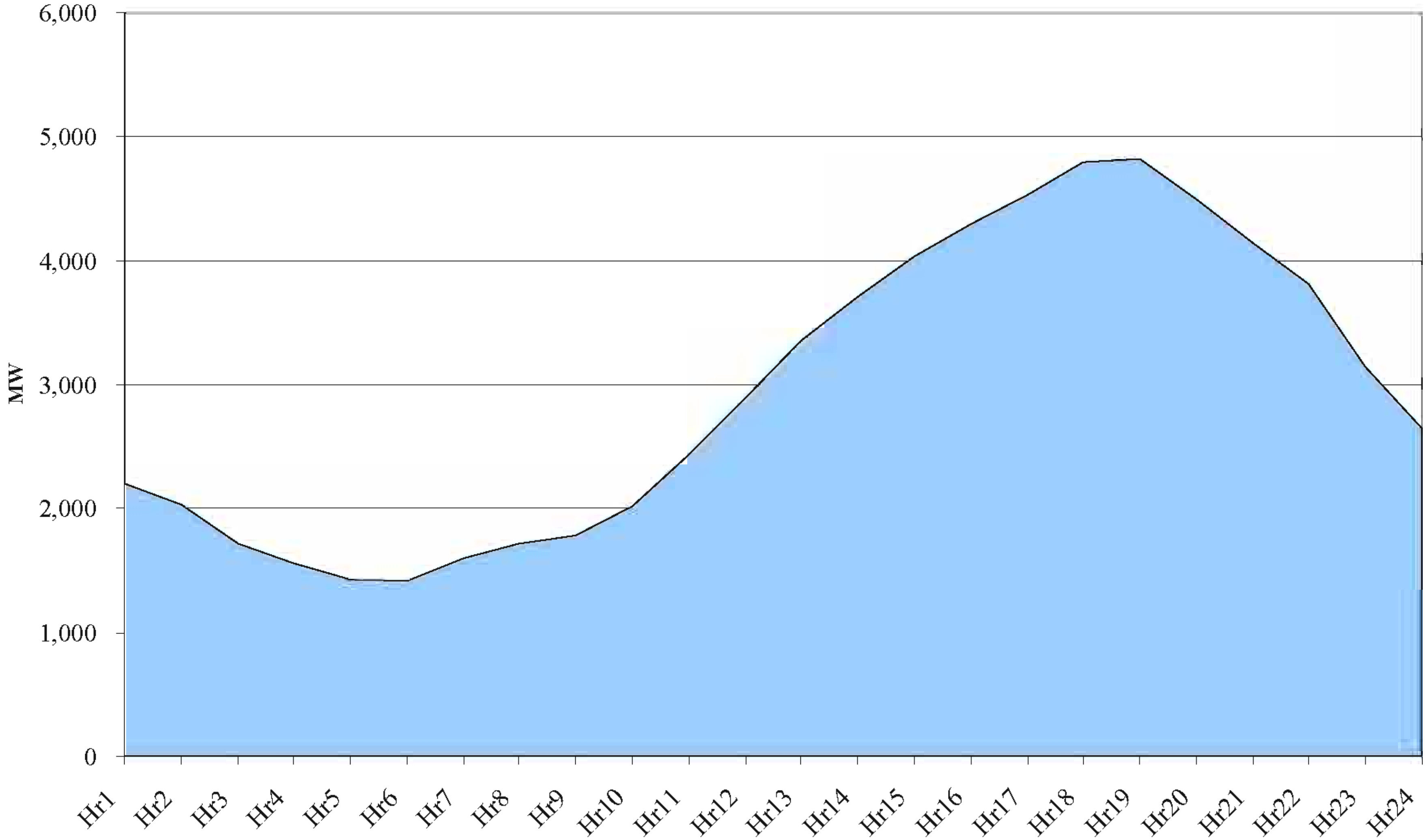
	Summer			Winter		
Hour	1999 MW	2003 MW	2014 MW	1999 MW	2003 MW	2014 MW
1	2,050	2,202	[redacted]	1,816	1,956	[redacted]
2	1,878	2,026	[redacted]	1,776	1,922	[redacted]
3	1,593	1,719	[redacted]	1,836	1,985	[redacted]
4	1,439	1,553	[redacted]	1,899	2,052	[redacted]
5	1,327	1,434	[redacted]	2,008	2,171	[redacted]
6	1,300	1,415	[redacted]	2,283	2,469	[redacted]
7	1,460	1,603	[redacted]	2,519	2,729	[redacted]
8	1,573	1,721	[redacted]	2,497	2,708	[redacted]
9	1,644	1,778	[redacted]	2,253	2,444	[redacted]
10	1,879	2,022	[redacted]	1,999	2,168	[redacted]
11	2,267	2,438	[redacted]	1,805	1,959	[redacted]
12	2,690	2,896	[redacted]	1,666	1,809	[redacted]
13	3,105	3,351	[redacted]	1,540	1,674	[redacted]
14	3,432	3,713	[redacted]	1,452	1,578	[redacted]
15	3,721	4,032	[redacted]	1,410	1,532	[redacted]
16	3,962	4,303	[redacted]	1,486	1,615	[redacted]
17	4,168	4,536	[redacted]	1,685	1,831	[redacted]
18	4,396	4,798	[redacted]	2,000	2,176	[redacted]
19	4,414	4,819	[redacted]	2,256	2,457	[redacted]
20	4,113	4,494	[redacted]	2,275	2,476	[redacted]
21	3,775	4,136	[redacted]	2,269	2,469	[redacted]
22	3,518	3,817	[redacted]	2,205	2,398	[redacted]
23	2,918	3,141	[redacted]	1,997	2,168	[redacted]
24	2,579	2,649	[redacted]	1,903	2,064	[redacted]

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Residential Coincident Summer Load Profile



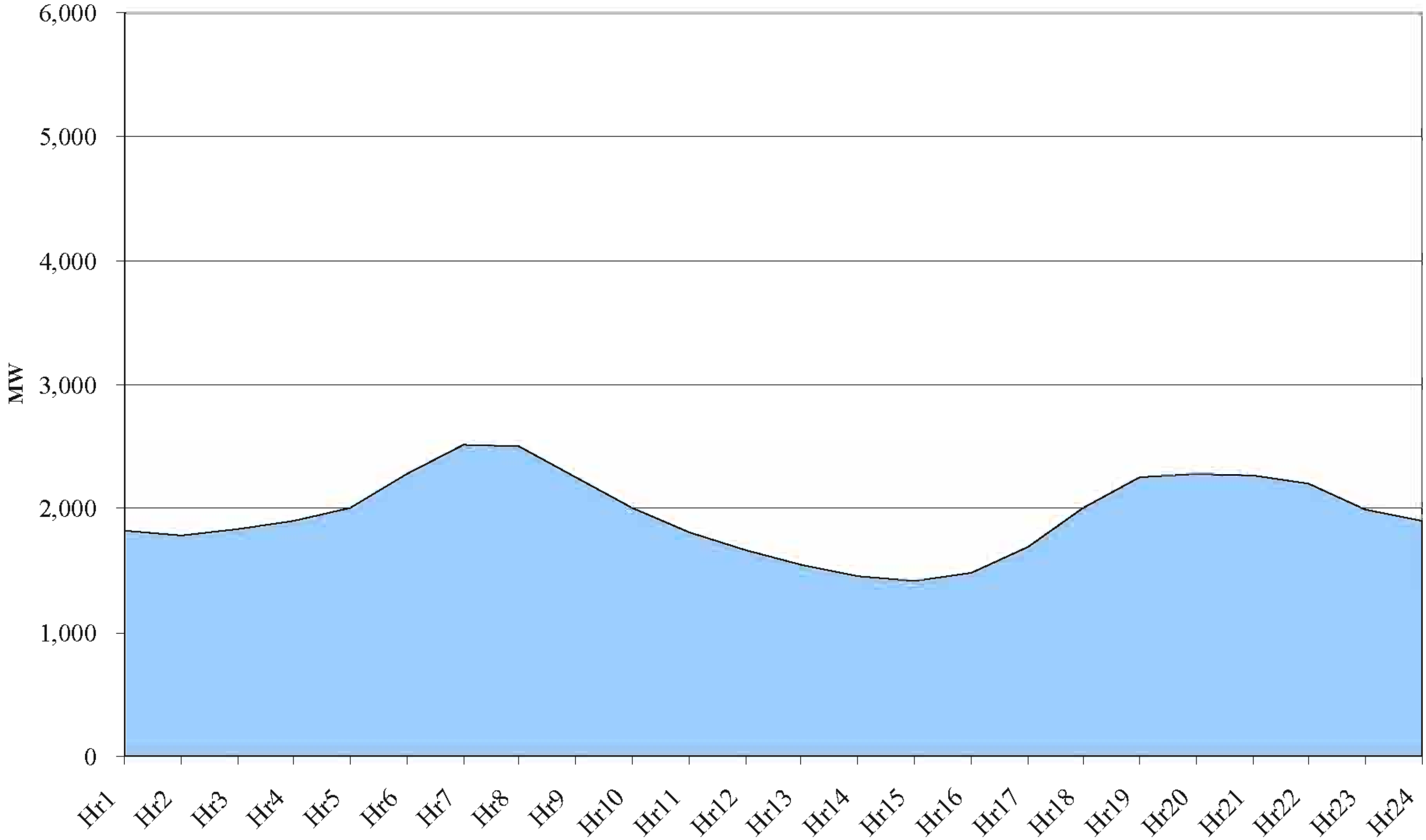
2003 Residential Coincident Summer Load Profile



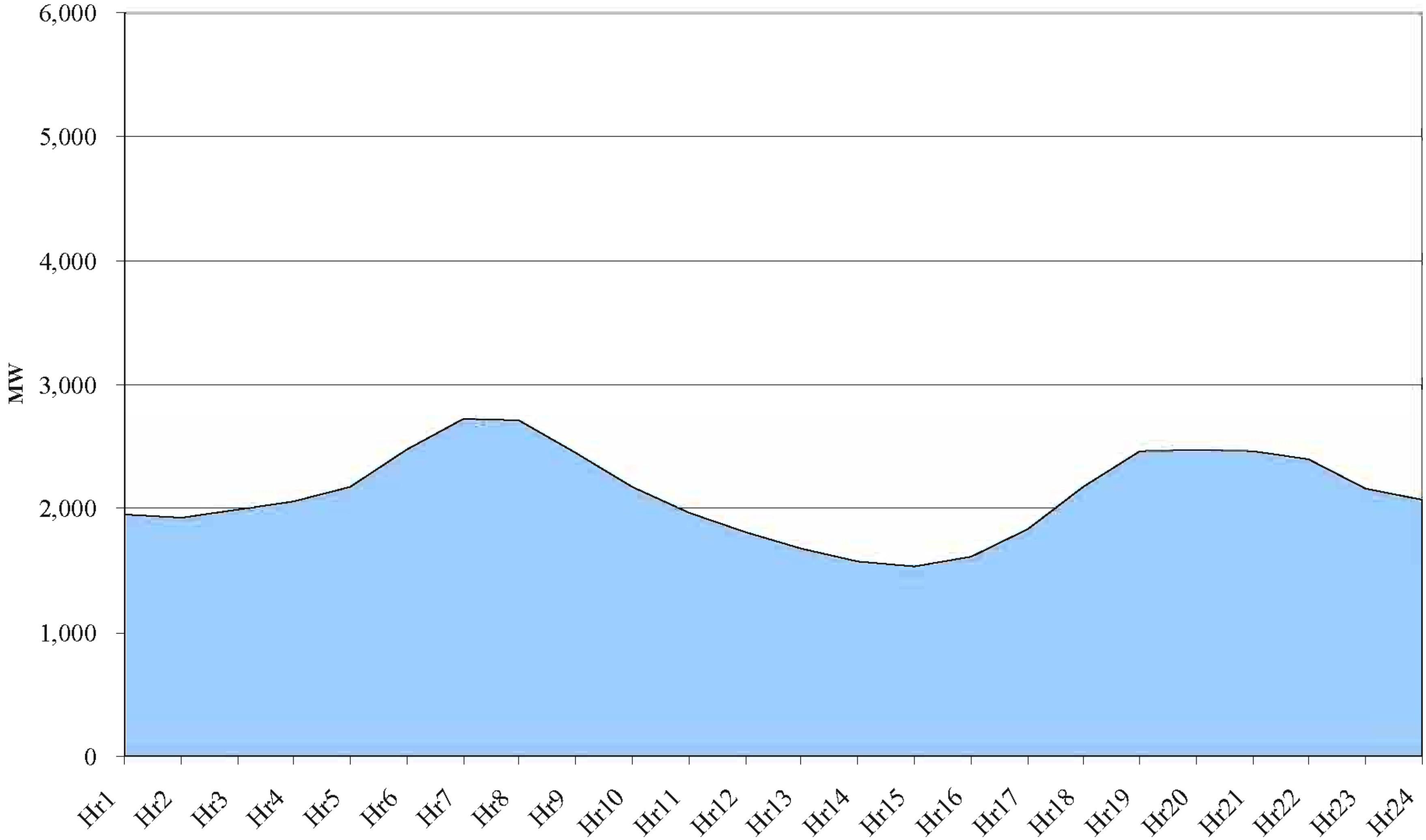
2014 Residential Coincident Summer Load Profile

[redacted]

1999 Residential Coincident Winter Load Profile



2003 Residential Coincident Winter Load Profile



2014 Residential Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Residential Customers

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	932,535	932,921	934,568	933,873	932,560	931,900	931,858	932,031	934,156	935,023	935,384	936,253	
1996	938,064	938,834	939,941	939,598	938,778	937,331	936,715	937,031	938,150	939,249	941,160	943,193	*0.6%*
1997	944,545	945,283	945,711	945,955	945,157	944,470	944,623	944,972	945,882	944,906	946,598	949,183	*0.7%*
1998	951,065	952,407	953,644	953,769	952,572	951,468	952,012	952,258	952,982	953,911	954,840	956,514	*0.8%*
1999	958,893	960,156	961,126	961,015	960,062	959,612	959,908	960,299	961,430	962,008	963,036	965,025	*0.8%*
2000	967,330	969,301	969,809	969,501	968,330	967,359	967,737	968,486	969,696	971,075	971,545	973,653	*0.9%*
2001	975,181	976,083	976,641	976,686	975,058	973,822	974,024	974,859	976,210	976,517	977,475	978,527	*0.7%*
2002	980,458	981,629	982,359	982,507	984,058	982,810	983,014	983,857	985,220	985,530	986,497	987,559	*0.8%*
2003	993,556	994,475	995,044	995,090	993,431	992,172	993,494	992,509	995,312	996,225	995,728	998,995	*1.1%*

[redacted]

AmerenUE – Missouri
Residential Energy Use (KWh) – Revenue Month

Average Use per Customer

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
1996	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1997	1,225	1,125	902	759	634	714	1,199	1,340	1,088	791	801	989	*N.A.*
1998	1,186	1,030	934	760	708	1,028	1,387	1,274	1,227	882	710	880	*3.8%*
1999	1,269	1,010	939	785	679	926	1,289	1,482	1,100	732	692	886	*-1.8%*
2000	1,148	1,101	844	714	704	937	1,250	1,294	1,329	818	753	1,145	*2.1%*
2001	1,481	1,125	1,013	815	760	914	1,300	1,460	1,234	749	717	882	*3.4%*
2002	1,280	1,042	1,003	885	710	1,003	1,458	1,508	1,320	866	814	1,137	*4.6%*
2003	1,231	1,251	1,104	774	712	793	1,301	1,368	1,274	727	764	1,068	*-5.0%*

[redacted]

Commercial Energy Usage, Demand, and Customers

AmerenUE – Missouri

Commercial Energy Use (GWh) by Revenue Class

Year	SGS GWh	LGS GWh	SPS GWh	LPS GWh	ComDTD GWh	SLPA GWh	Whsle GWh	Total GWh
1995	2,916.8	4,978.1	2,193.6	850.4	92.8	120.7		11,152.4
1996	3,022.1	5,166.6	2,292.9	880.7	93.6	121.2		11,577.0
1997	3,004.3	5,226.3	2,264.3	961.1	95.0	123.5		11,674.4
1998	3,149.5	5,325.3	2,243.3	885.9	95.8	118.9	736.1	12,554.8
1999	3,277.3	5,778.8	2,568.0	1,029.6	94.5	88.0	762.8	13,598.9
2000	3,289.4	5,896.1	2,558.1	1,027.4	95.7	77.9	788.4	13,732.9
2001	3,318.0	6,154.5	2,506.6	953.8	96.0	72.2	801.5	13,902.5
2002	3,447.3	6,163.4	2,638.7	987.3	97.5	121.4	756.4	14,212.0
2003	3,238.3	6,356.9	2,620.4	1,058.2	99.2	130.3	722.6	14,226.0

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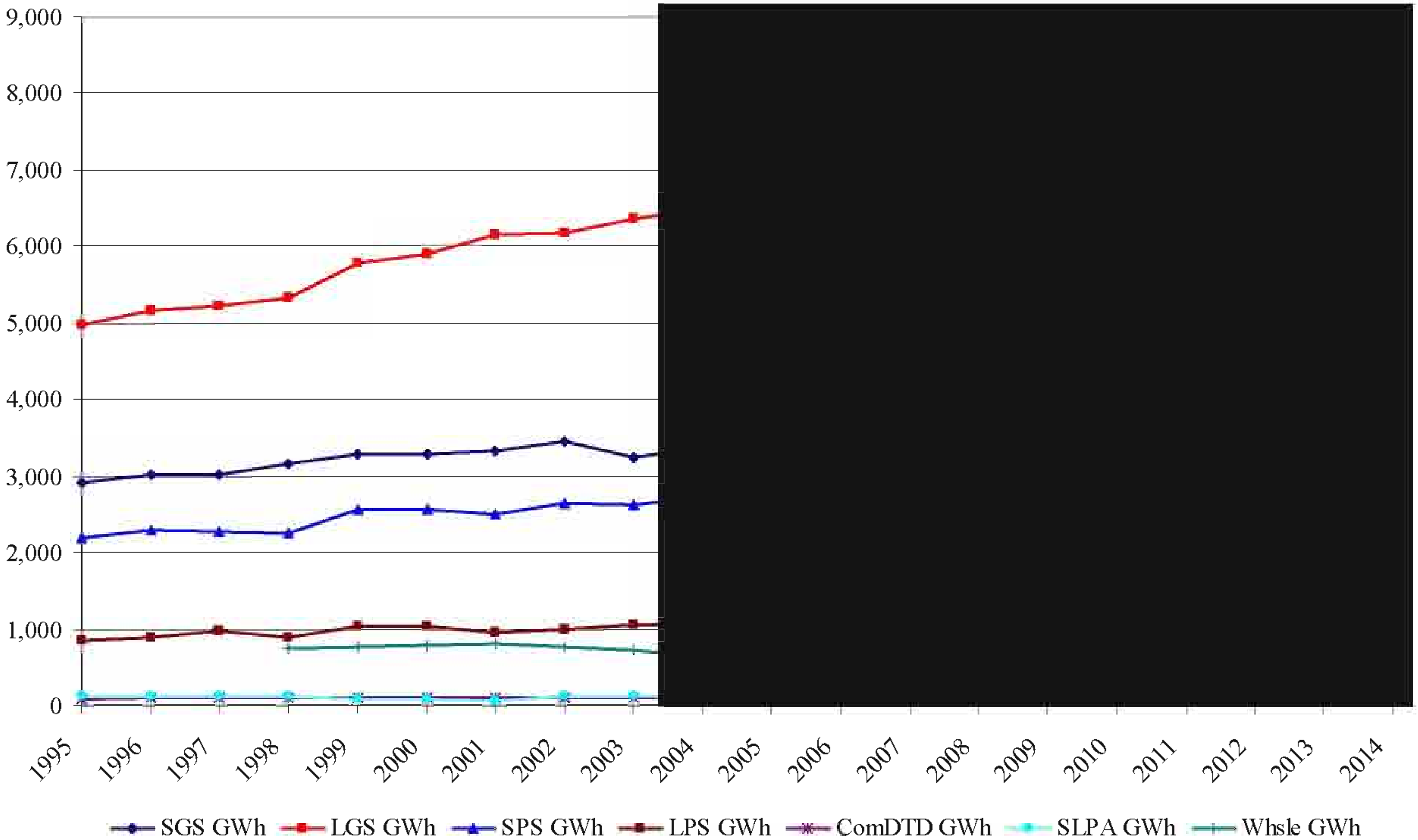
AmerenUE - Missouri
Commercial Energy Use (GWh)



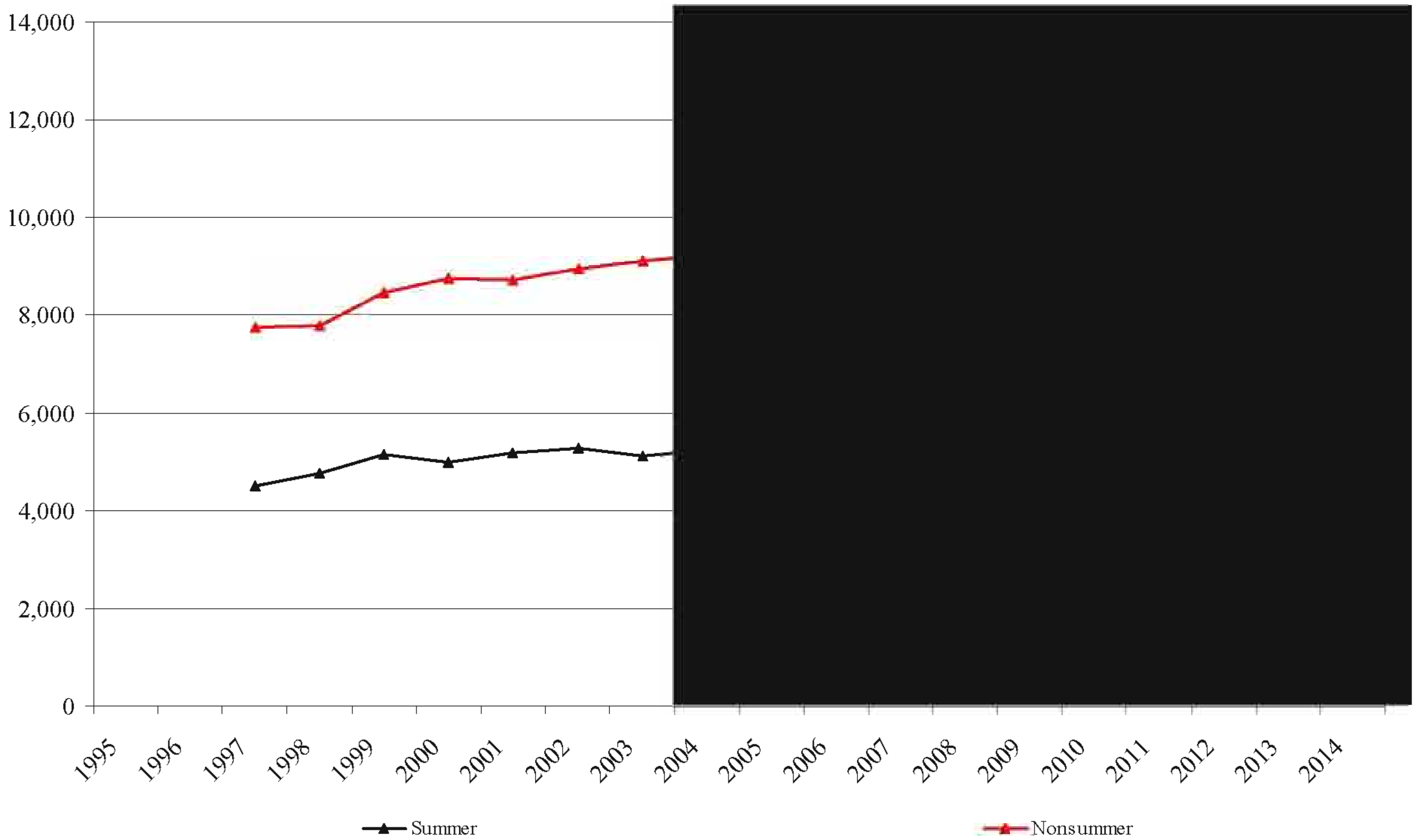
AmerenUE – Missouri

Commercial Total System Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	4,500,001	N.A.	7,764,218	N.A.
1998	4,772,145	6.0%	7,782,623	0.2%
1999	5,149,645	7.9%	8,449,241	8.6%
2000	4,980,771	-3.3%	8,752,175	3.6%
2001	5,179,551	4.0%	8,722,965	-0.3%
2002	5,270,187	1.7%	8,941,788	2.5%
2003	5,130,766	-2.6%	9,095,238	1.7%

[redacted]

AmerenUE - Missouri
Commercial Energy Use (GWh)



AmerenUE – Missouri

Commercial Customers by Revenue Class

Year	SGS Custs	LGS Custs	SPS Custs	LPS Custs	ComDtD Custs	SLPA Custs	Total Custs
1995	102,914	5,597	355	15	12,621	1,517	123,019
1996	105,155	5,905	372	16	12,542	1,511	125,500
1997	108,184	6,112	393	18	12,419	1,501	128,627
1998	111,688	6,135	380	17	17,882	1,464	137,566
1999	115,221	6,306	368	17	51,931	1,350	175,193
2000	120,342	6,815	413	19	52,251	1,386	181,226
2001	122,495	7,191	429	20	52,529	1,388	184,051
2002	124,610	7,566	449	19	12,761	1,484	146,888
2003	127,666	7,791	449	23	31,933	1,470	169,331

[redacted]

AmerenUE – Missouri

Commercial Total System Energy Use (GWh) – Revenue Month

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	965,793	912,896	893,435	810,576	797,759	901,114	1,034,284	1,102,505	1,136,288	887,317	806,630	903,790	
1996	1,012,533	971,264	939,121	862,426	848,699	979,358	1,101,096	1,046,316	1,101,249	891,300	871,696	951,958	*3.8%*
1997	1,042,177	971,666	961,475	925,786	867,005	987,363	1,176,544	1,194,142	1,141,951	1,026,382	955,436	1,014,290	*5.9%*
1998	1,100,248	989,721	999,289	952,136	931,389	1,133,645	1,230,821	1,208,013	1,199,666	1,060,258	969,955	779,626	*2.4%*
1999	1,033,379	1,079,300	1,030,442	1,105,665	1,035,894	1,189,893	1,266,765	1,408,950	1,284,037	1,066,333	1,022,126	1,076,101	*8.3%*
2000	1,273,209	1,204,544	985,172	962,353	983,987	1,191,020	1,244,983	1,254,209	1,290,559	1,097,933	1,083,377	1,161,600	*1.0%*
2001	1,314,957	1,169,901	1,017,305	1,043,142	1,028,428	1,171,989	1,322,590	1,381,951	1,303,020	1,084,904	995,984	1,068,345	*1.2%*
2002	1,190,981	1,193,110	1,041,818	1,053,119	1,131,657	1,094,401	1,381,135	1,448,338	1,346,313	1,185,834	1,151,397	993,873	*2.2%*
2003	1,186,103	1,160,091	1,162,637	1,026,768	1,039,886	1,115,326	1,315,380	1,350,587	1,349,472	1,201,718	1,107,917	1,210,118	*0.1%*

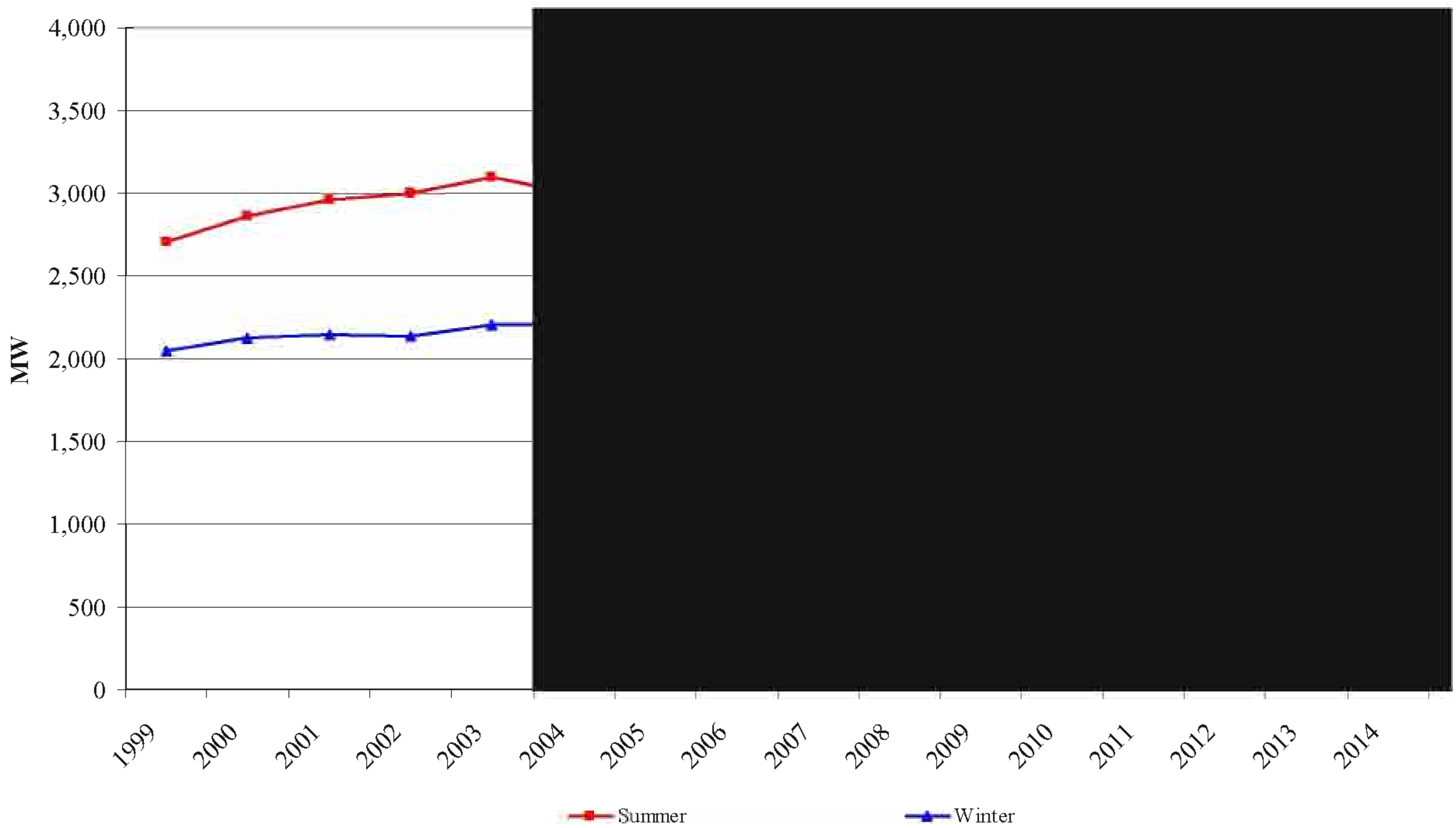
[redacted]

AmerenUE – Missouri

Commercial Coincident Demand

[redacted]

Commercial Coincident Demand
Summer & Winter Peak



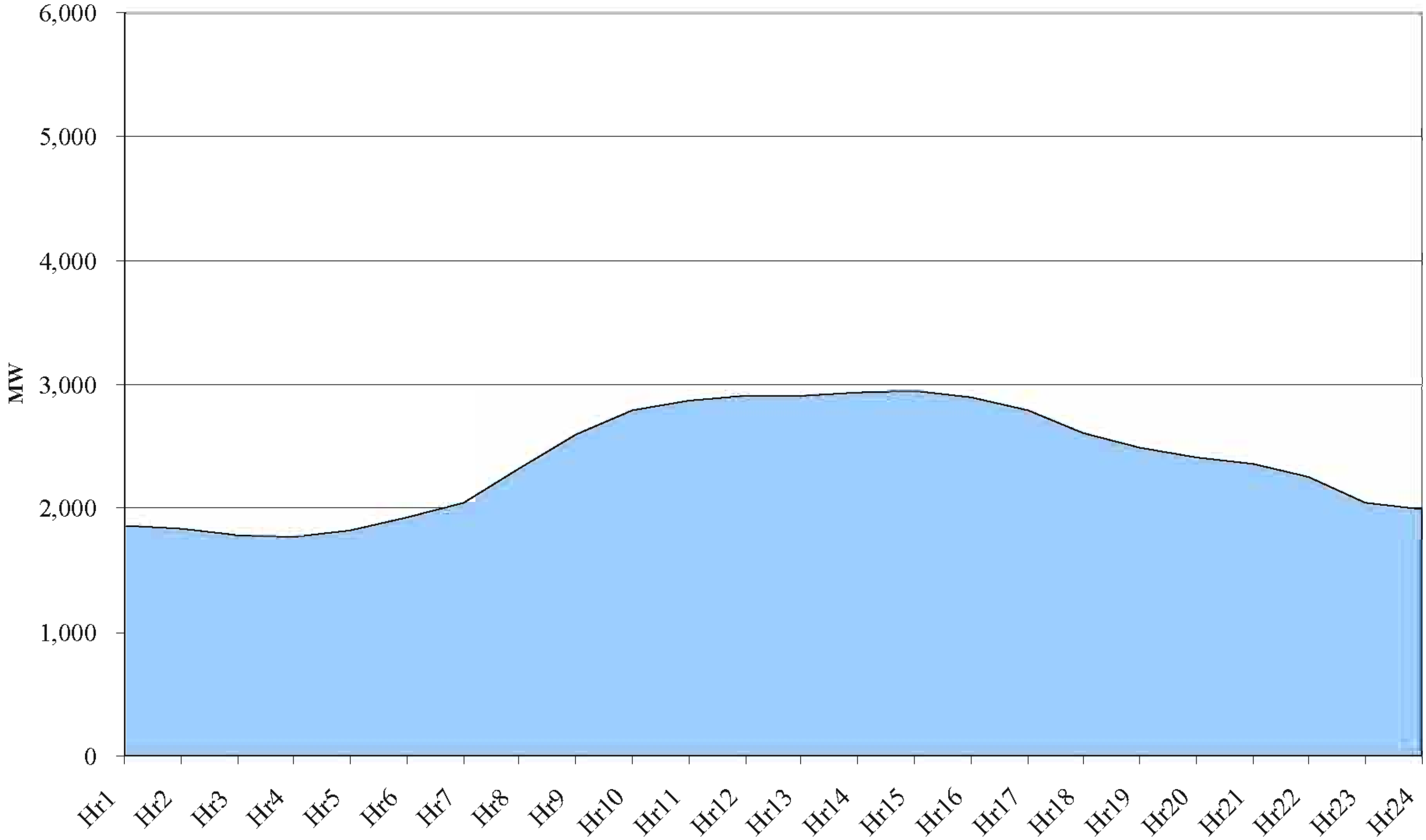
AmerenUE – Missouri

Commercial Summer/Winter Coincident Load Profiles

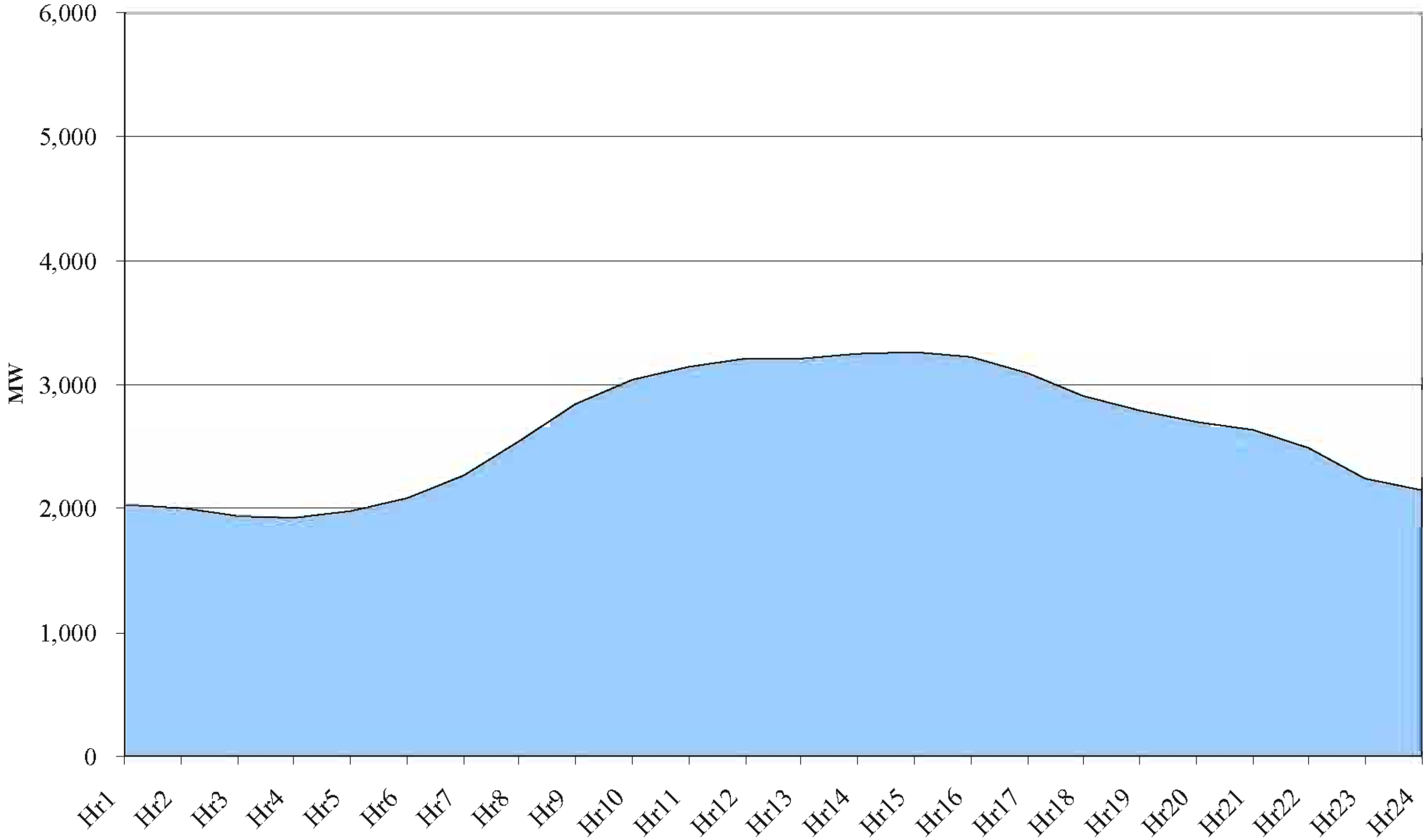
	Summer			Winter		
Hour	1999 MW	2003 MW	2014 MW	1999 MW	2003 MW	2014 MW
1	1,856	2,032	[redacted]	1,634	1,827	[redacted]
2	1,829	2,001	[redacted]	1,642	1,824	[redacted]
3	1,786	1,944	[redacted]	1,660	1,825	[redacted]
4	1,771	1,931	[redacted]	1,690	1,845	[redacted]
5	1,821	1,976	[redacted]	1,738	1,892	[redacted]
6	1,921	2,089	[redacted]	1,848	2,012	[redacted]
7	2,047	2,267	[redacted]	2,003	2,172	[redacted]
8	2,320	2,540	[redacted]	2,138	2,300	[redacted]
9	2,598	2,840	[redacted]	2,286	2,465	[redacted]
10	2,784	3,034	[redacted]	2,342	2,530	[redacted]
11	2,869	3,144	[redacted]	2,379	2,569	[redacted]
12	2,912	3,212	[redacted]	2,361	2,552	[redacted]
13	2,912	3,206	[redacted]	2,328	2,516	[redacted]
14	2,941	3,251	[redacted]	2,285	2,475	[redacted]
15	2,944	3,262	[redacted]	2,230	2,422	[redacted]
16	2,901	3,224	[redacted]	2,143	2,349	[redacted]
17	2,785	3,098	[redacted]	2,080	2,271	[redacted]
18	2,609	2,903	[redacted]	2,052	2,234	[redacted]
19	2,496	2,792	[redacted]	1,993	2,180	[redacted]
20	2,410	2,703	[redacted]	1,944	2,142	[redacted]
21	2,361	2,638	[redacted]	1,896	2,091	[redacted]
22	2,253	2,494	[redacted]	1,854	2,038	[redacted]
23	2,048	2,235	[redacted]	1,749	1,912	[redacted]
24	1,991	2,143	[redacted]	1,720	1,880	[redacted]

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Commercial Total Coincident Summer Load Profile



2003 Commercial Total Coincident Summer Load Profile



2014 Commercial Total Coincident Summer Load Profile

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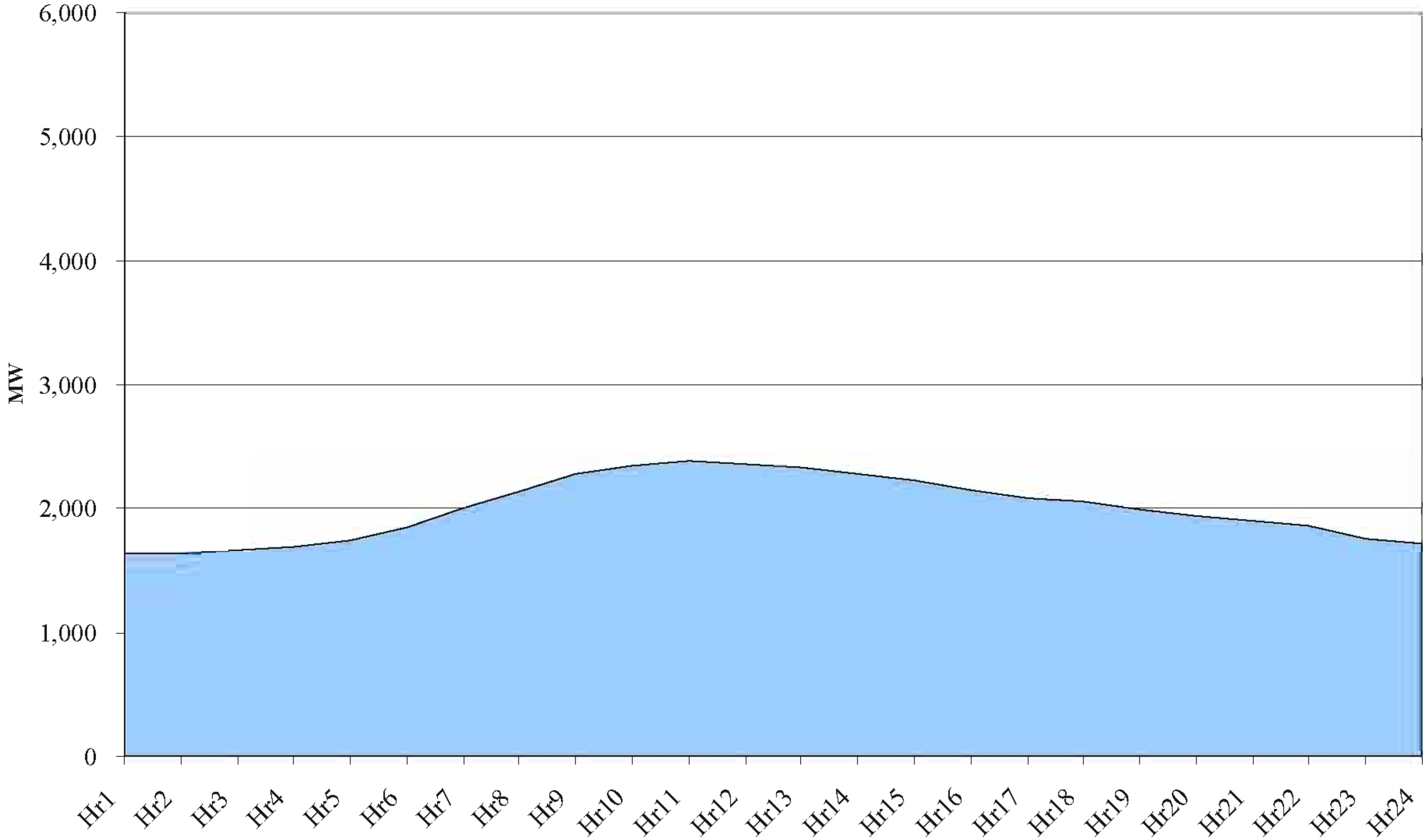
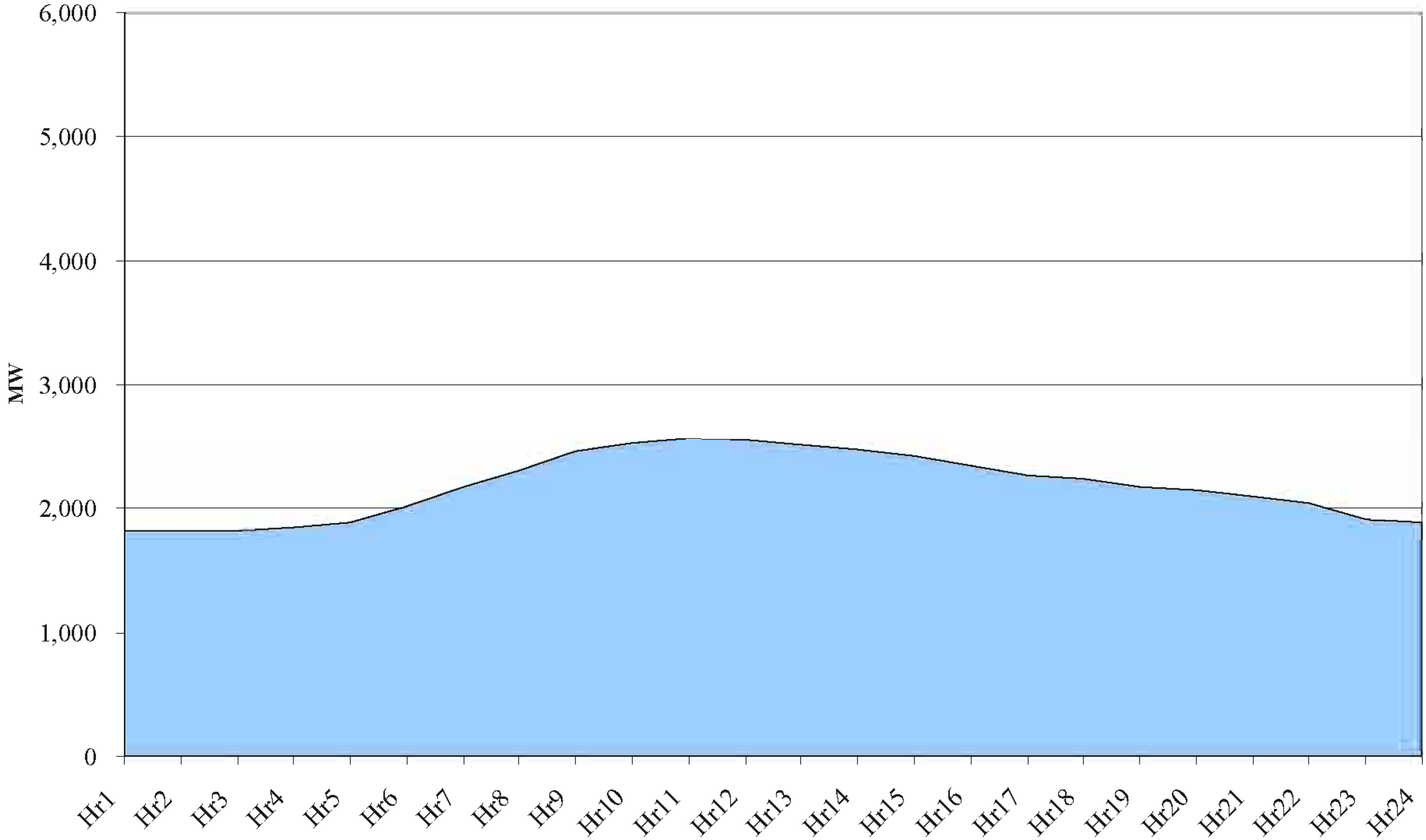
1999 Commercial Total Coincident Winter Load Profile



2003 Commercial Total Coincident Winter Load Profile



2014 Commercial Total Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Commercial Total System Customers

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	122,311	122,303	122,610	122,742	122,840	123,018	122,909	123,076	123,225	123,351	123,704	124,138	
1996	124,294	124,422	124,660	124,955	125,215	125,342	125,568	125,805	126,179	126,176	126,479	126,906	*2.0%*
1997	127,119	127,366	127,615	127,954	128,271	128,601	128,959	129,242	129,461	129,267	129,565	130,103	*2.5%*
1998	130,382	130,860	131,311	131,570	131,850	132,275	132,725	132,999	133,302	120,935	172,601	169,986	*6.9%*
1999	172,201	173,417	173,463	174,016	174,511	175,054	175,505	175,675	176,233	176,746	177,343	178,153	*27.4%*
2000	179,133	179,597	180,273	180,669	180,875	181,244	181,532	181,612	181,954	182,229	182,662	182,926	*3.4%*
2001	183,591	183,310	183,434	183,616	183,740	183,949	184,007	184,201	184,431	184,618	184,703	185,017	*1.6%*
2002	145,498	145,581	145,818	145,897	145,504	146,272	146,443	146,240	146,511	147,009	147,113	154,772	*-20.2%*
2003	147,332	146,582	146,956	147,656	147,885	148,666	190,464	190,419	190,721	191,326	191,526	192,444	*15.3%*

[redacted]

AmerenUE – Missouri

Commercial SGS Energy Use (MWh) – Revenue Month
Small General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	266,934	257,041	240,571	213,646	191,138	220,796	270,837	293,804	302,836	217,683	203,056	238,469	
1996	280,517	275,888	264,156	219,526	208,178	242,931	295,670	265,325	293,343	212,958	213,472	250,137	*3.6%*
1997	286,022	272,169	239,496	217,408	198,267	226,528	282,054	298,992	272,681	237,453	224,960	248,263	*-0.6%*
1998	282,992	255,682	246,093	225,011	217,700	269,545	306,594	297,324	291,537	260,677	221,561	274,820	*4.8%*
1999	293,870	259,248	251,666	260,964	269,033	279,455	303,990	327,946	294,506	243,580	234,892	258,146	*4.1%*
2000	338,370	280,176	221,377	219,526	234,437	283,698	304,261	308,127	314,637	251,030	240,820	292,916	*0.4%*
2001	343,634	289,676	268,533	241,582	247,137	268,605	327,823	313,793	310,123	242,378	222,672	242,088	*0.9%*
2002	299,441	270,377	262,906	276,340	279,243	210,658	351,806	386,945	321,640	262,634	352,531	172,740	*3.9%*
2003	249,025	285,072	301,279	224,178	222,516	251,301	315,212	321,792	315,951	248,217	235,034	268,759	*-6.1%*

[redacted]

AmerenUE – Missouri

Commercial SGS Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	1,080,255	N.A.	1,924,038	N.A.
1998	1,165,000	7.8%	1,984,536	3.1%
1999	1,205,897	3.5%	2,071,399	4.4%
2000	1,210,723	0.4%	2,078,652	0.4%
2001	1,220,344	0.8%	2,097,700	0.9%
2002	1,271,049	4.2%	2,176,212	3.7%
2003	1,204,256	-5.3%	2,034,080	-6.5%

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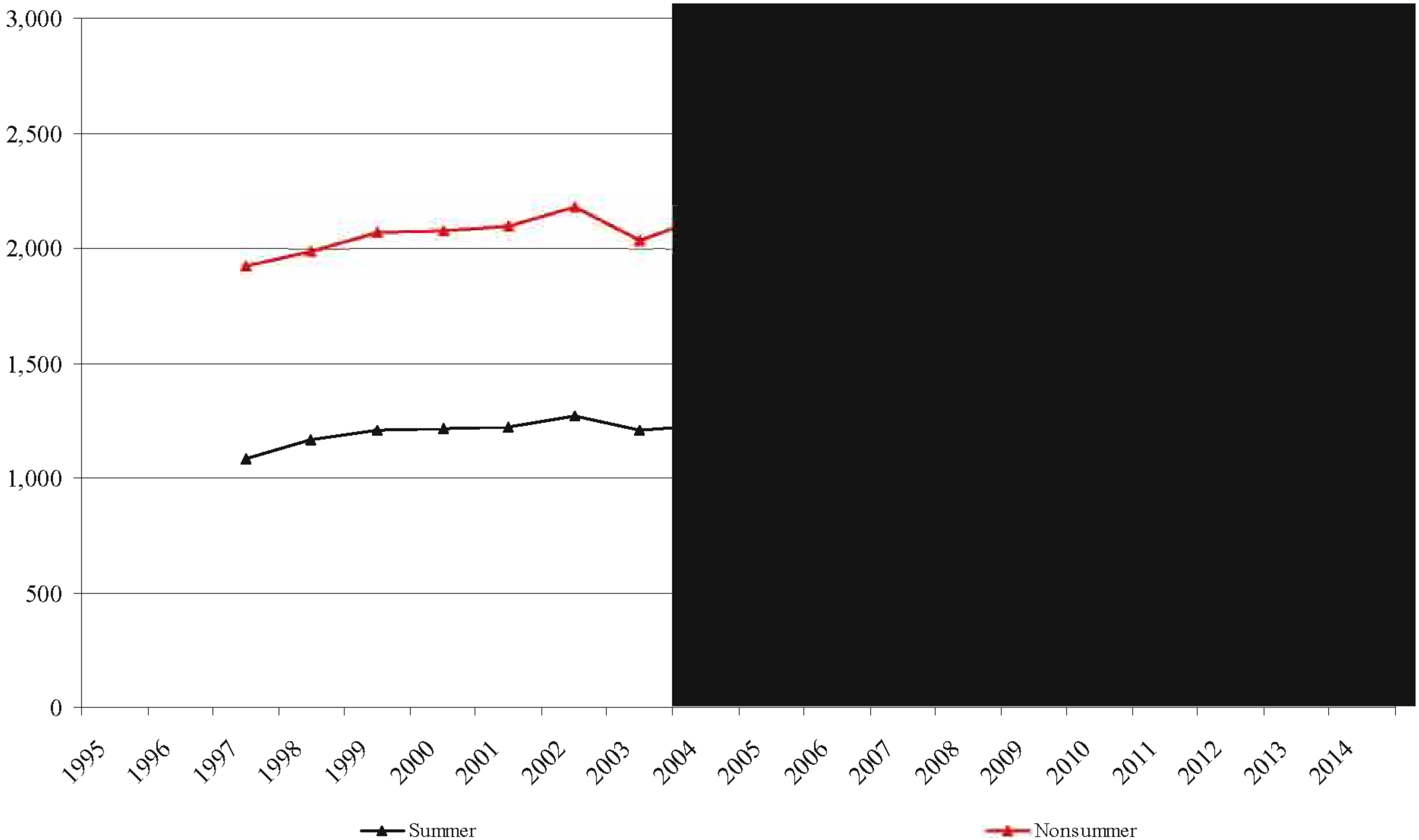
AmerenUE - Missouri
SGS Energy Use (GWh)



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AmerenUE – Missouri

Commercial SGS Energy Use (MWh) – Calendar Month

Weather Normalized

Small General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995		247,322	234,865	208,346	187,119	224,628	251,099	236,151	210,633	213,484	219,477	255,998	
1996	270,499	255,197	259,804	197,628	196,327	232,780	272,397	252,222	227,207	207,196	222,838	254,135	*N.A.*
1997	278,200	249,919	237,181	206,054	193,163	246,661	248,928	245,269	213,166	209,374	221,831	257,329	*-1.4%*
1998	281,529	243,496	239,131	213,948	205,787	239,862	265,030	251,899	210,008	220,425	235,100	301,235	*3.6%*
1999	281,083	255,199	246,474	222,679	217,890	263,820	264,301	250,207	235,485	228,653	251,559	282,172	*3.2%*
2000	291,235	265,656	250,874	214,717	220,901	245,180	272,966	264,216	220,689	227,976	252,231	287,656	*0.5%*
2001	312,667	269,575	258,261	217,928	216,773	258,764	284,834	263,974	227,207	233,380	243,477	275,736	*1.6%*
2002	295,624	266,919	260,992	230,113	220,852	247,267	277,972	262,314	225,950	231,123	252,362	287,249	*-0.1%*
2003	294,694	262,471	253,469	215,764	217,837	264,604	273,282	263,397	225,570	238,584	249,882	284,163	*-0.5%*

[redacted]

Note that the above figures represent weather normalized sales from forecast models.

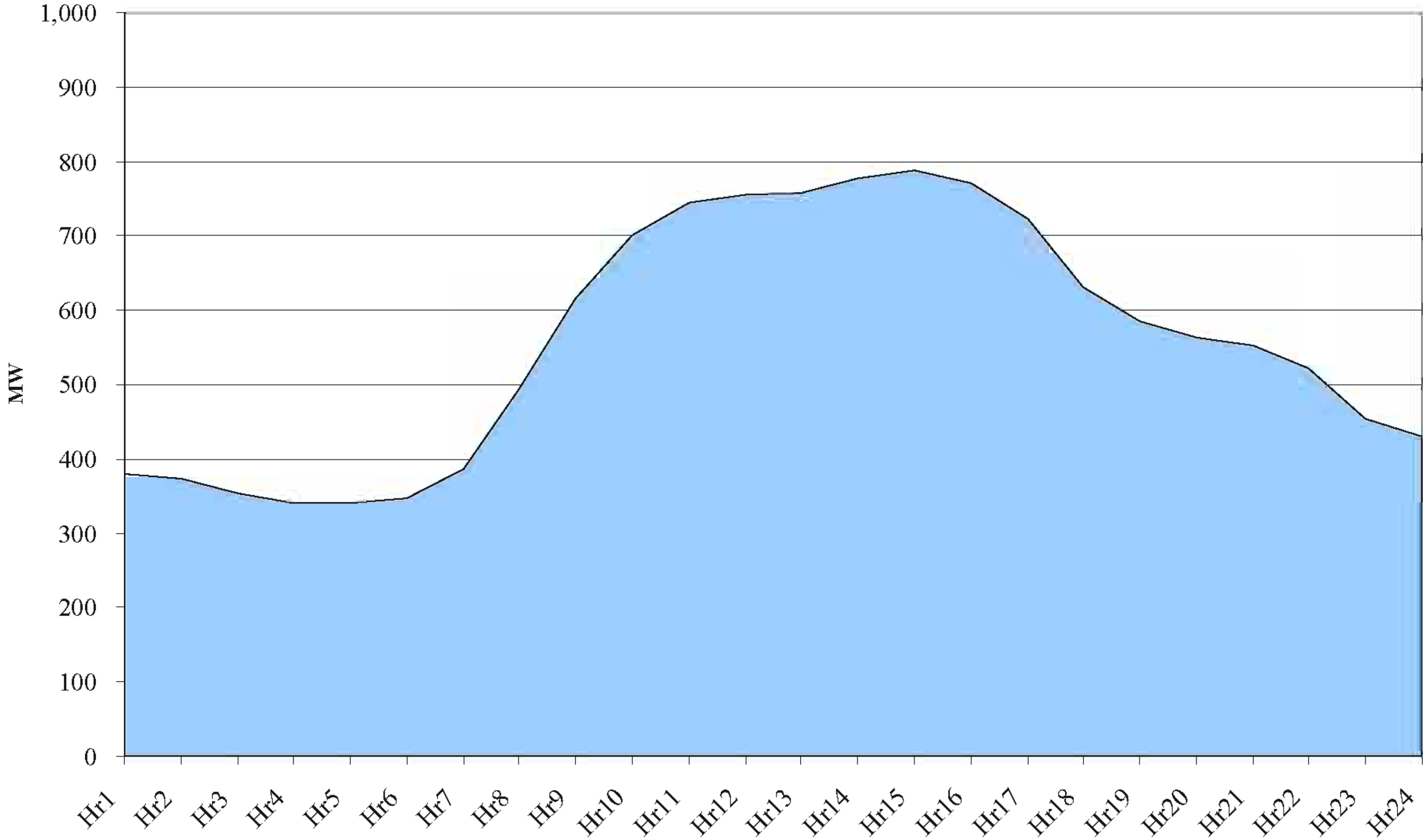
AmerenUE – Missouri

Commercial SGS Summer/Winter Coincident Load Profiles

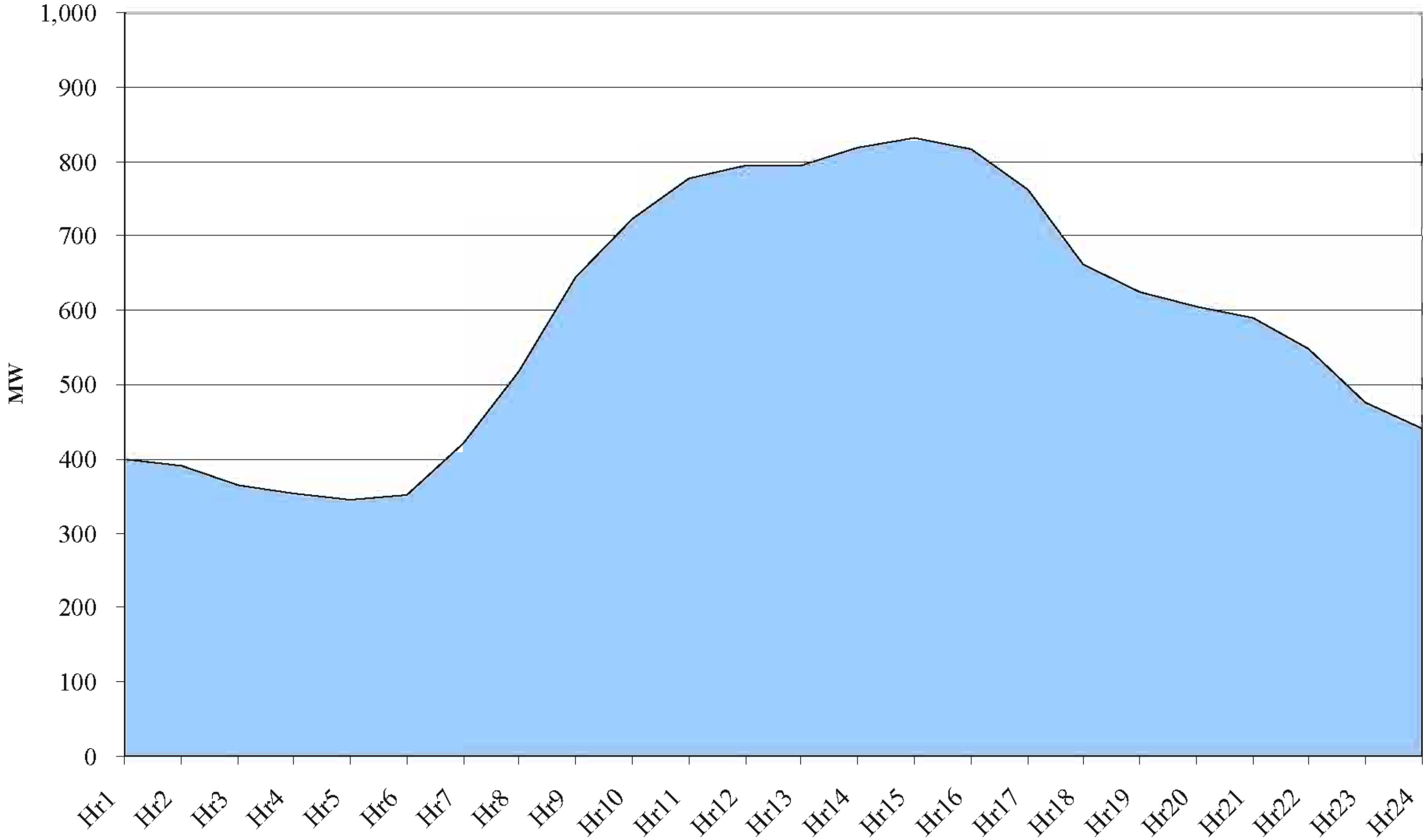
	Summer			Winter		
Hour	**1999 MW**	**2003 MW**	**2014 MW**	**1999 MW**	**2003 MW**	**2014 MW**
1	380	398	[redacted]	375	395	[redacted]
2	374	391		380	400	
3	354	365		379	396	
4	341	354		380	396	
5	340	345		385	398	
6	346	352		405	417	
7	387	421		458	467	
8	493	517		526	526	
9	615	644		583	580	
10	700	724		616	617	
11	745	777		648	651	
12	756	796		641	647	
13	758	795		620	625	
14	778	819		599	608	
15	787	833		579	591	
16	772	816		540	560	
17	724	763		520	534	
18	630	661		494	502	
19	585	624		468	478	
20	563	606		454	469	
21	552	590		444	466	
22	522	548		432	453	
23	453	475		405	419	
24	431	440		396	410	

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Commercial SGS Coincident Summer Load Profile



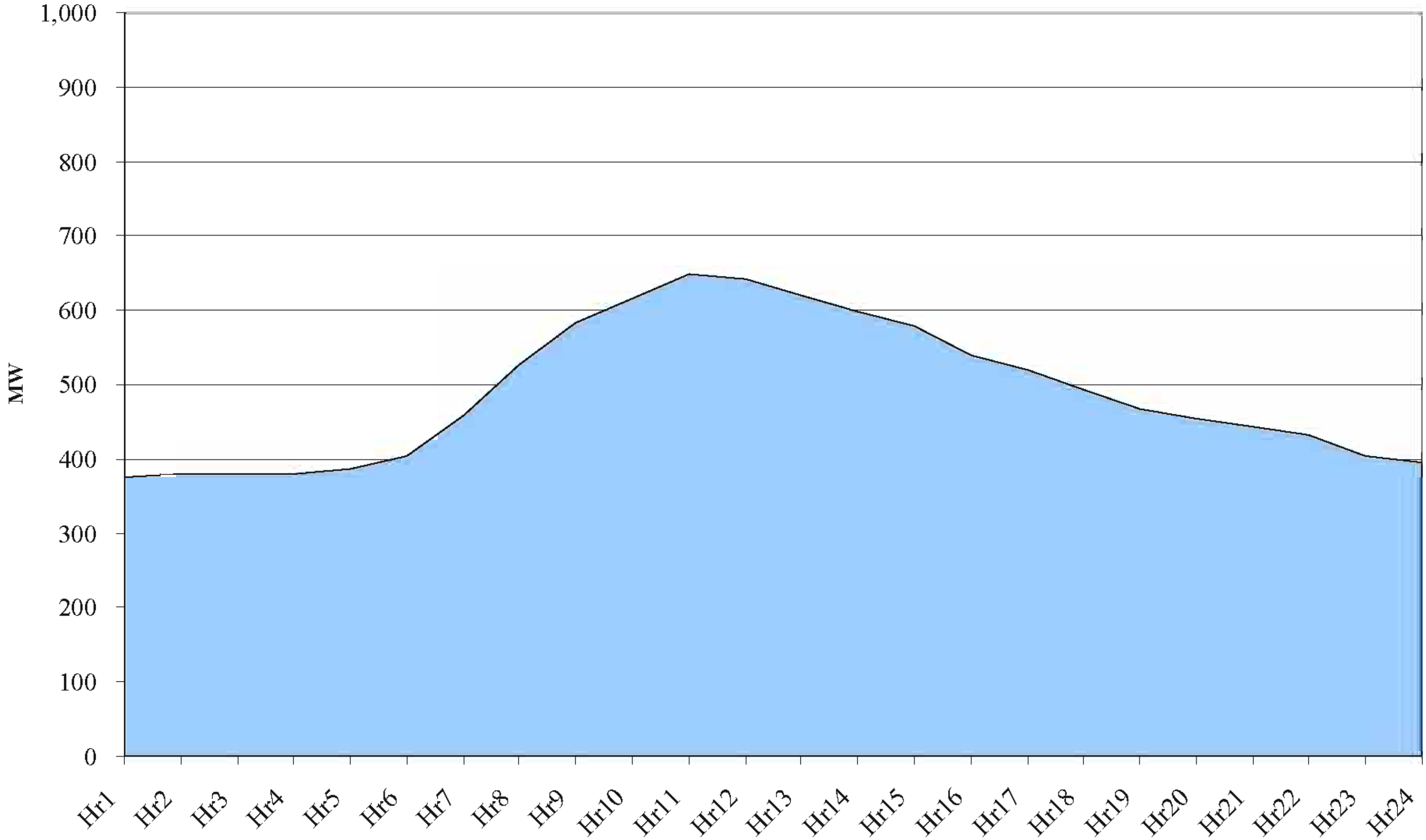
2003 Commercial SGS Coincident Summer Load Profile



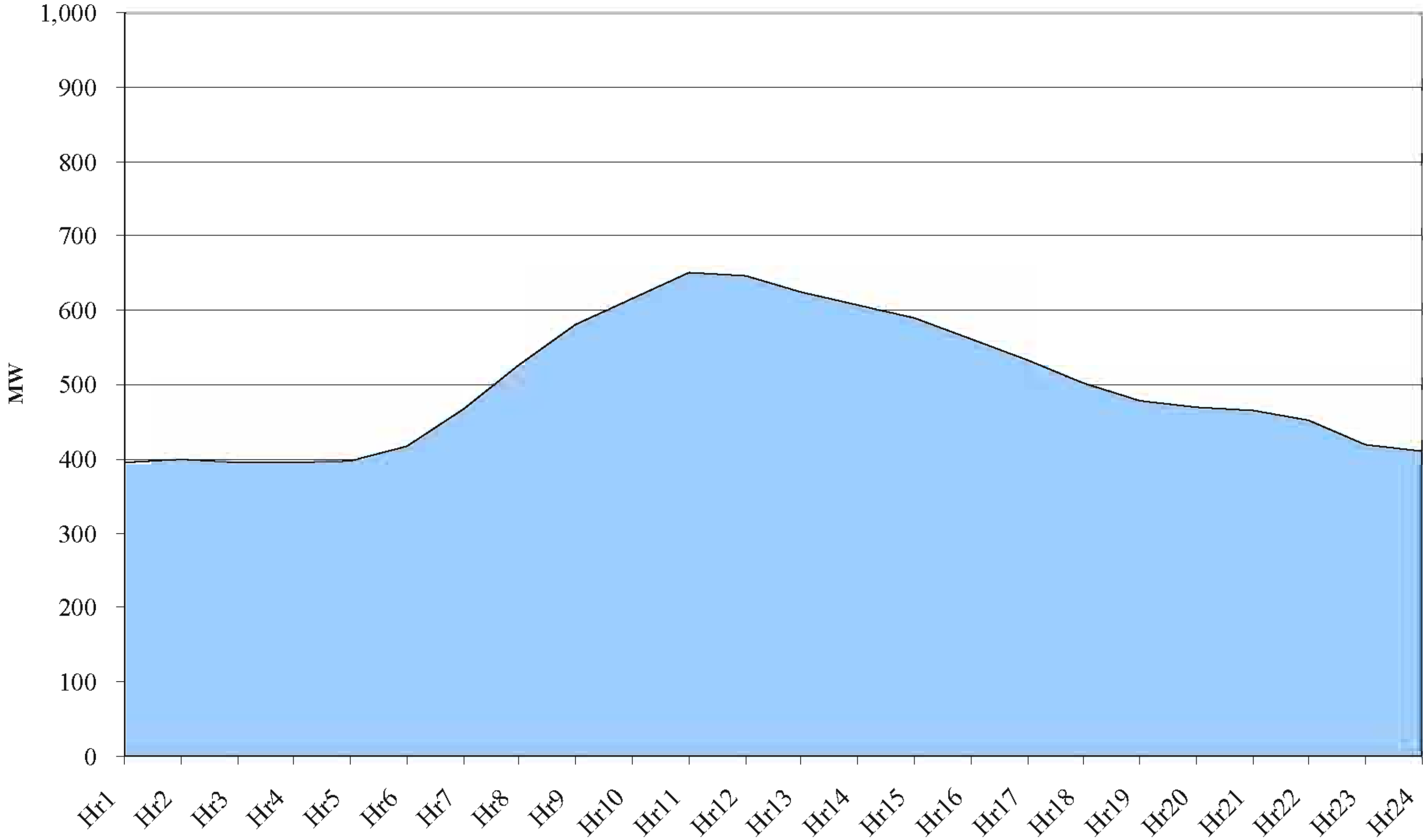
2014 Commercial SGS Coincident Summer Load Profile

[redacted]

1999 Commercial SGS Coincident Winter Load Profile



2003 Commercial SGS Coincident Winter Load Profile



2014 Commercial SGS Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Commercial SGS Customers
Small General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	102,392	102,345	102,597	102,718	102,790	102,961	102,796	102,933	103,008	103,117	103,443	103,862	
1996	103,987	104,142	104,364	104,645	104,915	105,045	105,196	105,411	105,728	105,801	106,097	106,523	*2.2%*
1997	106,755	107,002	107,229	107,549	107,870	108,205	108,495	108,763	108,964	108,742	109,055	109,581	*2.9%*
1998	109,874	110,402	110,837	111,125	111,408	111,848	112,198	112,461	112,748	112,632	112,516	112,209	*3.2%*
1999	113,057	113,529	113,694	114,084	114,574	115,017	115,371	115,596	116,142	116,576	117,186	117,831	*3.2%*
2000	118,461	119,041	119,642	119,950	120,187	120,407	120,561	120,725	120,914	121,104	121,388	121,726	*4.4%*
2001	121,956	121,952	122,072	122,174	122,294	122,380	122,457	122,512	122,732	122,955	123,131	123,321	*1.8%*
2002	123,628	123,860	124,130	124,299	123,854	123,485	123,709	123,637	123,741	124,151	124,395	132,427	*1.7%*
2003	125,981	125,161	125,410	127,526	127,604	127,760	128,138	128,169	128,398	128,898	129,070	129,872	*2.5%*

[redacted]

AmerenUE – Missouri

Commercial LGS Energy Use (MWh) – Revenue Month
Large General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	427,798	405,450	397,450	355,764	357,821	405,912	457,818	491,742	515,343	398,823	364,772	399,386	
1996	450,992	430,605	414,041	385,466	377,626	445,139	488,325	471,567	489,653	399,764	391,980	421,426	*3.8%*
1997	464,738	432,910	402,827	394,349	358,396	422,307	498,518	497,983	485,602	436,554	403,818	428,290	*1.2%*
1998	466,272	417,381	424,918	405,659	395,204	488,572	521,524	506,314	512,345	448,544	412,502	326,077	*1.9%*
1999	454,996	440,234	436,394	488,650	443,050	502,340	508,133	548,321	511,704	484,695	467,087	493,159	*8.5%*
2000	492,345	512,034	421,715	430,723	418,028	529,753	530,303	538,704	549,787	479,626	479,631	513,430	*2.0%*
2001	607,394	457,874	458,159	443,705	472,053	531,608	585,130	632,527	562,631	483,453	425,155	494,807	*4.4%*
2002	514,667	554,606	391,381	460,447	490,339	491,638	602,125	608,729	591,431	522,648	442,765	492,642	*0.1%*
2003	530,658	520,613	507,125	455,092	466,295	501,720	582,152	590,276	604,084	546,034	484,282	568,594	*3.1%*

[redacted]

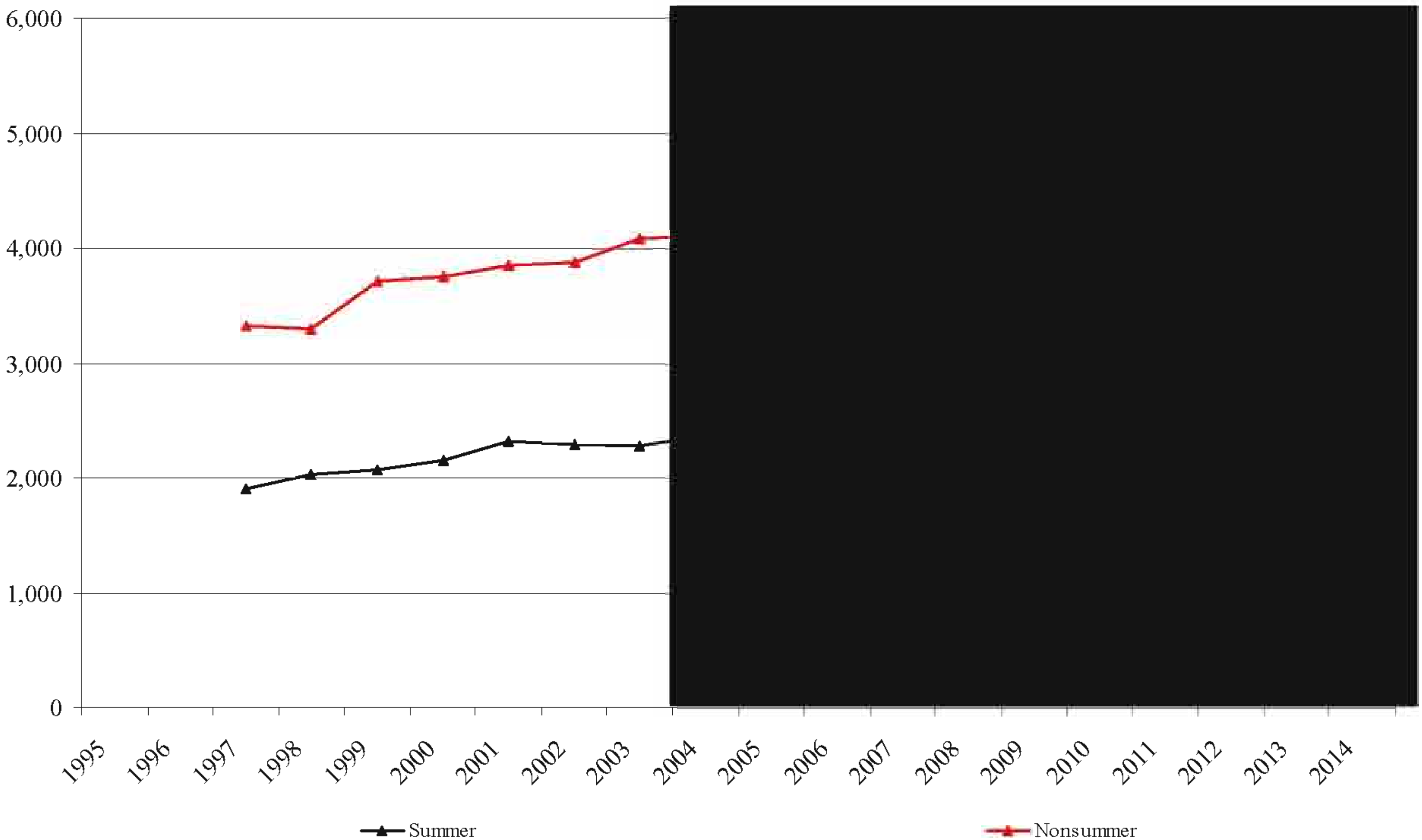
AmerenUE – Missouri

Commercial LGS Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	1,904,410	N.A.	3,321,882	N.A.
1998	2,028,755	6.5%	3,296,557	-0.8%
1999	2,070,498	2.1%	3,708,265	12.5%
2000	2,148,547	3.8%	3,747,532	1.1%
2001	2,311,896	7.6%	3,842,600	2.5%
2002	2,293,923	-0.8%	3,869,494	0.7%
2003	2,278,232	-0.7%	4,078,694	5.4%

[redacted]

AmerenUE - Missouri
LGS Energy Use (GWh)



[redacted]

AmerenUE – Missouri

Commercial LGS Energy Use (MWh) – Calendar Month

Weather Normalized

Large General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
1996	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1997		420,941	407,769	396,975	364,545	395,665	389,706	379,727	396,870	400,047	393,176	423,554	*N.A.*
1998	447,991	398,207	429,434	405,809	383,443	408,305	390,141	398,875	405,139	400,588	406,904	438,951	*N.A.*
1999	441,898	425,363	441,521	434,911	438,327	437,194	396,349	409,338	428,149	466,654	460,737	488,153	*7.2%*
2000	482,138	443,938	450,930	437,352	404,319	415,009	425,754	432,509	430,435	455,060	470,846	505,353	*1.6%*
2001	483,663	438,786	464,590	432,539	437,121	473,294	468,237	491,745	451,965	473,463	474,987	496,185	*4.4%*
2002	495,436	459,681	471,296	438,159	482,995	418,837	454,096	458,787	466,469	486,851	445,506	491,948	*-0.3%*
2003	514,448	507,134	511,695	453,450	462,605	468,137	467,161	470,790	484,828	532,814	509,226	522,775	*6.0%*

[redacted]

Note that the above figures represent weather normalized sales from forecast models.

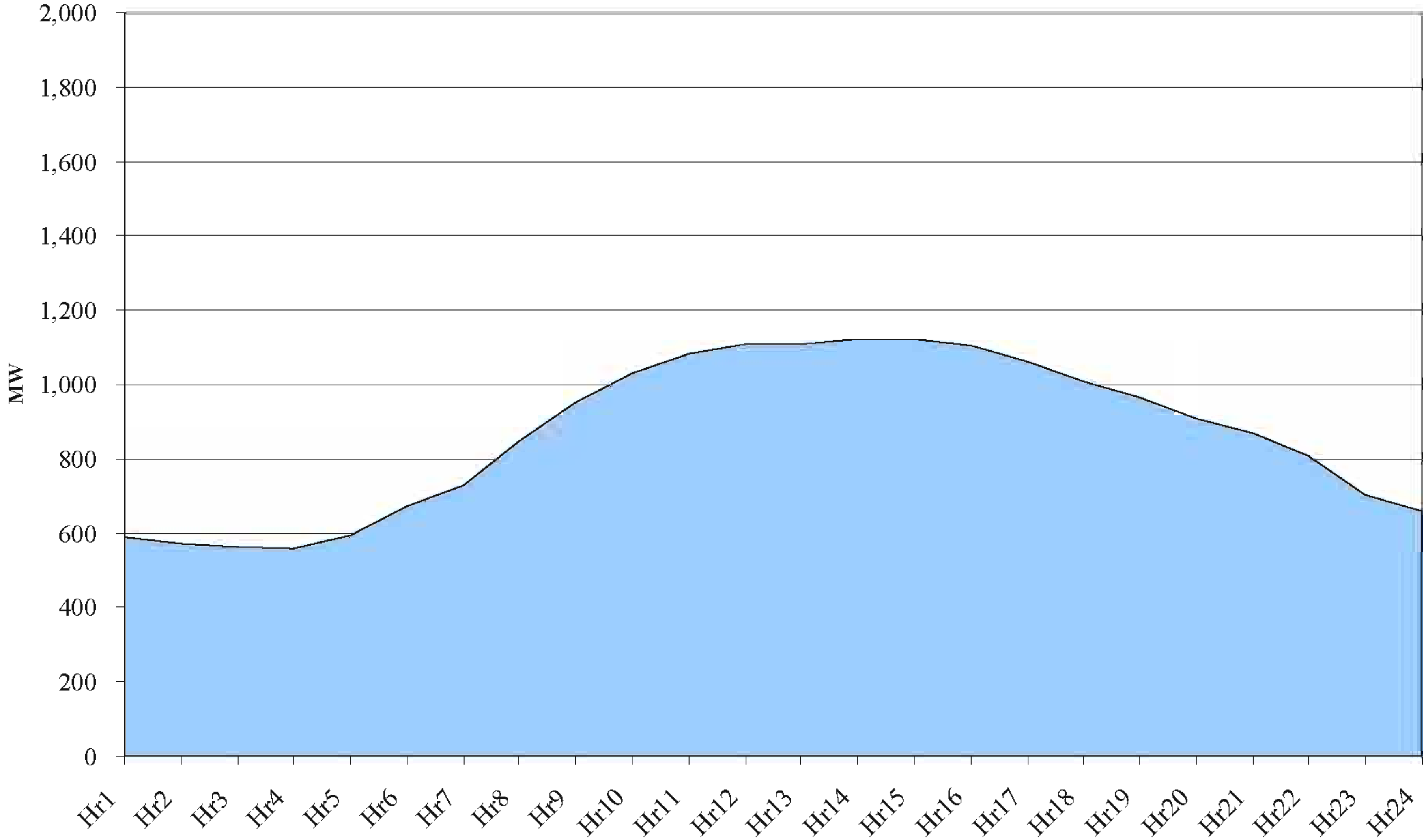
AmerenUE – Missouri

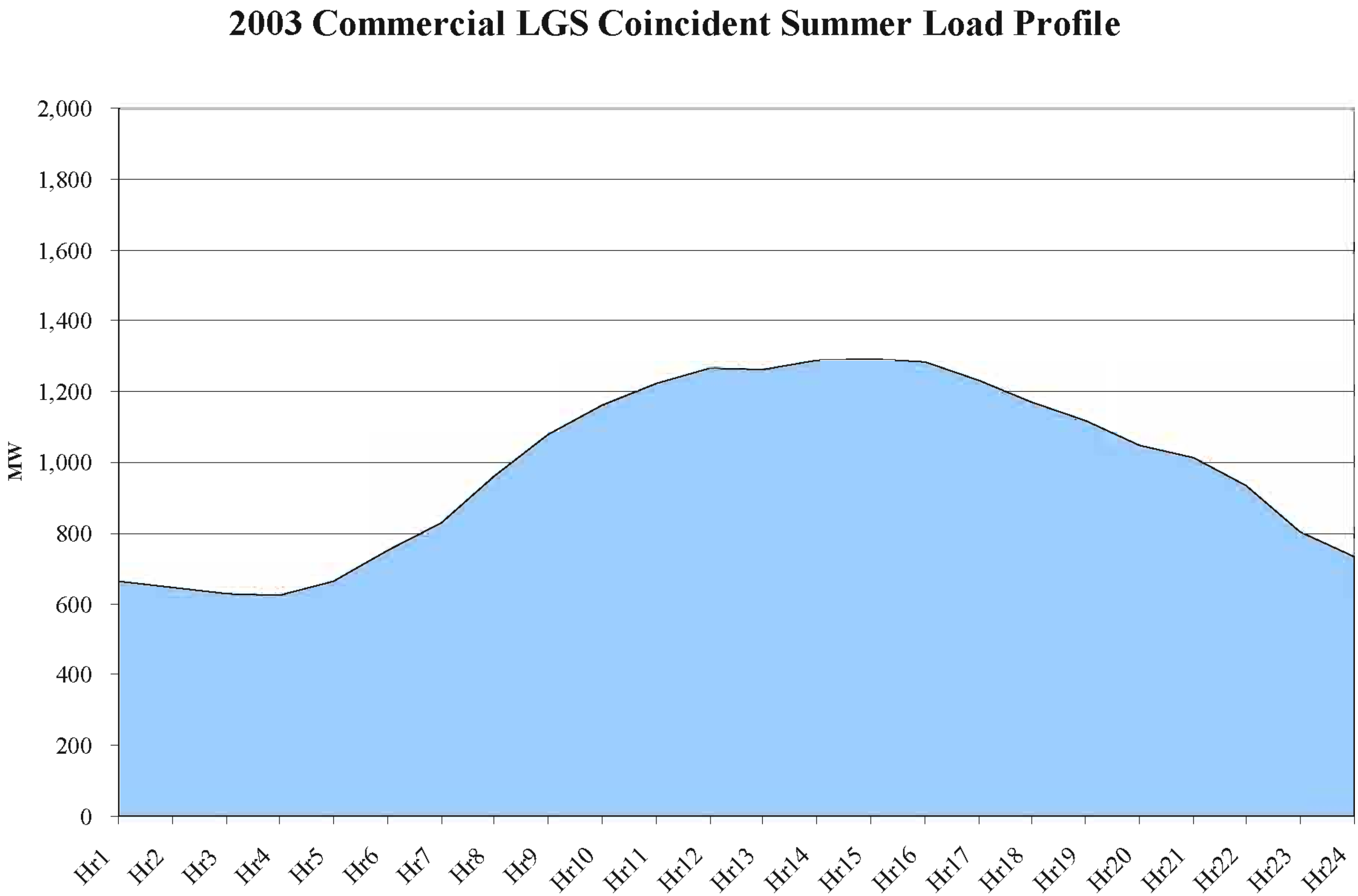
Commercial LGS Summer/Winter Coincident Load Profiles

Hour	Summer 1999 MW	Summer 2003 MW	Summer 2014 MW	Winter 1999 MW	Winter 2003 MW	Winter 2014 MW
1	588	663	[redacted]	530	602	[redacted]
2	573	645		541	606	
3	562	629		552	612	
4	557	623		576	631	
5	595	664		610	668	
6	672	751		677	743	
7	730	829		743	815	
8	846	959		792	864	
9	954	1,078		858	945	
10	1,031	1,163		864	956	
11	1,081	1,223		860	950	
12	1,110	1,265		849	938	
13	1,110	1,264		845	930	
14	1,121	1,288		825	910	
15	1,123	1,293		799	884	
16	1,105	1,282		764	853	
17	1,061	1,232		729	814	
18	1,009	1,171		718	802	
19	966	1,119		704	791	
20	906	1,050		682	775	
21	869	1,013		651	738	
22	808	933		632	710	
23	705	801		593	660	
24	658	734		570	634	

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Commercial LGS Coincident Summer Load Profile

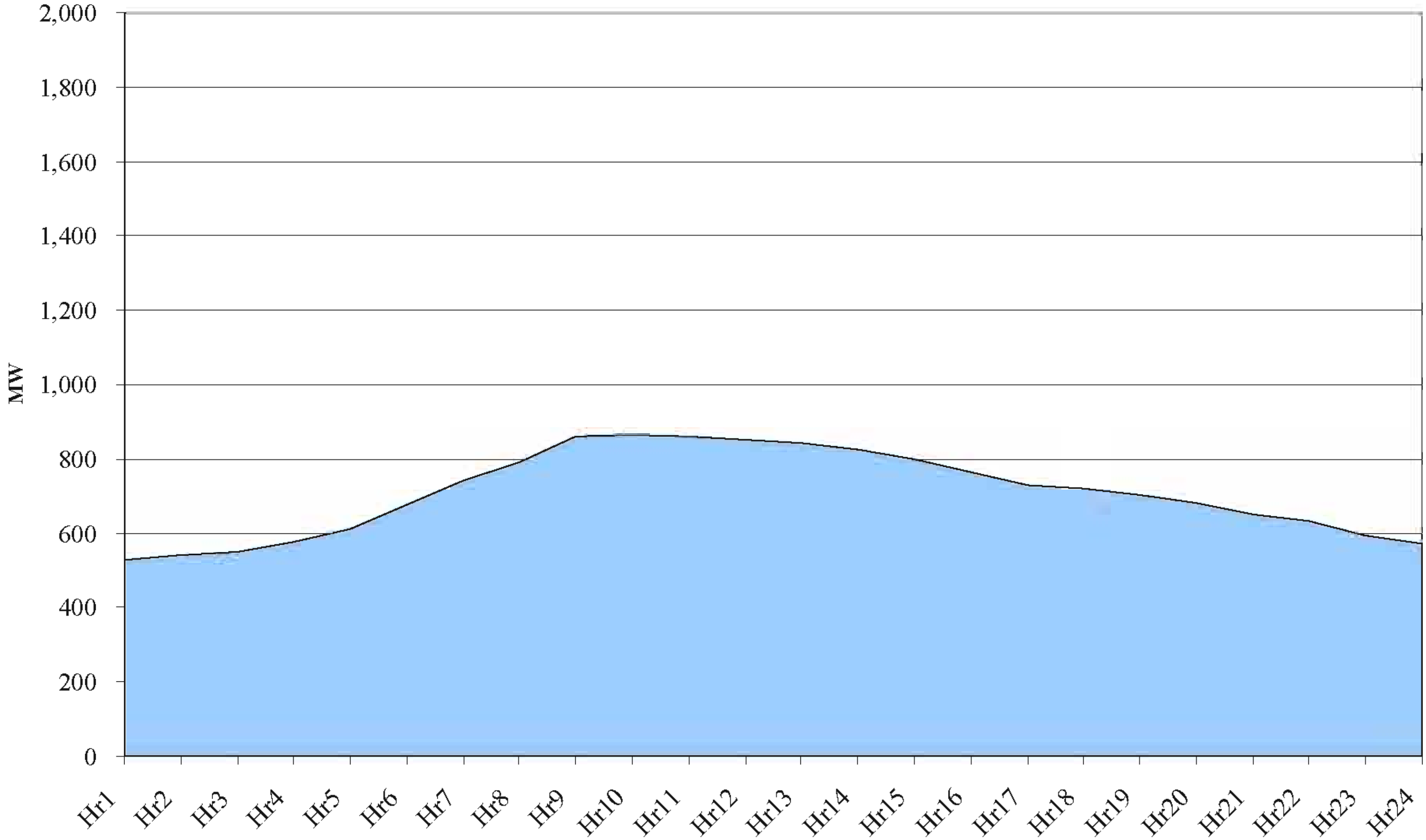



2003 Commercial LGS Coincident Summer Load Profile
MW
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
Hr1
Hr2
Hr3
Hr4
Hr5
Hr6
Hr7
Hr8
Hr9
Hr10
Hr11
Hr12
Hr13
Hr14
Hr15
Hr16
Hr17
Hr18
Hr19
Hr20
Hr21
Hr22
Hr23
Hr24

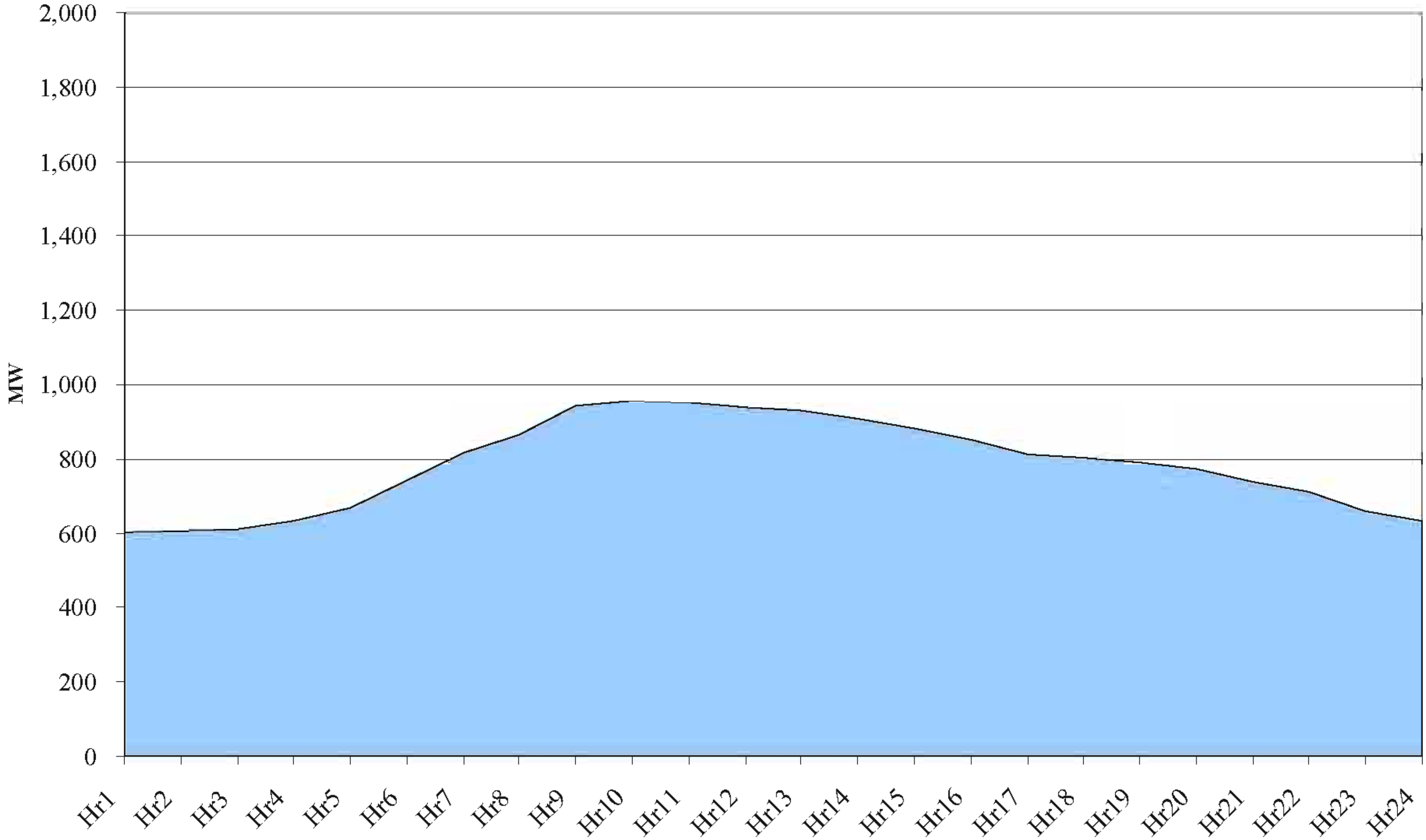
2014 Commercial LGS Coincident Summer Load Profile

[redacted]

1999 Commercial LGS Coincident Winter Load Profile



2003 Commercial LGS Coincident Winter Load Profile



2014 Commercial LGS Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Commercial LGS Customers
Large General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	5,498	5,494	5,509	5,514	5,526	5,518	5,582	5,624	5,680	5,720	5,738	5,755	
1996	5,788	5,804	5,815	5,833	5,851	5,857	5,930	5,961	5,983	6,011	6,007	6,014	*5.5%*
1997	6,024	6,029	6,050	6,053	6,065	6,056	6,120	6,150	6,182	6,202	6,206	6,204	*3.5%*
1998	6,215	6,209	6,198	6,190	6,188	6,186	6,295	6,321	6,362	6,387	6,411	4,658	*0.4%*
1999	5,766	6,323	6,086	6,268	6,299	6,327	6,402	6,370	6,421	6,489	6,433	6,489	*2.8%*
2000	6,657	6,622	6,647	6,714	6,709	6,781	6,838	6,862	6,950	7,005	7,006	6,993	*8.1%*
2001	7,336	7,042	7,060	7,055	7,079	7,172	7,174	7,314	7,324	7,353	7,184	7,196	*5.5%*
2002	7,642	7,516	7,489	7,444	7,437	7,512	7,565	7,558	7,648	7,706	7,661	7,609	*5.2%*
2003	7,769	7,693	7,660	7,666	7,665	7,714	7,803	7,831	7,858	7,935	7,981	7,916	*3.0%*

[redacted]

AmerenUE – Missouri

Commercial SPS Energy Use (MWh) – Revenue Month
Small Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	181,529	169,147	169,637	162,966	164,613	187,004	207,476	216,106	221,977	179,135	154,270	179,721	
1996	189,594	181,385	177,575	173,717	179,320	200,274	215,296	211,308	217,254	186,815	178,257	182,147	*4.5%*
1997	189,387	175,779	168,809	171,424	170,770	189,156	217,420	217,712	209,998	194,142	178,803	180,852	*-1.3%*
1998	190,754	171,142	176,030	177,222	175,635	205,421	222,790	221,536	221,574	195,883	187,087	98,215	*-0.9%*
1999	150,434	230,116	205,683	205,109	183,424	205,570	222,607	342,387	281,099	181,978	167,115	192,473	*14.5%*
2000	256,208	214,958	204,510	176,378	179,605	217,178	238,008	226,055	235,621	205,671	205,670	198,188	*-0.4%*
2001	203,282	270,165	155,286	203,944	161,691	213,695	232,263	243,309	239,309	205,716	191,256	186,667	*-2.0%*
2002	213,242	203,435	217,776	183,325	208,348	224,762	253,143	262,798	250,631	238,710	197,775	184,754	*5.3%*
2003	223,588	193,881	201,829	197,289	205,460	211,329	237,350	254,180	241,893	222,027	221,829	209,785	*-0.7%*

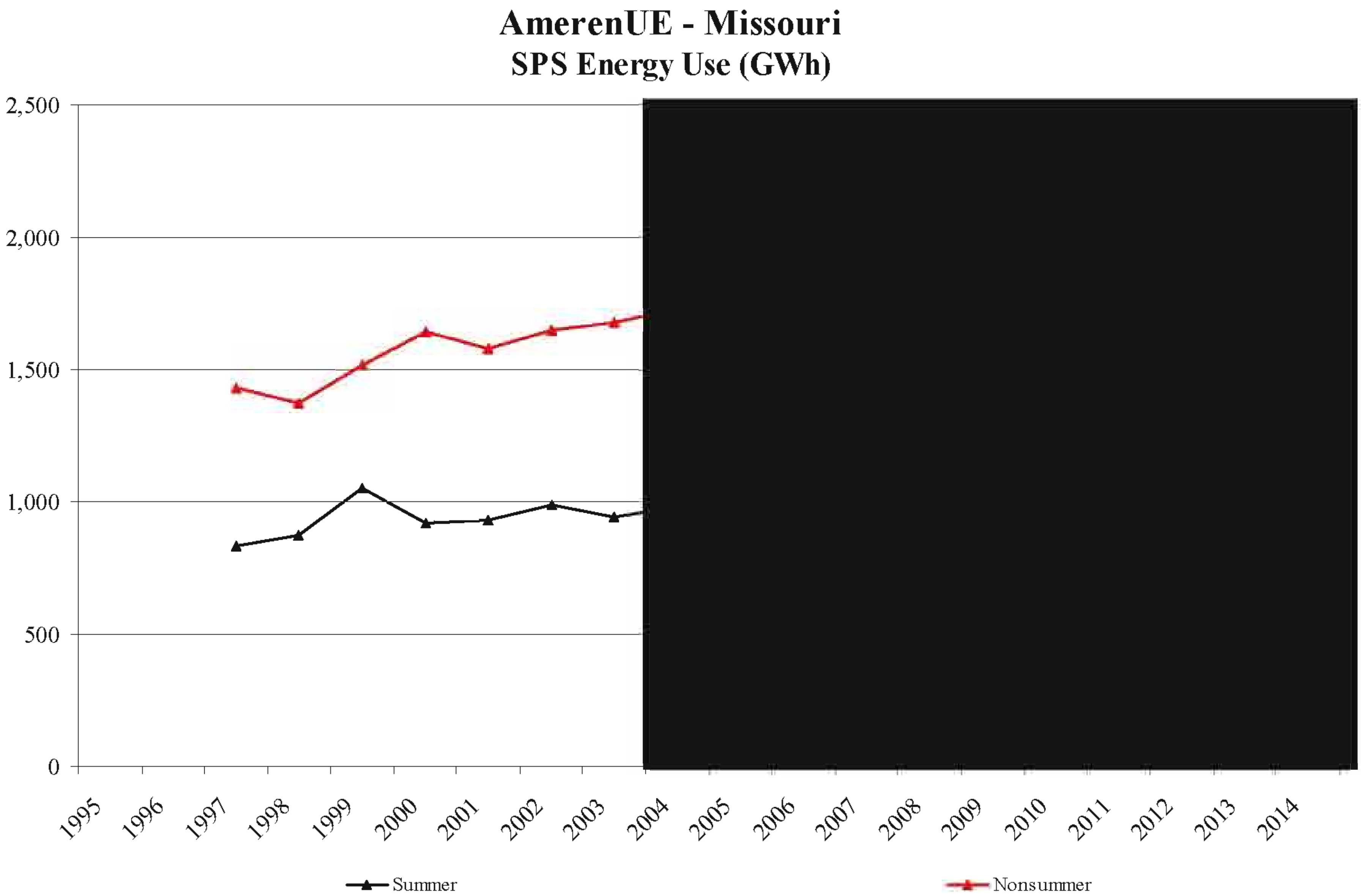
[redacted]

AmerenUE – Missouri

Commercial SPS Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	834,286	N.A.	1,429,966	N.A.
1998	871,321	4.4%	1,371,968	-4.1%
1999	1,051,663	20.7%	1,516,332	10.5%
2000	916,862	-12.8%	1,641,188	8.2%
2001	928,576	1.3%	1,578,007	-3.8%
2002	991,334	6.8%	1,647,364	4.4%
2003	944,751	-4.7%	1,675,688	1.7%

[redacted]


AmerenUE - Missouri
SPS Energy Use (GWh)
2,500
2,000
1,500
1,000
500
0
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Summer
Nonsummer

[redacted]

AmerenUE – Missouri

Commercial SPS Energy Use (MWh) – Calendar Month
Weather Normalized
Small Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	N.A	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
1996	N.A	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1997	N.A	N.A.	N.A.	N.A	N.A.	N.A	N.A.	N.A.	N.A	N.A.	N.A.	N.A.	*N.A*
1998	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1999	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
2000		165,320	204,177	176,291	179,985	230,772	250,861	230,315	210,874	194,594	201,927	197,994	*N.A.*
2001	203,282	216,020	198,379	199,367	189,477	228,397	241,549	236,025	220,237	198,811	190,545	186,667	*N.A.*
2002	213,242	203,435	188,624	220,640	209,986	234,501	251,631	251,806	226,703	223,668	197,289	203,163	*4.6%*
2003	197,128	193,881	201,829	195,334	208,292	234,110	246,652	253,388	220,194	214,961	220,133	209,638	*-1.1%*

[redacted]

Note that the above figures represent weather normalized sales from forecast models.

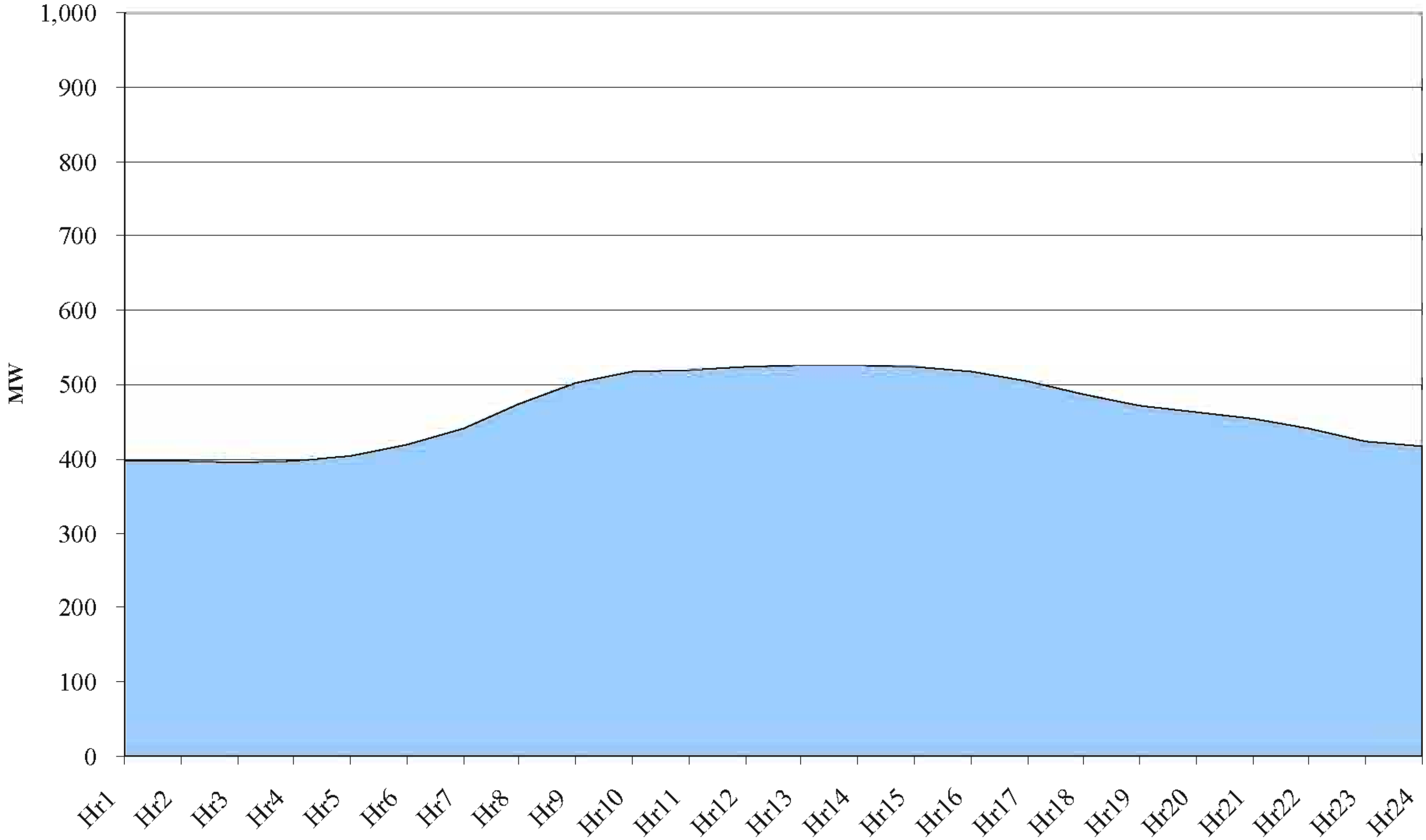
AmerenUE – Missouri

Commercial SPS Summer/Winter Coincident Load Profiles

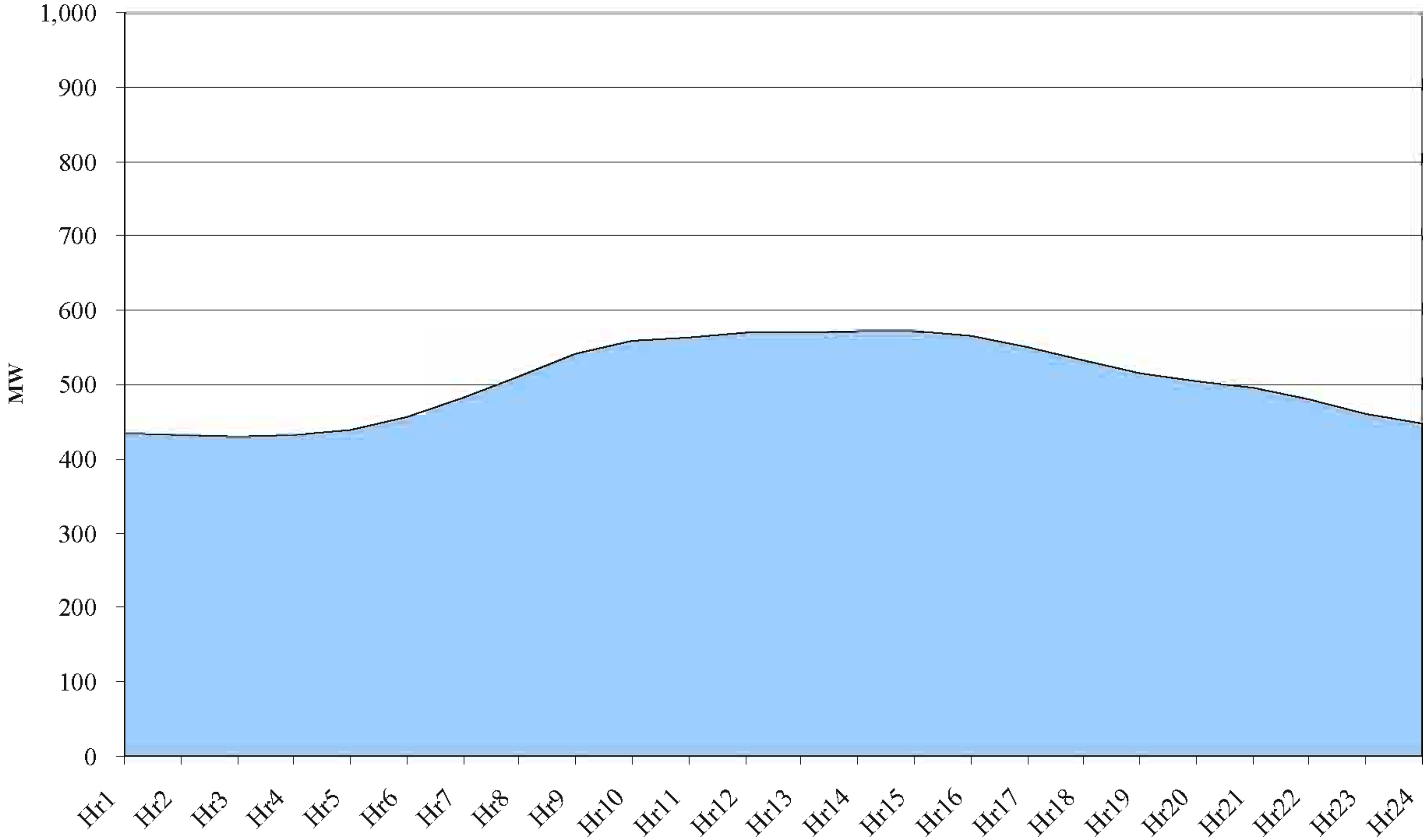
	Summer			Winter		
Hour	1999 MW	2003 MW	2014 MW	1999 MW	2003 MW	2014 MW
1	398	434	[redacted]	359	416	[redacted]
2	396	432	[redacted]	362	413	[redacted]
3	394	429	[redacted]	364	412	[redacted]
4	397	433	[redacted]	367	414	[redacted]
5	404	440	[redacted]	374	419	[redacted]
6	420	457	[redacted]	390	437	[redacted]
7	441	482	[redacted]	412	460	[redacted]
8	473	511	[redacted]	435	485	[redacted]
9	502	542	[redacted]	452	505	[redacted]
10	517	559	[redacted]	459	512	[redacted]
11	520	563	[redacted]	456	508	[redacted]
12	525	569	[redacted]	454	506	[redacted]
13	525	570	[redacted]	450	501	[redacted]
14	527	573	[redacted]	446	497	[redacted]
15	524	571	[redacted]	439	489	[redacted]
16	517	564	[redacted]	431	482	[redacted]
17	504	550	[redacted]	425	474	[redacted]
18	487	532	[redacted]	422	469	[redacted]
19	473	516	[redacted]	410	457	[redacted]
20	463	505	[redacted]	404	450	[redacted]
21	455	496	[redacted]	399	444	[redacted]
22	442	480	[redacted]	391	436	[redacted]
23	424	461	[redacted]	385	428	[redacted]
24	416	448	[redacted]	379	423	[redacted]

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Commercial SPS Coincident Summer Load Profile



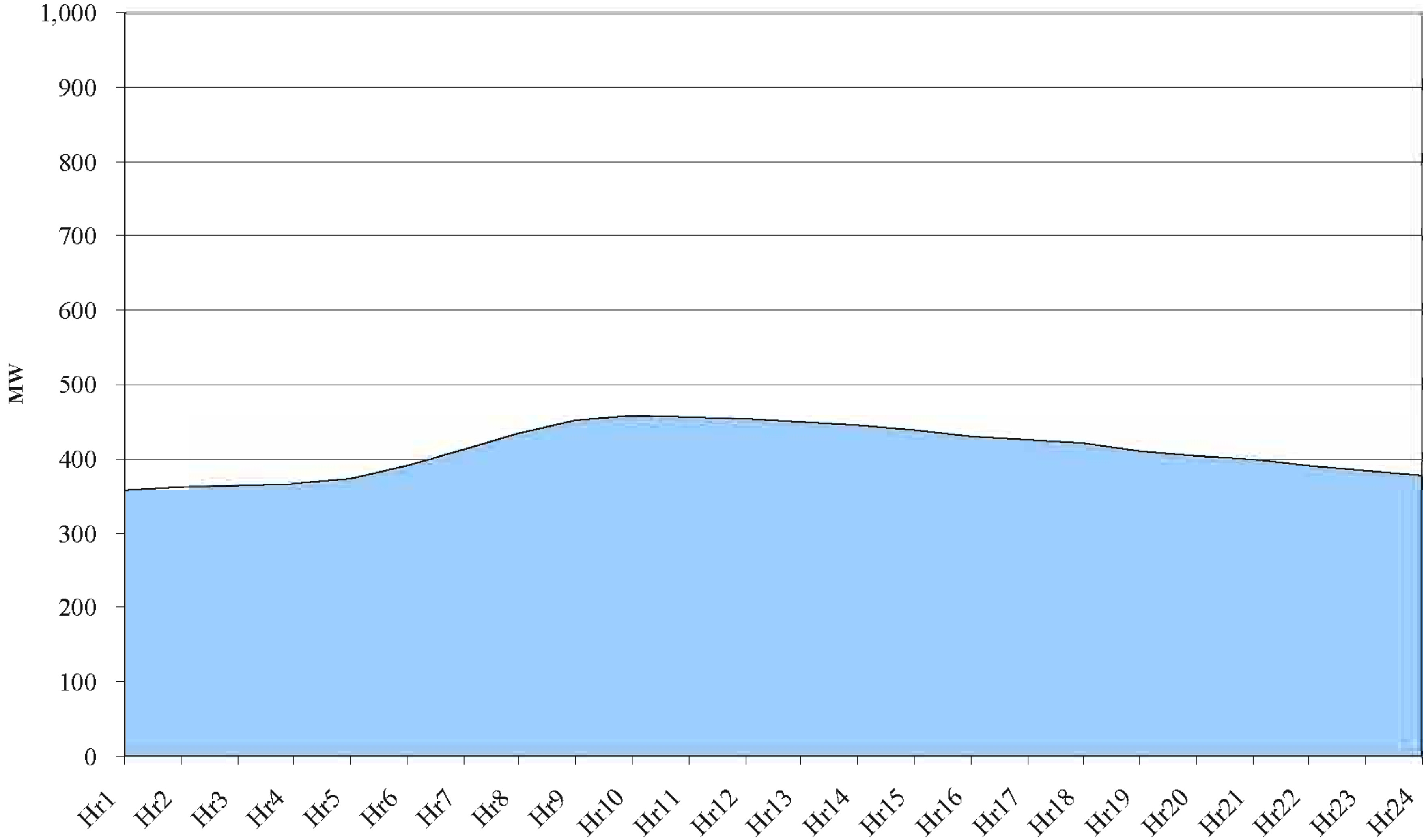
2003 Commercial SPS Coincident Summer Load Profile



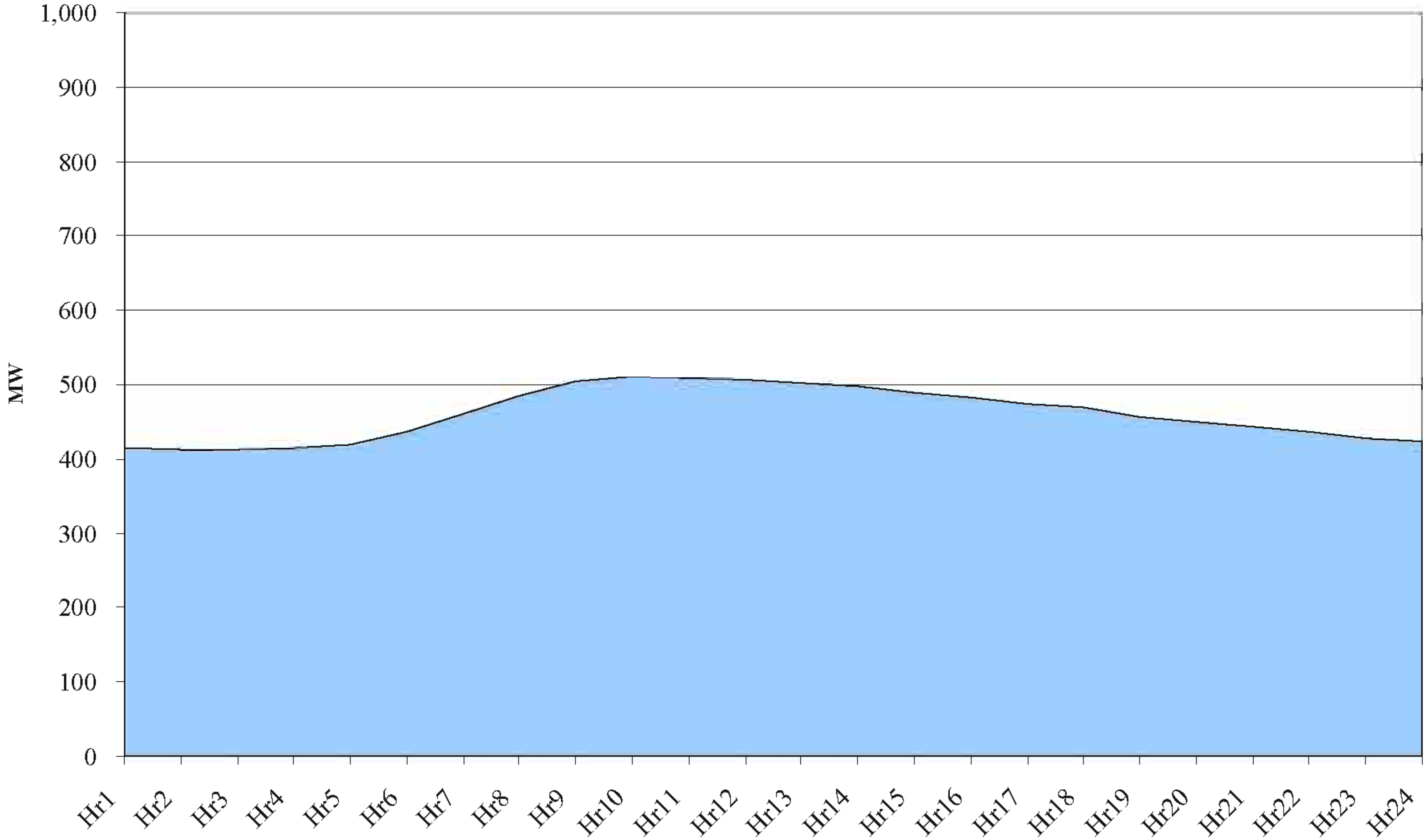
2014 Commercial SPS Coincident Summer Load Profile

[redacted]

1999 Commercial SPS Coincident Winter Load Profile



2003 Commercial SPS Coincident Winter Load Profile



2014 Commercial SPS Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Commercial SPS Customers
Small Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	345	346	347	348	351	348	355	363	365	364	365	365	
1996	368	365	366	367	368	369	371	373	377	380	382	380	*4.8%*
1997	381	385	388	393	399	399	401	396	395	392	391	393	*5.5%*
1998	392	392	395	393	396	395	399	400	399	402	404	196	*-3.2%*
1999	303	377	365	382	380	382	393	387	385	367	337	352	*-3.3%*
2000	405	401	397	408	410	419	415	423	424	418	418	417	*12.4%*
2001	447	421	411	423	425	435	433	436	434	434	428	424	*4.0%*
2002	460	453	444	423	439	448	441	445	436	460	460	474	*4.5%*
2003	459	440	453	446	448	438	440	462	442	454	459	446	*0.1%*

[redacted]

AmerenUE – Missouri

Commercial LPS Energy Use (MWh) – Revenue Month
Large Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	68,053	62,383	67,288	61,803	68,807	72,785	83,167	85,076	78,933	72,808	64,736	64,559	
1996	69,675	64,456	64,875	67,010	68,248	76,486	86,883	82,289	83,767	72,838	67,839	76,284	*3.6%*
1997	79,794	71,672	74,975	74,192	75,821	83,671	93,865	87,400	88,586	81,256	71,801	78,039	*9.1%*
1998	75,664	69,569	74,695	73,859	75,829	90,613	88,942	90,598	83,508	76,946	75,422	10,270	*-7.8%*
1999	50,383	76,567	56,591	83,803	75,007	128,054	144,840	80,994	109,377	83,640	82,210	58,093	*16.2%*
2000	103,821	120,436	61,129	66,884	85,387	86,115	84,504	89,146	89,037	83,225	83,225	74,509	*-0.2%*
2001	69,442	73,632	56,861	81,191	77,349	83,400	88,160	93,767	98,096	78,173	83,689	70,013	*-7.2%*
2002	78,291	75,348	92,612	52,525	81,405	82,574	87,809	100,797	95,437	88,513	85,938	66,056	*3.5%*
2003	98,319	81,293	76,500	80,648	80,680	82,253	96,828	95,225	97,044	96,896	90,149	82,367	*7.2%*

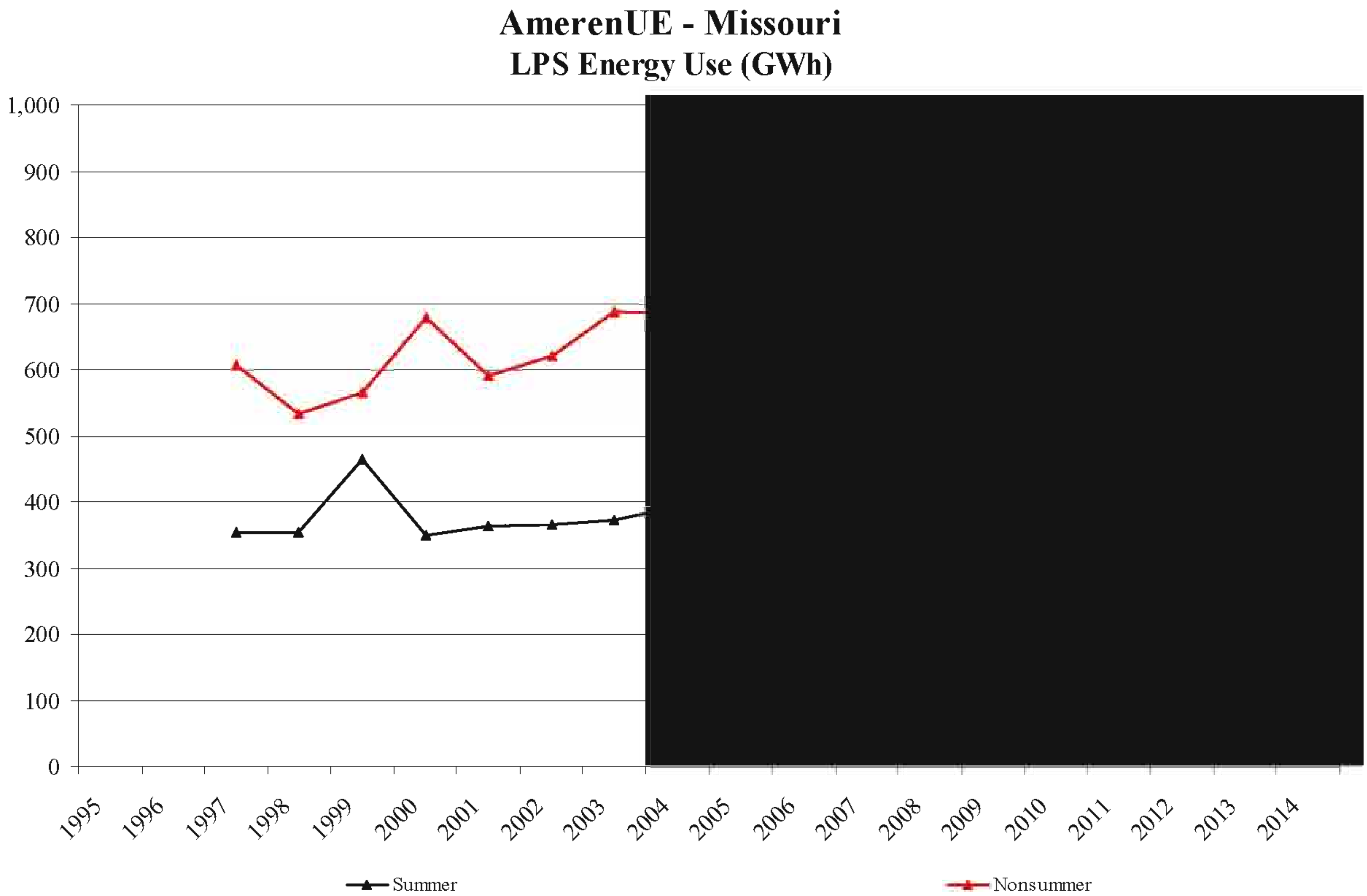
[redacted]

AmerenUE – Missouri

Commercial LPS Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	353,522	N.A.	607,550	N.A.
1998	353,661	0.0%	532,254	-12.4%
1999	463,265	31.0%	566,294	6.4%
2000	348,802	-24.7%	678,616	19.8%
2001	363,423	4.2%	590,350	-13.0%
2002	366,617	0.9%	620,687	5.1%
2003	371,351	1.3%	686,851	10.7%

[redacted]


AmerenUE - Missouri
LPS Energy Use (GWh)
1,000
900
800
700
600
500
400
300
200
100
0
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Summer
Nonsummer

[redacted]

AmerenUE – Missouri

Commercial LPS Energy Use (MWh) – Calendar Month

Weather Normalized
Large Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	N.A	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
1996	N.A	N.A.	N.A.	N.A	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1997	N.A	N.A.	N.A.	N.A.	N.A.	N.A	N.A.	N.A.	N.A	N.A.	N.A.	N.A.	*N.A.*
1998	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1999	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
2000		92,625	61,030	66,851	85,568	91,505	89,067	90,826	79,686	78,743	81,710	74,436	*N.A.*
2001	69,442	58,875	72,640	79,369	90,641	89,138	91,685	90,960	90,278	75,549	83,378	70,013	*N.A.*
2002	78,291	75,348	80,215	63,216	82,045	86,152	87,285	96,581	86,326	82,935	85,727	72,638	*1.5%*
2003	86,684	81,293	76,500	79,849	81,792	91,120	100,623	94,929	88,339	93,812	89,460	82,309	*7.2%*

[redacted]

Note that the above figures represent weather normalized sales from forecast models.

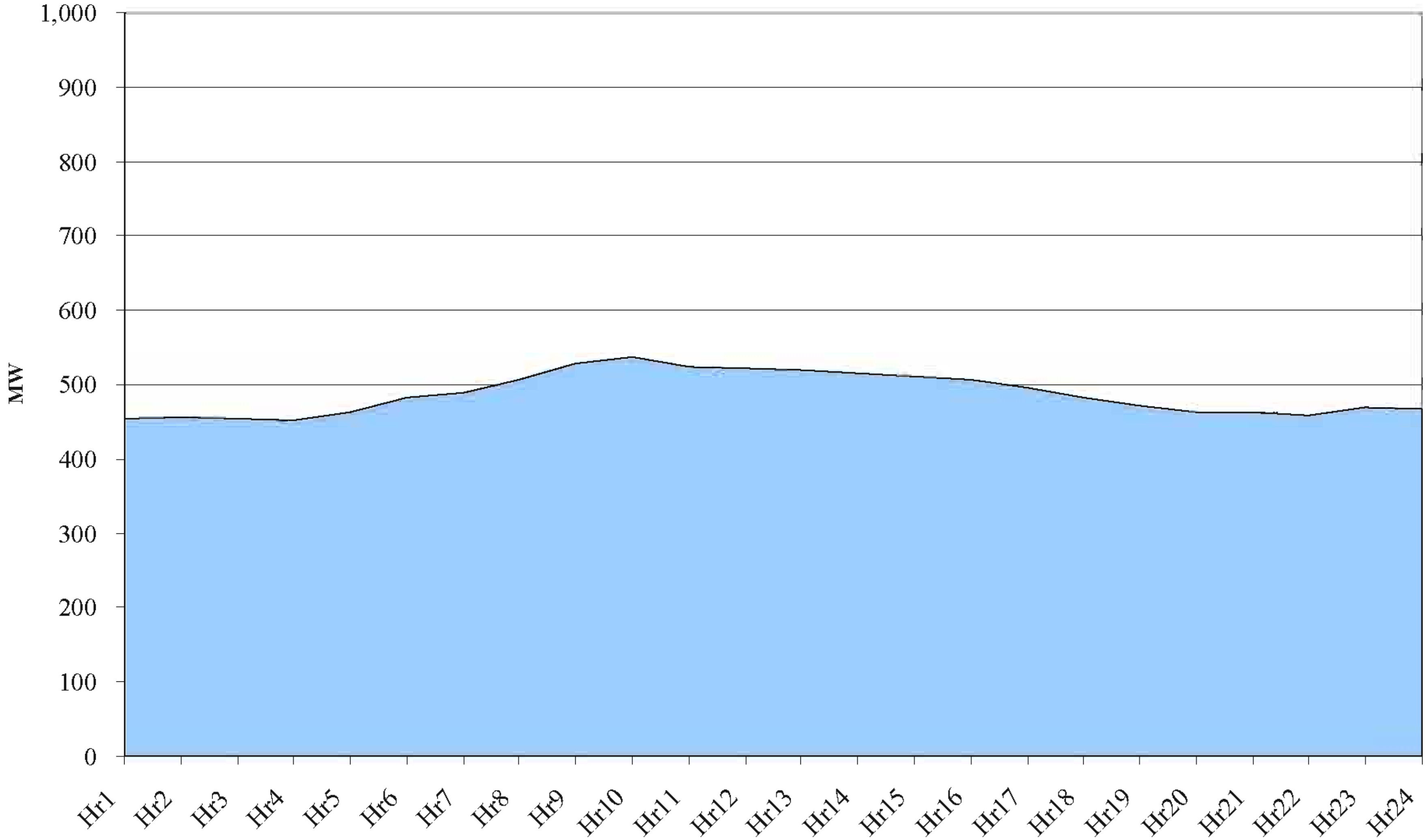
AmerenUE – Missouri

Commercial LPS Summer/Winter Coincident Load Profiles

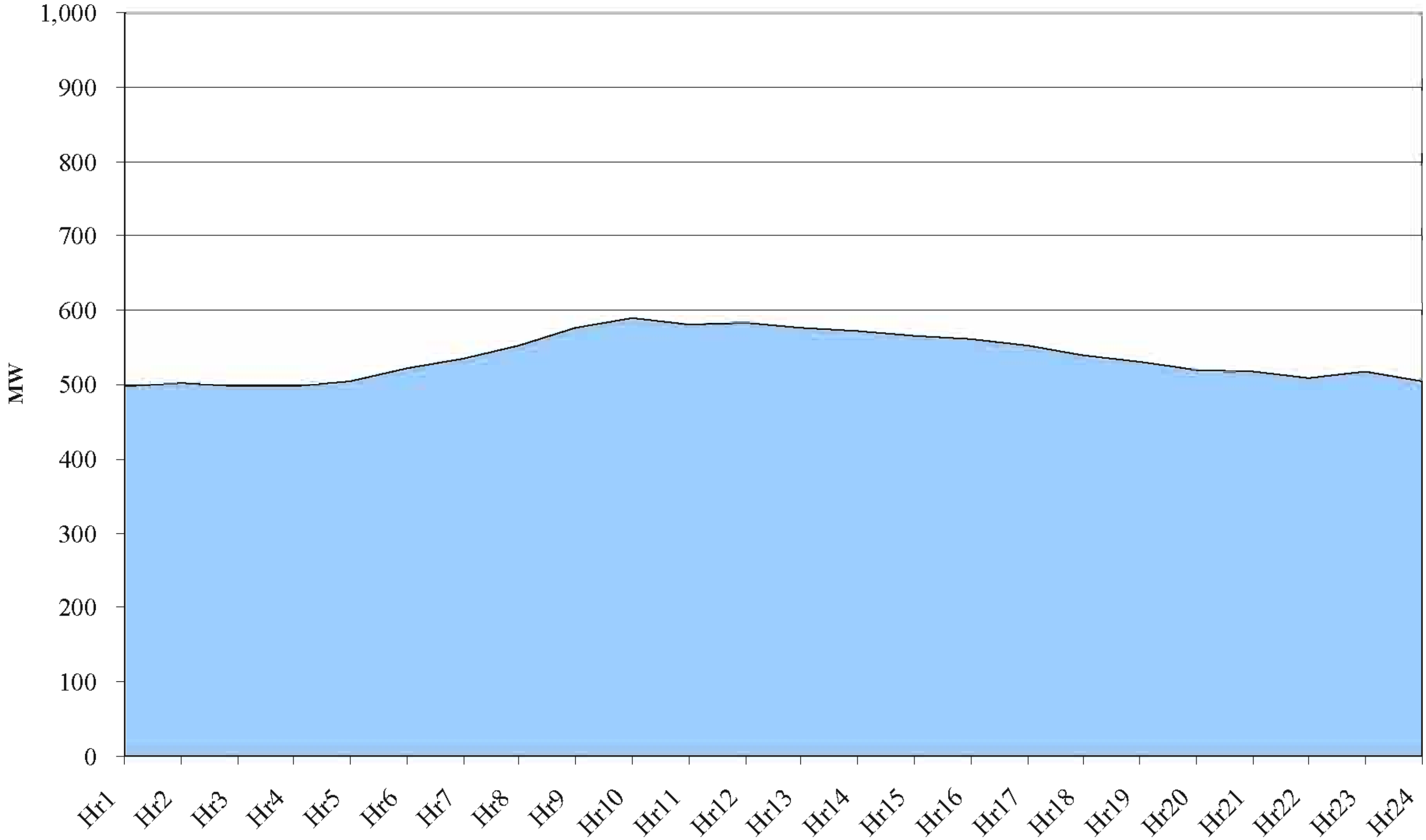
	Summer			Winter		
Hour	1999 MW	2003 MW	2014 MW	1999 MW	2003 MW	2014 MW
1	454	497	[redacted]	344	384	[redacted]
2	457	502		343	384	
3	454	498		342	382	
4	453	497		344	381	
5	463	504		346	383	
6	483	522		354	392	
7	489	535		368	406	
8	507	553		381	422	
9	528	576		392	435	
10	536	589		403	446	
11	523	582		415	460	
12	522	582		416	461	
13	519	576		413	459	
14	515	571		414	460	
15	510	565		413	458	
16	506	562		408	454	
17	496	552		405	449	
18	482	539		398	440	
19	472	529		389	431	
20	462	519		382	424	
21	463	516		379	421	
22	459	509		376	416	
23	470	518		358	396	
24	468	504		354	392	

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Commercial LPS Coincident Summer Load Profile



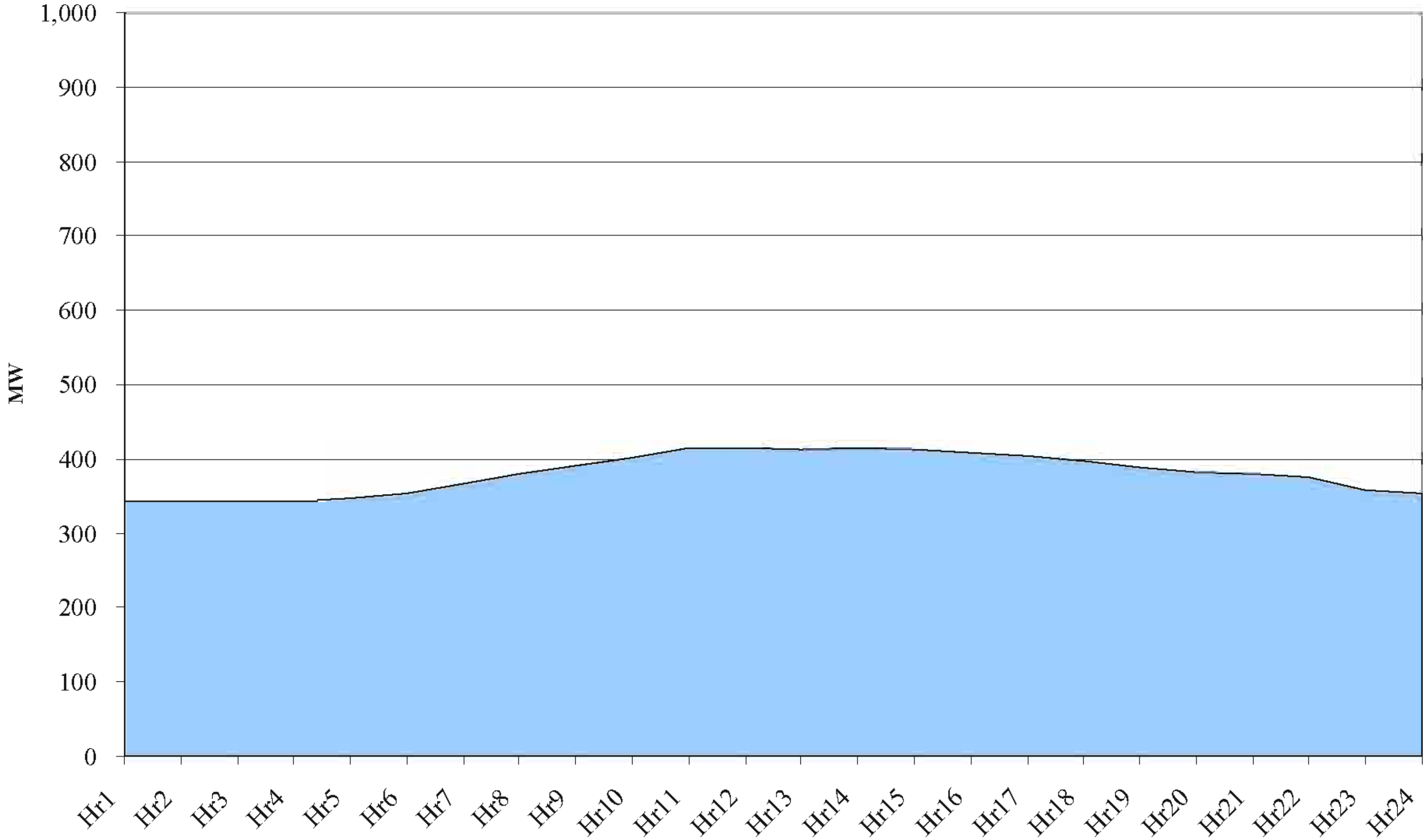
2003 Commercial LPS Coincident Summer Load Profile



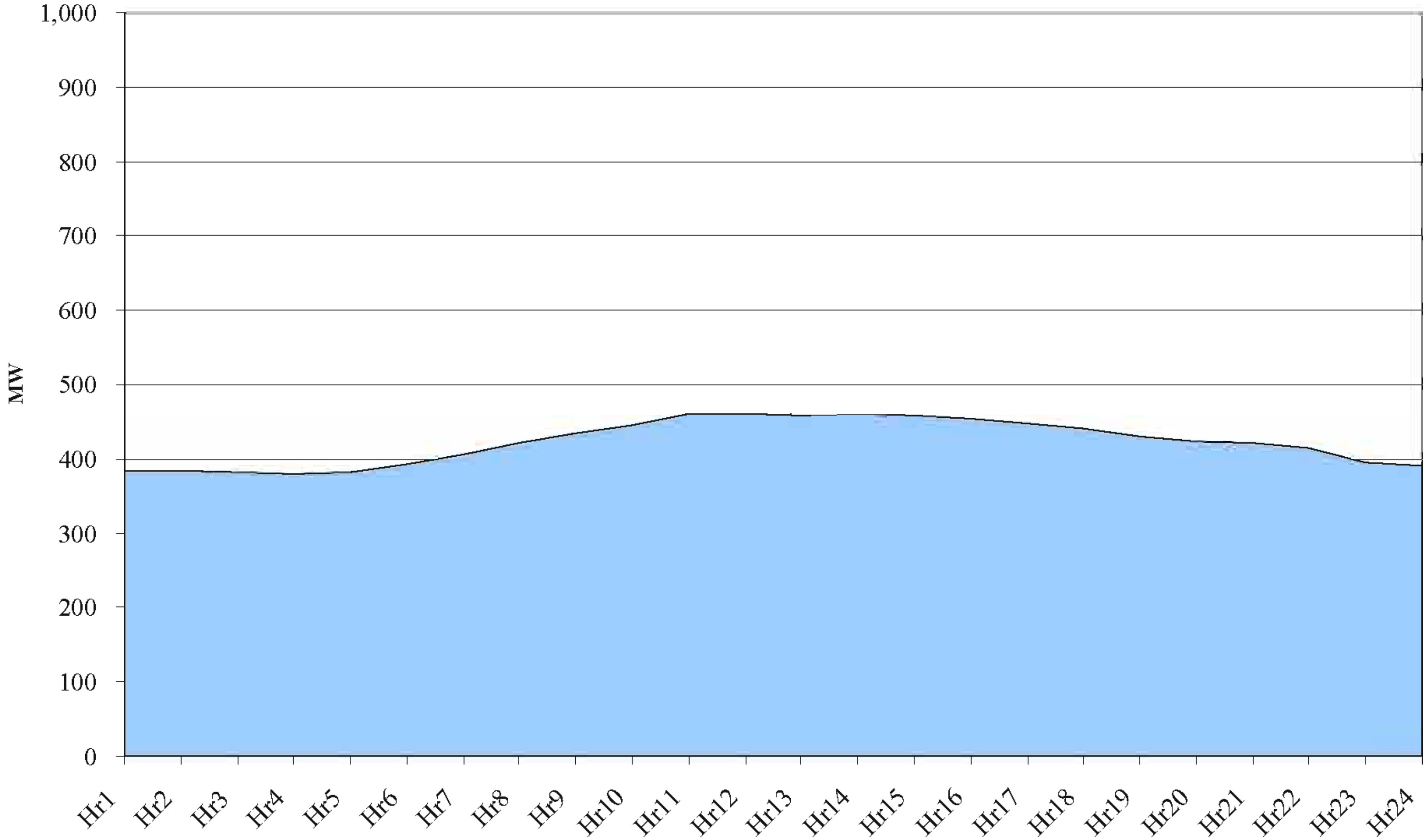
2014 Commercial LPS Coincident Summer Load Profile

[redacted]

1999 Commercial LPS Coincident Winter Load Profile



2003 Commercial LPS Coincident Winter Load Profile



2014 Commercial LPS Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Commercial LPS Customers
Large Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	15	15	15	15	15	15	15	15	15	15	15	15	
1996	15	15	15	15	15	16	16	16	16	17	17	18	*6.1%*
1997	18	18	18	18	17	18	18	18	18	18	18	18	*12.6%*
1998	18	18	18	18	18	18	18	18	18	18	18	3	*-6.5%*
1999	14	17	14	17	14	17	20	18	19	19	19	14	*0.5%*
2000	22	19	14	18	18	19	19	19	19	20	20	19	*11.9%*
2001	20	20	17	20	20	20	20	20	20	20	21	19	*4.9%*
2002	20	20	26	14	20	21	20	20	20	20	19	8	*-3.8%*
2003	27	23	20	22	22	23	24	24	22	25	22	23	*21.5%*

[redacted]

AmerenUE – Missouri

Commercial DtD Energy Use (MWh) – Revenue Month
Dusk-to-Dawn Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	9,218	8,086	8,056	6,963	6,497	5,949	6,437	6,919	7,514	8,521	8,982	9,707	
1996	9,583	8,157	8,034	7,049	6,503	5,994	6,411	6,940	7,513	8,554	9,035	9,812	*0.8%*
1997	9,652	8,219	8,251	7,126	6,571	6,039	6,465	7,053	7,670	8,703	9,223	9,979	*1.5%*
1998	9,841	8,387	8,343	7,242	6,649	6,153	6,522	7,164	7,702	8,752	9,267	9,748	*0.9%*
1999	9,601	8,144	8,189	7,088	6,602	6,055	6,436	7,056	7,635	8,651	9,135	9,920	*-1.3%*
2000	9,774	8,334	8,295	7,170	6,604	6,113	6,499	7,109	7,735	8,791	9,284	10,004	*1.3%*
2001	9,525	8,104	8,341	7,223	6,740	6,186	6,596	7,203	7,795	8,839	9,340	10,090	*0.3%*
2002	9,914	9,027	8,939	7,789	6,521	6,808	6,704	6,706	7,568	8,156	8,864	10,501	*1.6%*
2003	10,983	9,575	8,905	7,724	6,973	6,665	6,480	6,697	7,557	8,190	9,057	10,375	*1.7%*

[redacted]

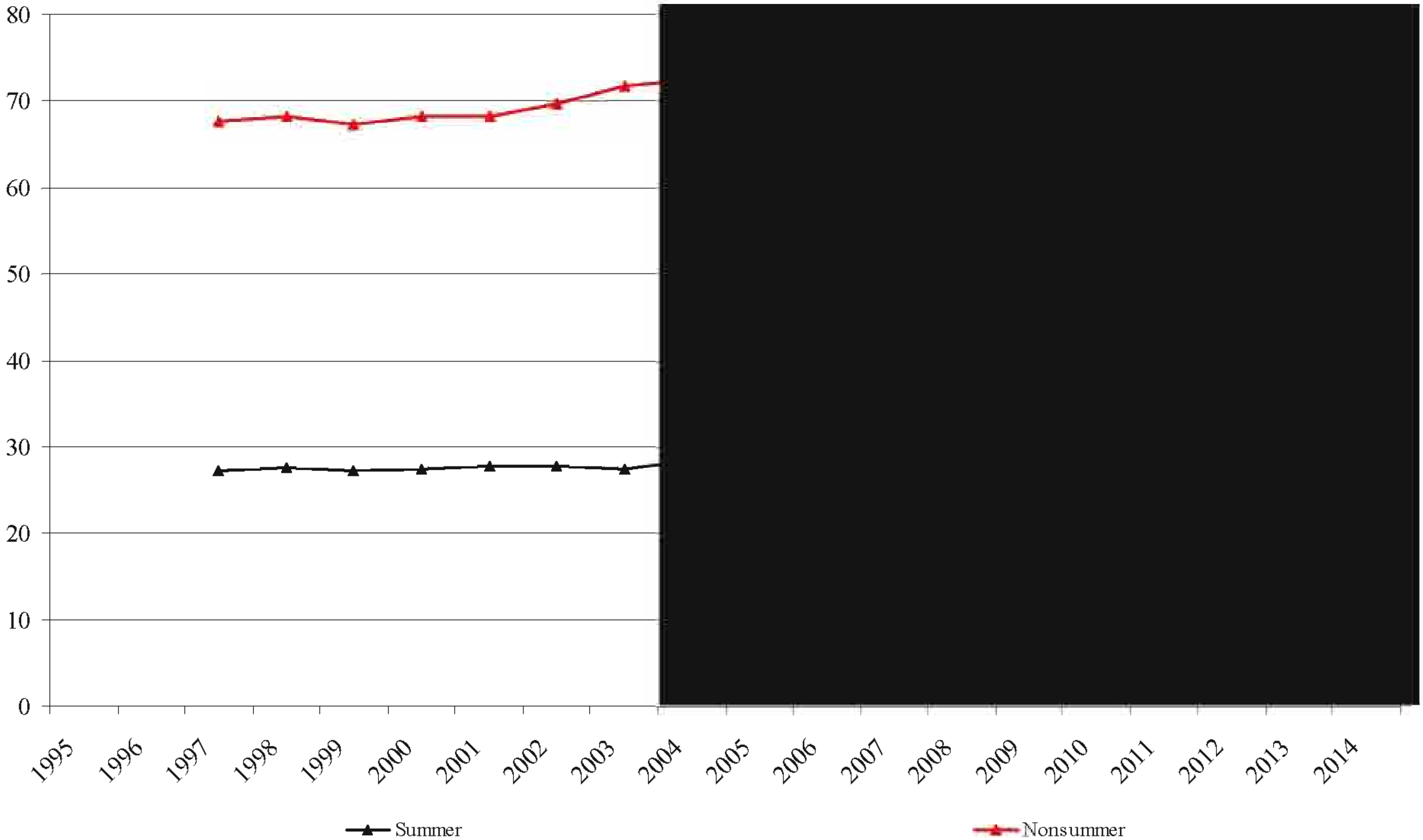
AmerenUE – Missouri

Commercial DtD Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	27,227	N.A.	67,724	N.A.
1998	27,541	1.2%	68,229	0.7%
1999	27,182	-1.3%	67,330	-1.3%
2000	27,456	1.0%	68,256	1.4%
2001	27,780	1.2%	68,202	-0.1%
2002	27,786	0.0%	69,712	2.2%
2003	27,400	-1.4%	71,780	3.0%

[redacted]

AmerenUE - Missouri
DtD Energy Use (GWh)



[redacted]

AmerenUE – Missouri

Commercial DtD Energy Use (MWh) – Calendar Month
Dusk-to-Dawn Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	9,218	8,086	8,056	6,963	6,497	5,949	6,437	6,919	7,514	8,521	8,982	9,707	
1996	9,583	8,157	8,034	7,049	6,503	5,994	6,411	6,940	7,513	8,554	9,035	9,812	*0.8%*
1997	9,652	8,219	8,251	7,126	6,571	6,039	6,465	7,053	7,670	8,703	9,223	9,979	*1.5%*
1998	9,841	8,387	8,343	7,242	6,649	6,153	6,522	7,164	7,702	8,752	9,267	9,748	*0.9%*
1999	9,601	8,144	8,189	7,088	6,602	6,055	6,436	7,056	7,635	8,651	9,135	9,920	*-1.3%*
2000	9,774	8,334	8,295	7,170	6,604	6,113	6,499	7,109	7,735	8,791	9,284	10,004	*1.3%*
2001	9,525	8,104	8,341	7,223	6,740	6,186	6,596	7,203	7,795	8,839	9,340	10,090	*0.3%*
2002	9,914	9,027	8,939	7,789	6,521	6,808	6,704	6,706	7,568	8,156	8,864	10,501	*1.6%*
2003	10,983	9,575	8,905	7,724	6,973	6,665	6,480	6,697	7,557	8,190	9,057	10,375	*1.7%*

[redacted]

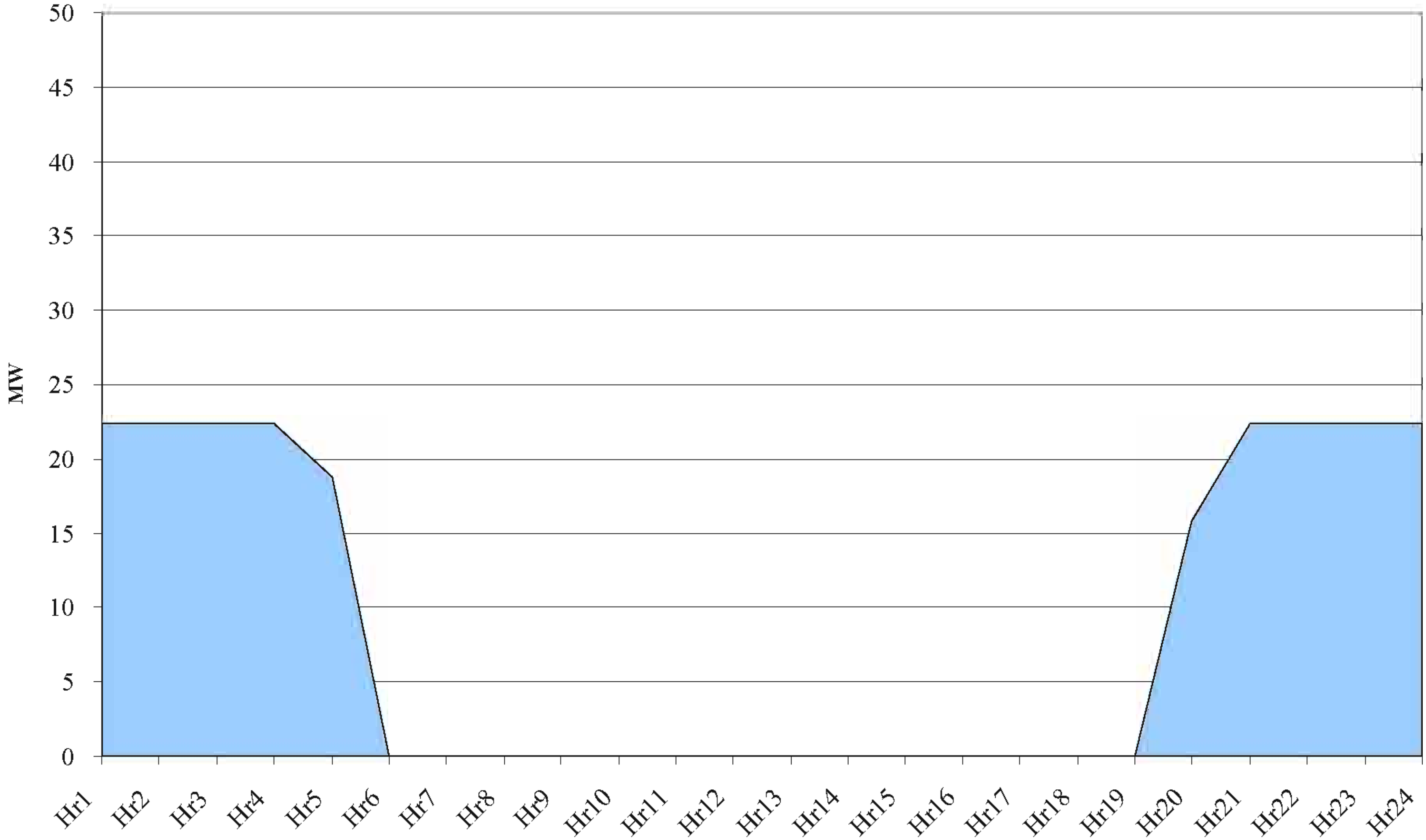
AmerenUE – Missouri

Commercial Dusk-to-Dawn Summer/Winter Coincident Load Profiles

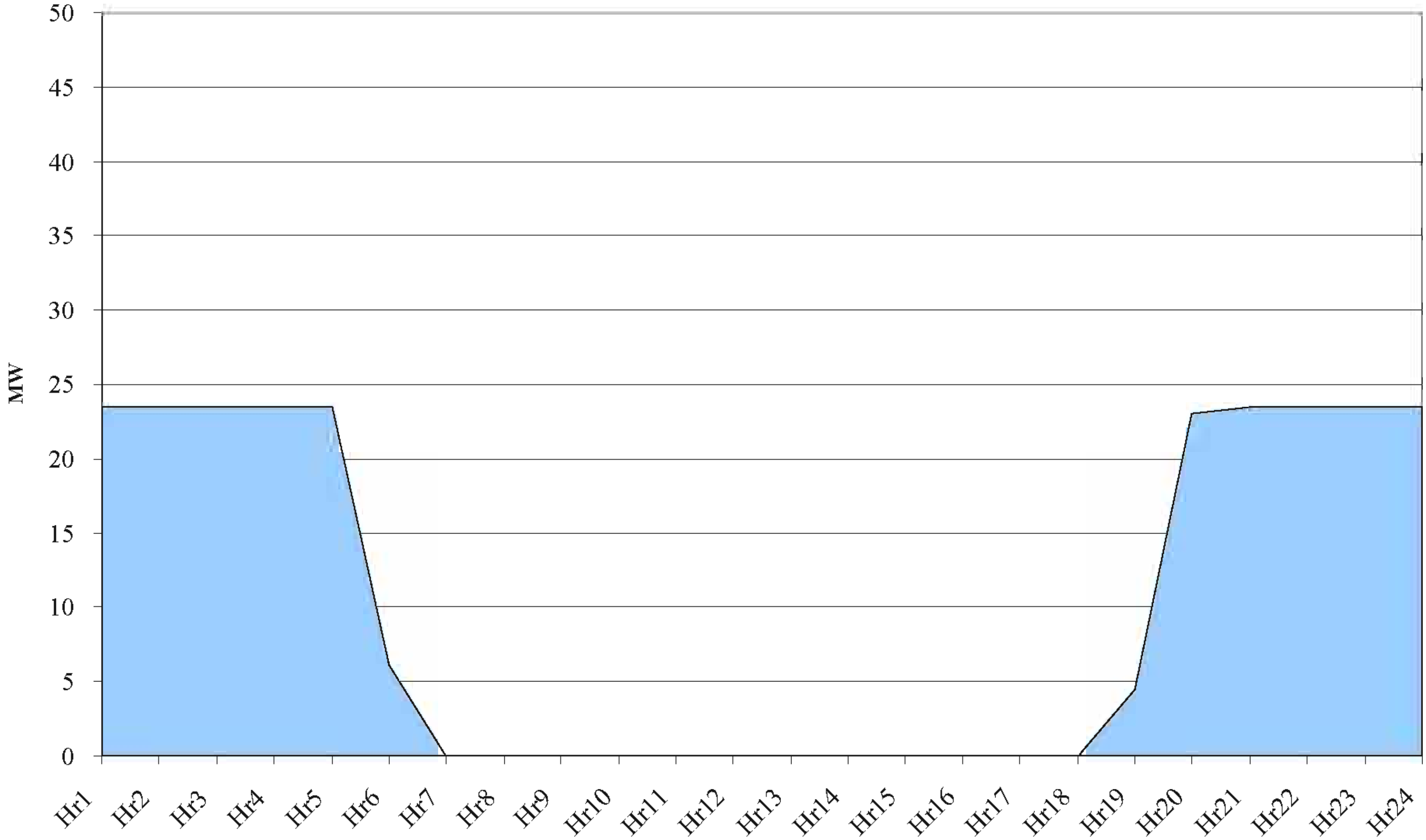
	Summer			Winter		
Hour	1999 MW	2003 MW	2014 MW	1999 MW	2003 MW	2014 MW
1	22	23	[redacted]	22	23	[redacted]
2	22	23	[redacted]	22	23	[redacted]
3	22	23	[redacted]	22	23	[redacted]
4	22	23	[redacted]	22	23	[redacted]
5	19	23	[redacted]	22	23	[redacted]
6	0	6	[redacted]	22	23	[redacted]
7	0	0	[redacted]	22	23	[redacted]
8	0	0	[redacted]	4	4	[redacted]
9	0	0	[redacted]	0	0	[redacted]
10	0	0	[redacted]	0	0	[redacted]
11	0	0	[redacted]	0	0	[redacted]
12	0	0	[redacted]	0	0	[redacted]
13	0	0	[redacted]	0	0	[redacted]
14	0	0	[redacted]	0	0	[redacted]
15	0	0	[redacted]	0	0	[redacted]
16	0	0	[redacted]	0	0	[redacted]
17	0	0	[redacted]	0	0	[redacted]
18	0	0	[redacted]	20	21	[redacted]
19	0	4	[redacted]	22	23	[redacted]
20	16	23	[redacted]	22	23	[redacted]
21	22	23	[redacted]	22	23	[redacted]
22	22	23	[redacted]	22	23	[redacted]
23	22	23	[redacted]	22	23	[redacted]
24	22	23	[redacted]	22	23	[redacted]

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Dusk-to-Dawn Coincident Summer Load Profile



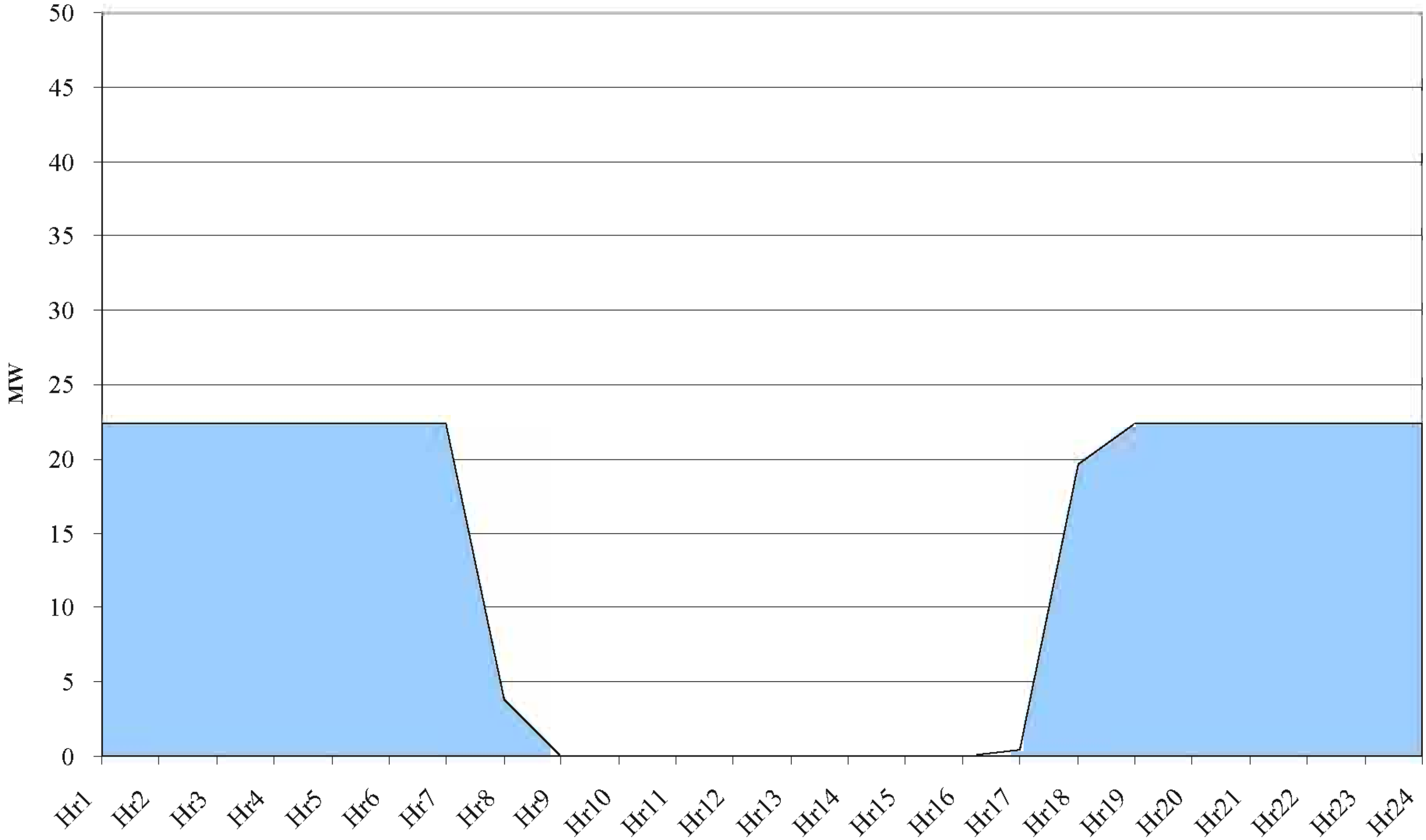
2003 Dusk-to-Dawn Coincident Summer Load Profile

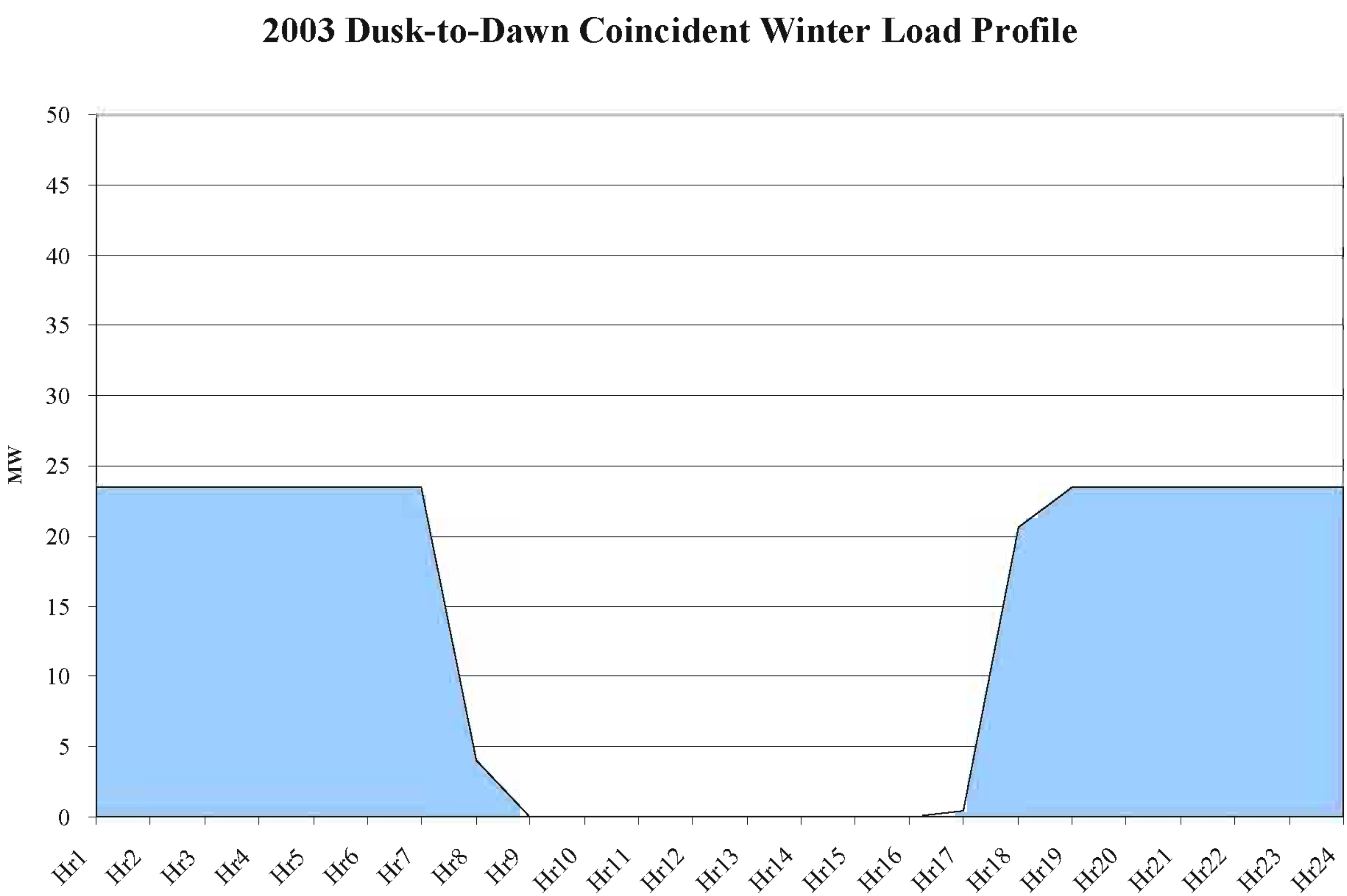


2014 Dusk-to-Dawn Coincident Summer Load Profile

[redacted]

1999 Dusk-to-Dawn Coincident Winter Load Profile




2003 Dusk-to-Dawn Coincident Winter Load Profile
MW
50
45
40
35
30
25
20
15
10
5
0
Hr1
Hr2
Hr3
Hr4
Hr5
Hr6
Hr7
Hr8
Hr9
Hr10
Hr11
Hr12
Hr13
Hr14
Hr15
Hr16
Hr17
Hr18
Hr19
Hr20
Hr21
Hr22
Hr23
Hr24

2014 Dusk-to-Dawn Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Commercial DtD Customers
Dusk-to-Dawn Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	12,543	12,587	12,624	12,628	12,639	12,658	12,645	12,625	12,641	12,618	12,624	12,624	
1996	12,619	12,579	12,584	12,582	12,555	12,546	12,547	12,535	12,563	12,460	12,469	12,467	*-0.6%*
1997	12,437	12,427	12,424	12,433	12,414	12,417	12,422	12,411	12,400	12,422	12,404	12,418	*-1.0%*
1998	12,396	12,363	12,375	12,357	12,352	12,338	12,325	12,307	12,285	0	51,748	51,739	*44.0%*
1999	51,738	51,823	51,964	51,926	51,894	51,959	51,969	51,954	51,921	51,939	52,008	52,082	*190.4%*
2000	52,201	52,126	52,186	52,194	52,170	52,233	52,315	52,200	52,260	52,296	52,443	52,385	*0.6%*
2001	52,431	52,487	52,479	52,563	52,533	52,551	52,537	52,538	52,552	52,476	52,559	52,644	*0.5%*
2002	12,159	12,160	12,162	12,146	12,337	13,387	13,270	13,149	13,231	13,234	13,129	12,772	*-75.7%*
2003	11,625	11,806	11,958	10,534	10,683	11,265	52,584	52,460	52,530	52,531	52,520	52,695	*150.2%*

[redacted]

AmerenUE – Missouri

Commercial SLPA Energy Use (MWh) – Revenue Month
Street Lighting & Public Authority Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	12,261	10,789	10,432	9,434	8,882	8,669	8,549	8,858	9,685	10,347	10,814	11,948	
1996	12,172	10,773	10,440	9,658	8,824	8,534	8,511	8,887	9,719	10,371	11,113	12,152	*0.4%*
1997	12,584	10,917	10,778	9,750	8,855	8,698	8,683	8,999	9,824	10,529	11,568	12,322	*1.9%*
1998	12,827	11,099	10,980	9,895	9,083	8,883	9,364	9,244	9,526	11,966	10,006	5,991	*-3.8%*
1999	6,427	7,192	12,042	5,889	6,411	5,303	5,108	14,996	5,289	5,936	6,310	7,049	*-26.0%*
2000	7,242	6,726	8,970	5,766	5,318	5,279	5,118	5,227	8,909	6,010	6,172	7,190	*-11.4%*
2001	7,267	6,558	6,296	5,809	5,412	5,370	5,197	5,387	5,474	5,955	6,442	7,003	*-7.4%*
2002	7,542	18,293	5,007	10,744	9,345	8,786	8,266	8,539	9,735	10,581	11,752	12,763	*68.1%*
2003	13,863	12,797	11,570	10,587	9,557	9,093	8,394	8,847	9,703	10,715	11,911	13,271	*7.4%*

[redacted]

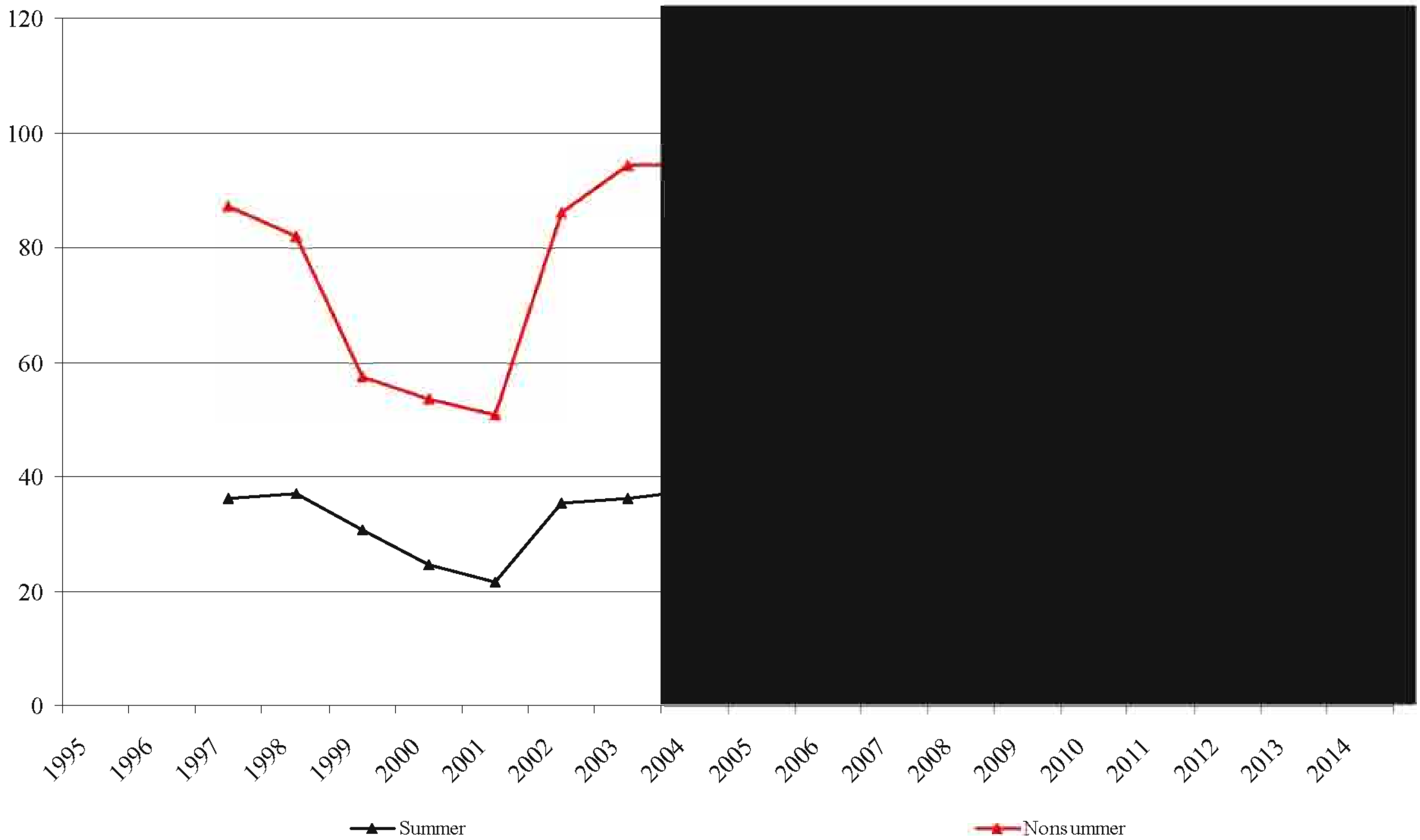
AmerenUE – Missouri

Commercial SLPA Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	36,204	N.A.	87,303	N.A.
1998	37,017	2.2%	81,847	-6.2%
1999	30,696	-17.1%	57,256	-30.0%
2000	24,533	-20.1%	53,394	-6.7%
2001	21,428	-12.7%	50,742	-5.0%
2002	35,326	64.9%	86,027	69.5%
2003	36,037	2.0%	94,274	9.6%

[redacted]

AmerenUE - Missouri
SLPA Energy Use (GWh)



AmerenUE – Missouri

Commercial SLPA Energy Use (MWh) – Calendar Month
Street Lighting & Public Authority Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	11,076	9,750	8,966	8,007	8,375	7,982	9,037	9,937	10,173	12,153	12,400	12,634	
1996	11,059	9,757	9,179	7,954	8,244	7,946	9,067	9,973	10,197	12,491	12,613	13,063	*0.9%*
1997	11,208	10,075	9,267	7,982	8,403	8,108	9,182	10,081	10,353	13,005	12,790	13,316	*1.8%*
1998	11,396	10,264	9,406	8,189	8,583	8,747	9,433	9,774	11,772	11,241	6,193	6,647	*-9.8%*
1999	7,367	11,261	5,579	5,767	5,105	4,751	15,333	5,404	5,816	7,069	7,295	7,496	*-21.0%*
2000	6,886	8,377	5,462	4,776	5,082	4,760	5,312	9,137	5,889	6,913	7,442	7,522	*-12.1%*
2001	6,713	5,866	5,503	4,862	5,170	4,834	5,476	5,595	5,835	7,218	7,247	7,809	*-7.0%*
2002	18,814	4,656	10,217	8,426	8,489	7,716	8,710	9,989	10,404	13,212	13,250	14,396	*77.8%*
2003	13,147	10,819	10,067	8,619	8,787	7,837	9,026	9,956	10,537	13,392	13,779	14,623	*1.8%*

[redacted]

AmerenUE – Missouri

Commercial SLPA Coincident Demand

[redacted]

SLPA Coincident Demand
Summer & Winter Peak

[redacted]

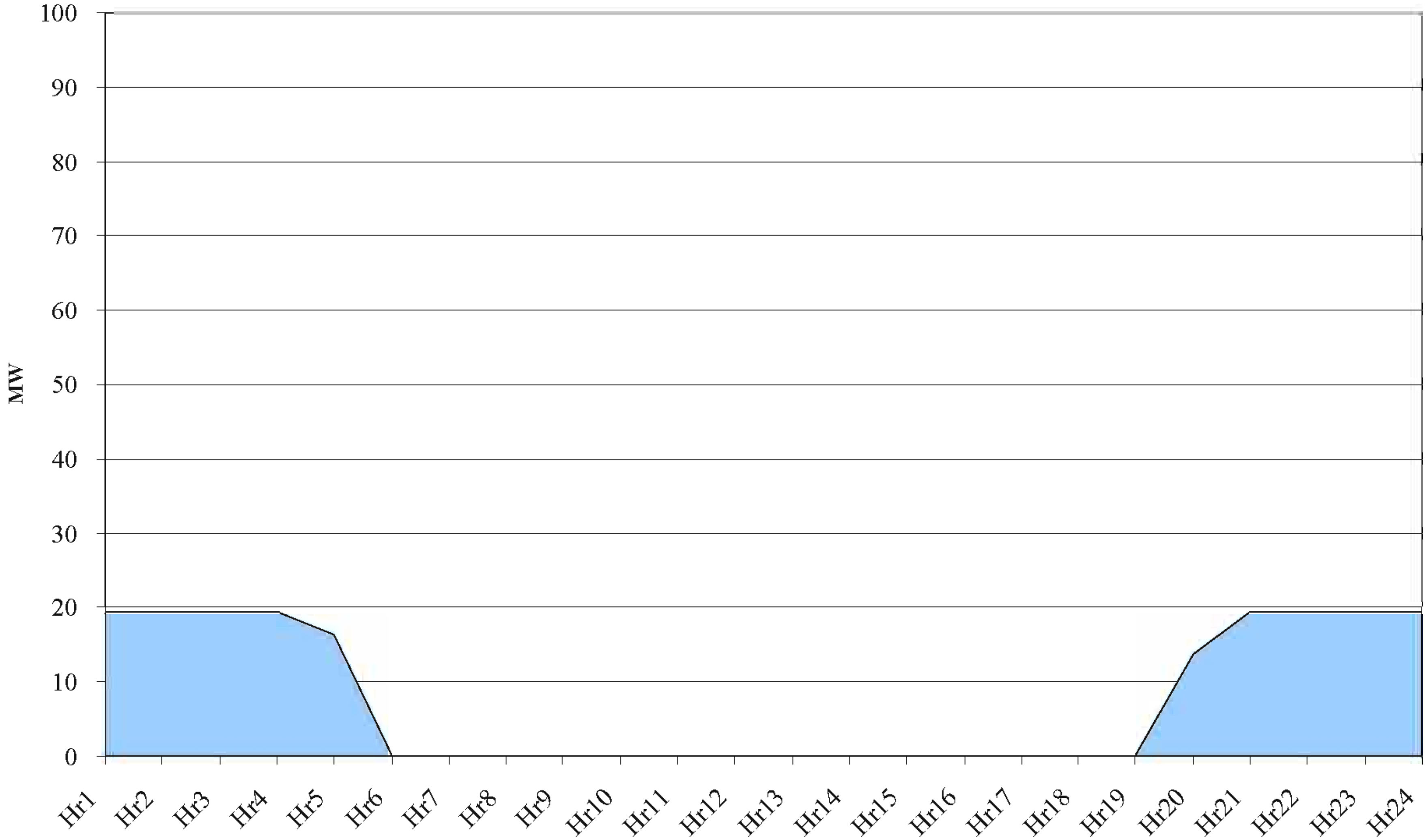
AmerenUE – Missouri

Commercial SLPA Summer/Winter Coincident Load Profiles

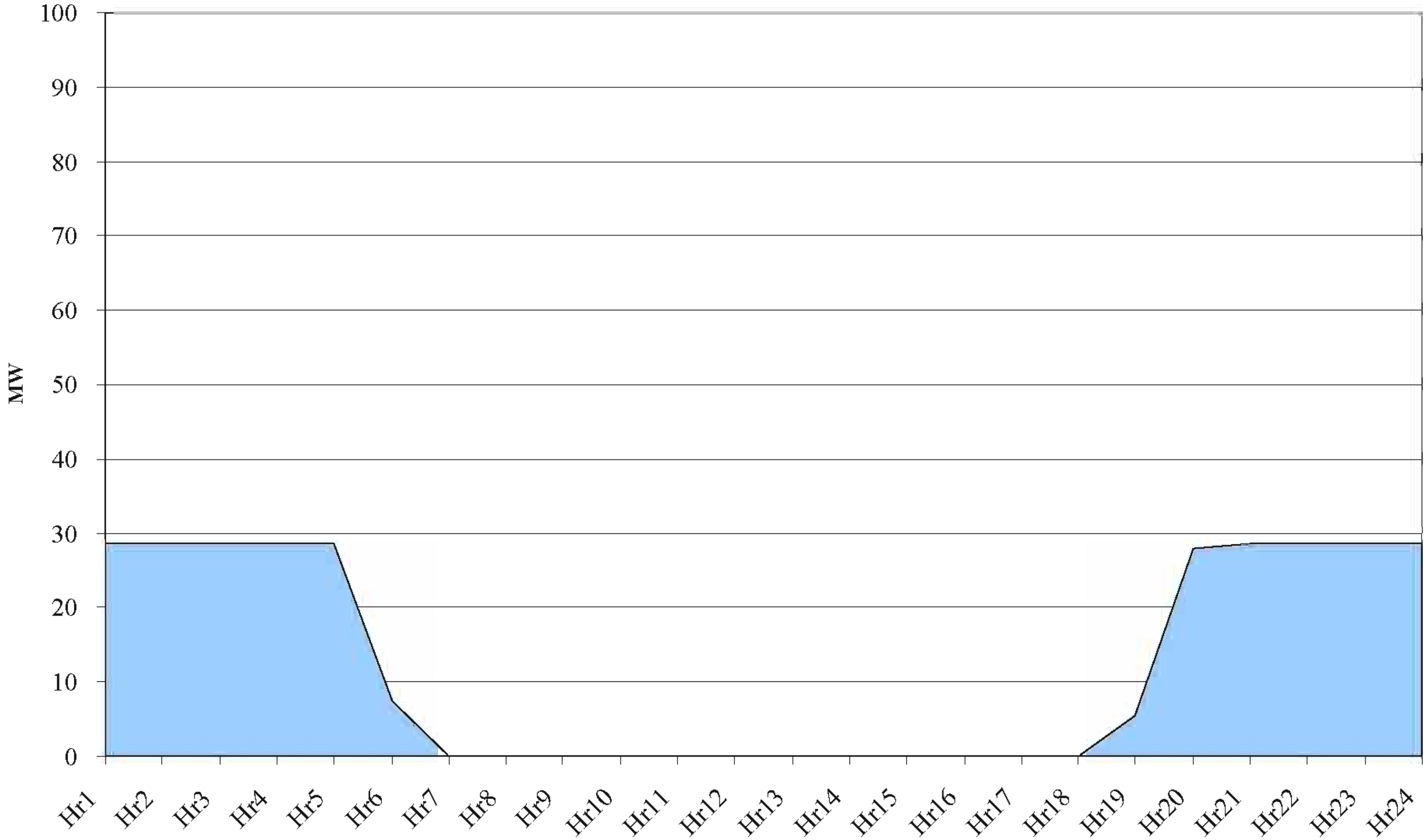
	Summer			Winter		
Hour	1999 MW	2003 MW	2014 MW	1999 MW	2003 MW	2014 MW
1	19	29	[redacted]	19	29	[redacted]
2	19	29	[redacted]	19	29	[redacted]
3	19	29	[redacted]	19	29	[redacted]
4	19	29	[redacted]	19	29	[redacted]
5	16	29	[redacted]	19	29	[redacted]
6	0	7	[redacted]	19	29	[redacted]
7	0	0	[redacted]	19	29	[redacted]
8	0	0	[redacted]	3	5	[redacted]
9	0	0	[redacted]	0	0	[redacted]
10	0	0	[redacted]	0	0	[redacted]
11	0	0	[redacted]	0	0	[redacted]
12	0	0	[redacted]	0	0	[redacted]
13	0	0	[redacted]	0	0	[redacted]
14	0	0	[redacted]	0	0	[redacted]
15	0	0	[redacted]	0	0	[redacted]
16	0	0	[redacted]	0	0	[redacted]
17	0	0	[redacted]	0	1	[redacted]
18	0	0	[redacted]	17	25	[redacted]
19	0	5	[redacted]	19	29	[redacted]
20	14	28	[redacted]	19	29	[redacted]
21	19	29	[redacted]	19	29	[redacted]
22	19	29	[redacted]	19	29	[redacted]
23	19	29	[redacted]	19	29	[redacted]
24	19	29	[redacted]	19	29	[redacted]

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 SLPA Coincident Summer Load Profile



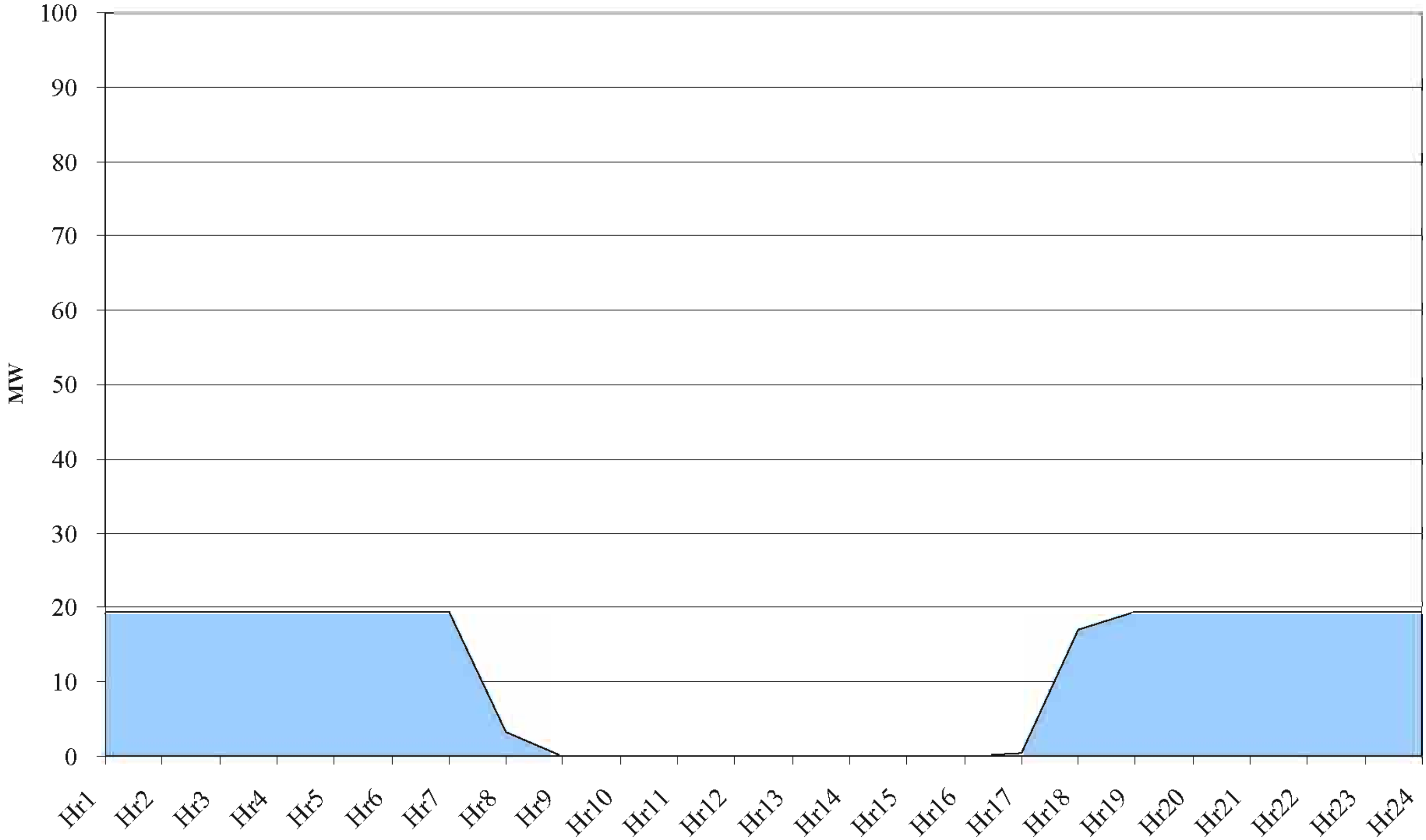
2003 SLPA Coincident Summer Load Profile



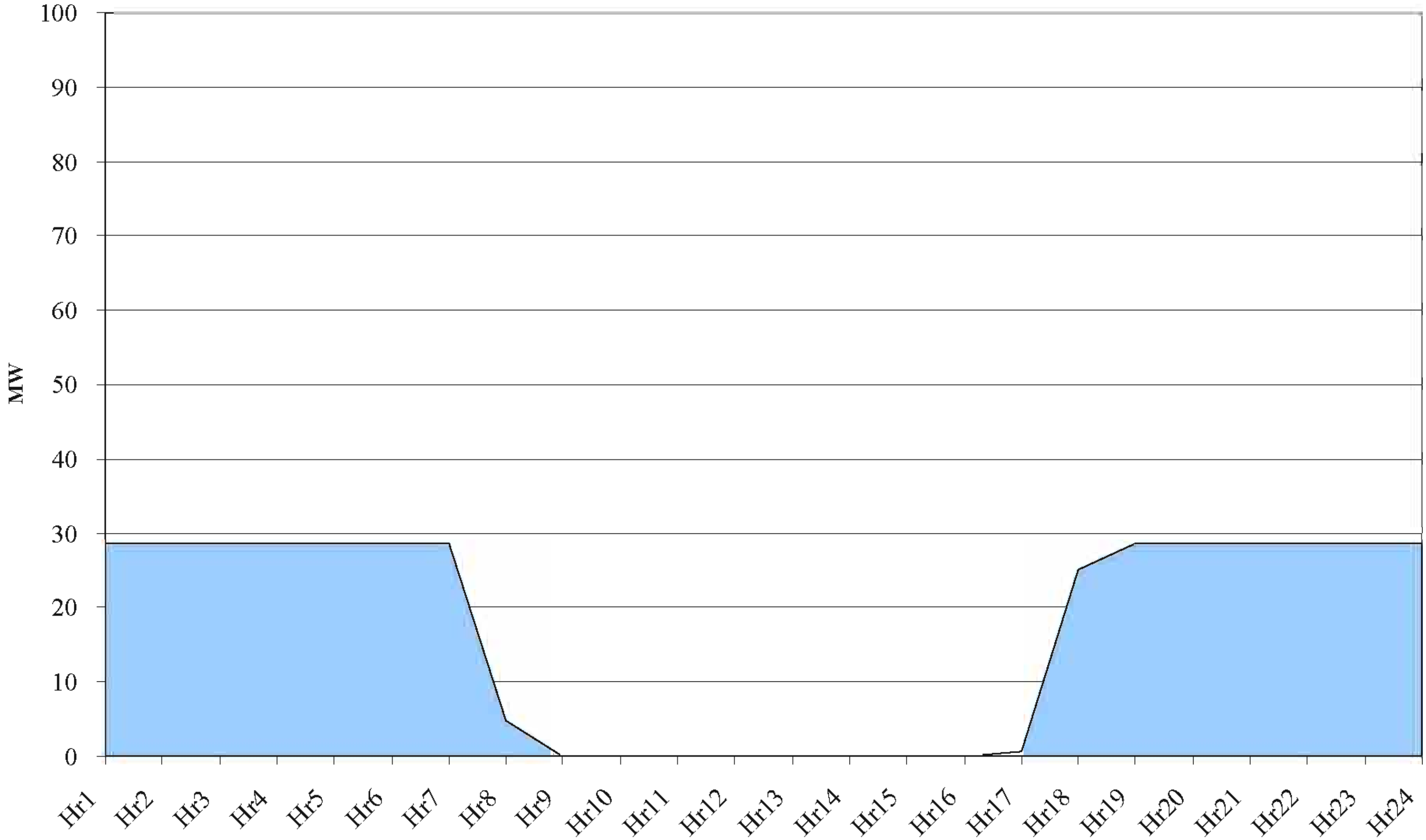
2014 SLPA Coincident Summer Load Profile

[redacted]

1999 SLPA Coincident Winter Load Profile



2003 SLPA Coincident Winter Load Profile



2014 SLPA Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Commercial SLPA Customers
Street Lighting & Public Authority Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	1,518	1,516	1,518	1,519	1,519	1,518	1,516	1,516	1,516	1,517	1,519	1,517	
1996	1,517	1,517	1,516	1,513	1,511	1,509	1,508	1,509	1,512	1,507	1,507	1,504	*-0.4%*
1997	1,504	1,505	1,506	1,508	1,506	1,506	1,503	1,504	1,502	1,491	1,491	1,489	*-0.6%*
1998	1,487	1,476	1,488	1,487	1,488	1,490	1,490	1,492	1,490	1,497	1,504	1,181	*-2.5%*
1999	1,323	1,348	1,340	1,339	1,350	1,352	1,350	1,350	1,345	1,356	1,360	1,385	*-7.8%*
2000	1,387	1,388	1,387	1,385	1,381	1,385	1,384	1,383	1,387	1,386	1,387	1,386	*2.6%*
2001	1,401	1,388	1,395	1,381	1,389	1,391	1,386	1,381	1,369	1,380	1,380	1,413	*0.2%*
2002	1,589	1,572	1,567	1,571	1,417	1,419	1,438	1,431	1,435	1,438	1,449	1,482	*6.9%*
2003	1,471	1,459	1,455	1,462	1,463	1,466	1,475	1,473	1,471	1,483	1,474	1,492	*-0.9%*

[redacted]

AmerenUE – Missouri

Commercial Wholesale Energy Use (MWh) – Revenue Month
Wholesale Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
1996	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	*N.A.*
1997	N.A.	N.A.	56,339	51,537	48,325	50,964	69,539	76,003	67,590	57,745	55,263	56,545	*N.A.*
1998	61,898	56,461	58,230	53,248	51,289	64,458	75,085	75,833	73,474	57,490	54,110	54,505	*N.A.*
1999	67,668	57,799	59,877	54,162	52,367	63,116	75,651	87,250	74,427	57,853	55,377	57,261	*3.6%*
2000	65,449	61,880	59,176	55,906	54,608	62,884	76,290	79,841	84,833	63,580	58,575	65,363	*3.4%*
2001	74,413	63,892	63,829	59,688	58,046	63,125	77,421	85,965	79,592	60,390	57,430	57,677	*1.7%*
2002	67,884	62,024	63,196	61,950	56,456	69,175	71,282	73,824	69,871	54,592	51,773	54,417	*-5.6%*
2003	59,667	56,861	55,429	51,250	48,405	52,965	68,963	73,570	73,241	69,639	55,655	56,967	*-4.5%*

[redacted]

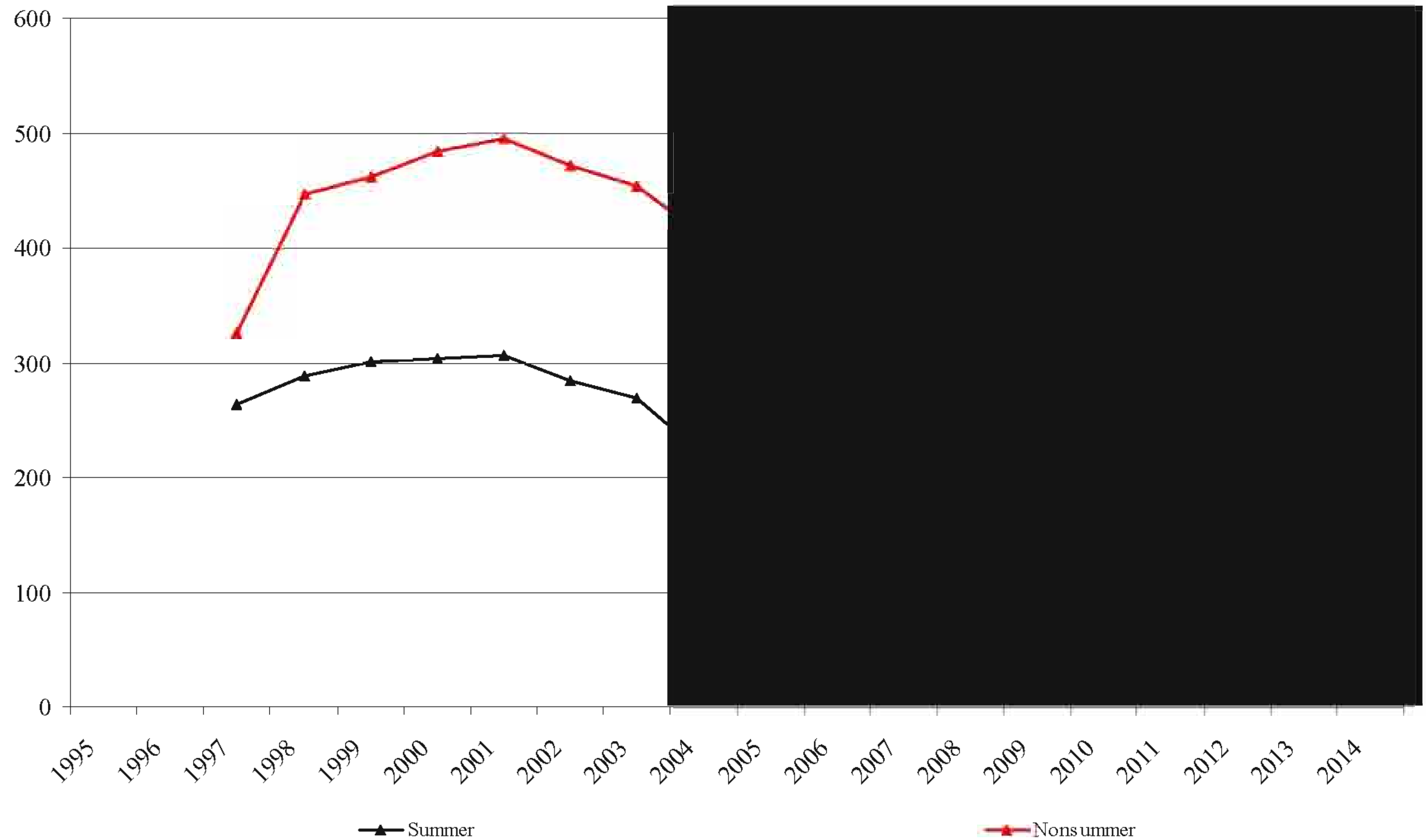
AmerenUE – Missouri

Commercial Wholesale Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	264,097	N.A.	325,755	N.A.
1998	288,850	9.4%	447,232	37.3%
1999	300,444	4.0%	462,365	3.4%
2000	303,848	1.1%	484,537	4.8%
2001	306,104	0.7%	495,364	2.2%
2002	284,152	-7.2%	472,291	-4.7%
2003	268,739	-5.4%	453,872	-3.9%

[redacted]

AmerenUE - Missouri
Wholesale Energy Use (GWh)



AmerenUE – Missouri

Commercial Wholesale Coincident Demand

[redacted]

Wholesale Coincident Demand
Summer & Winter Peak

[redacted]

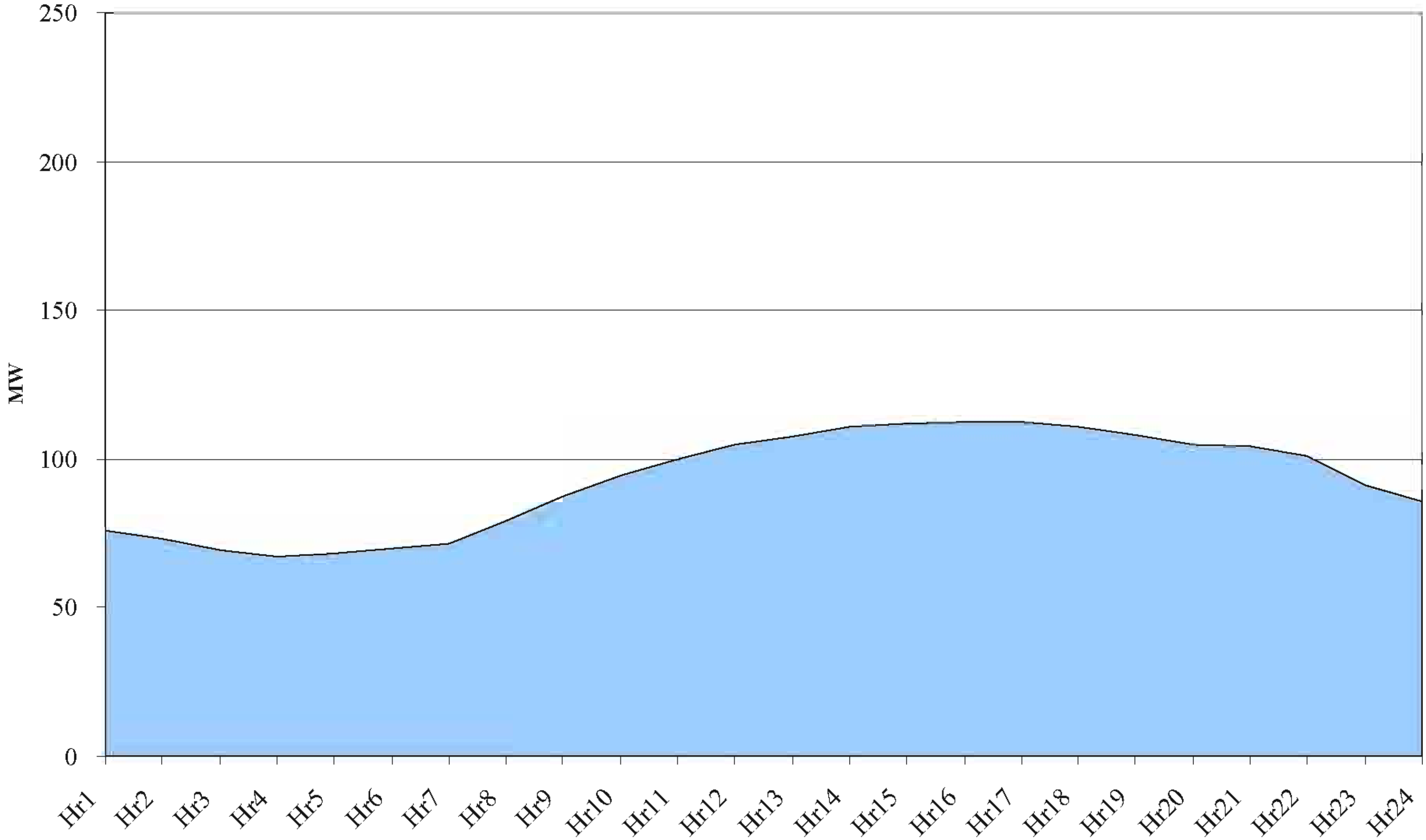
AmerenUE – Missouri

Commercial Wholesale Summer/Winter Coincident Load Profiles

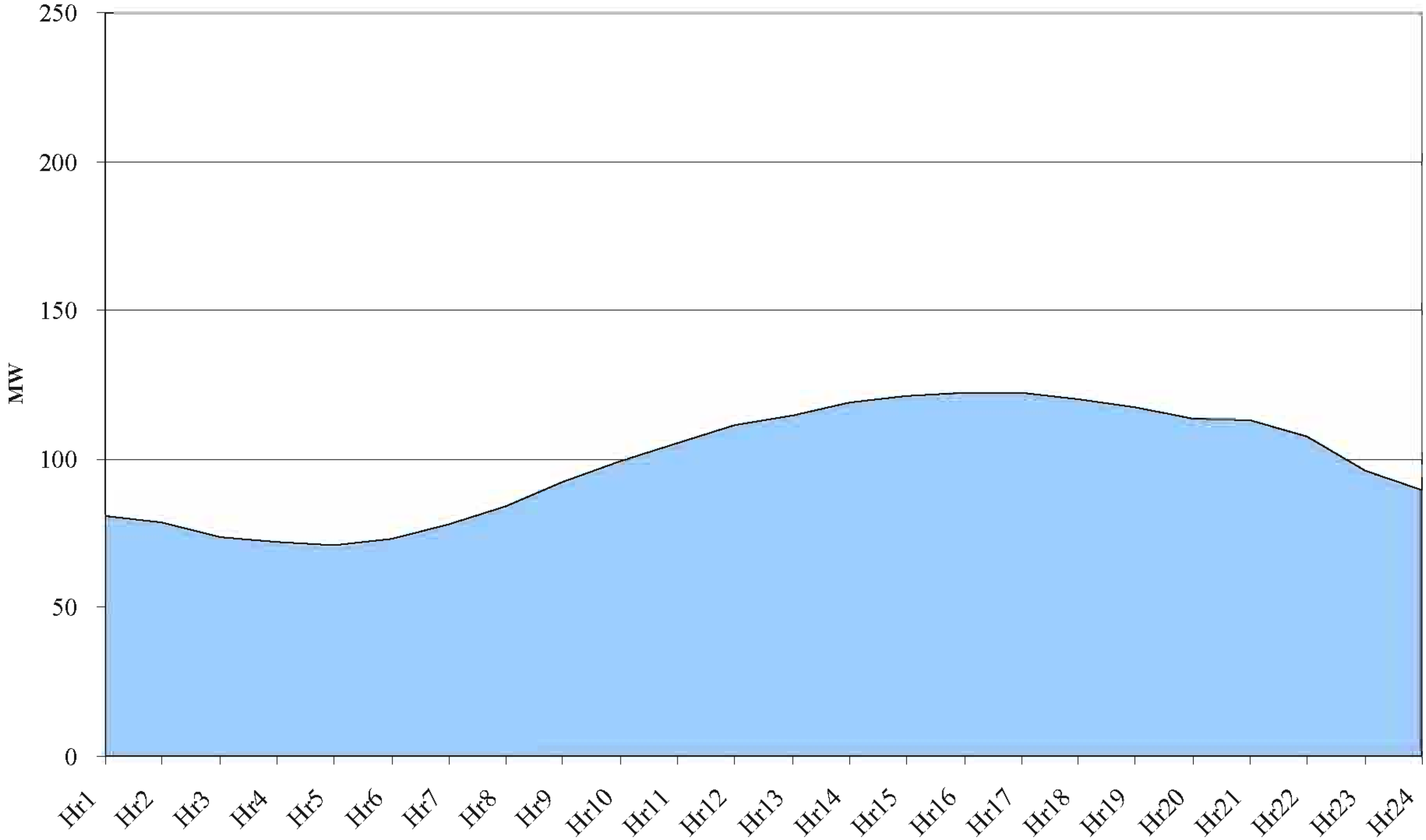
	Summer			Winter		
Hour	**1999 MW**	**2003 MW**	**2014 MW**	**1999 MW**	**2003 MW**	**2014 MW**
1	76	81	[redacted]	70	78	[redacted]
2	73	78		71	80	
3	69	74		72	80	
4	67	72		73	80	
5	68	71		75	82	
6	70	73		79	86	
7	72	78		86	93	
8	79	84		91	97	
9	87	92		92	98	
10	94	99		92	98	
11	100	105		92	97	
12	105	111		91	96	
13	108	115		88	93	
14	111	119		87	92	
15	112	121		85	91	
16	113	122		84	91	
17	112	122		86	93	
18	111	120		91	97	
19	108	117		92	98	
20	105	113		91	97	
21	104	113		90	95	
22	101	108		87	93	
23	91	96		80	86	
24	86	89		77	83	

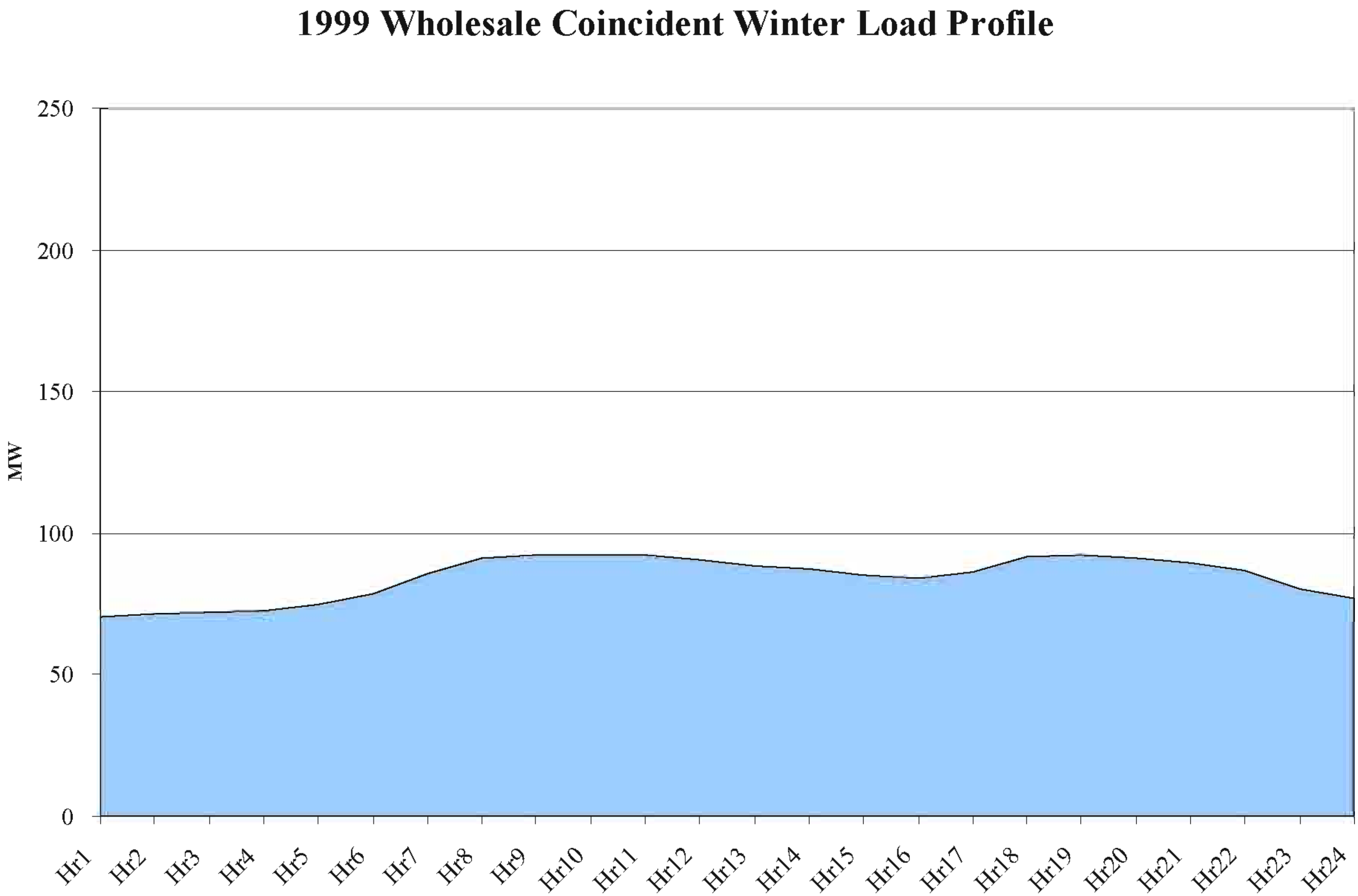
The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Wholesale Coincident Summer Load Profile



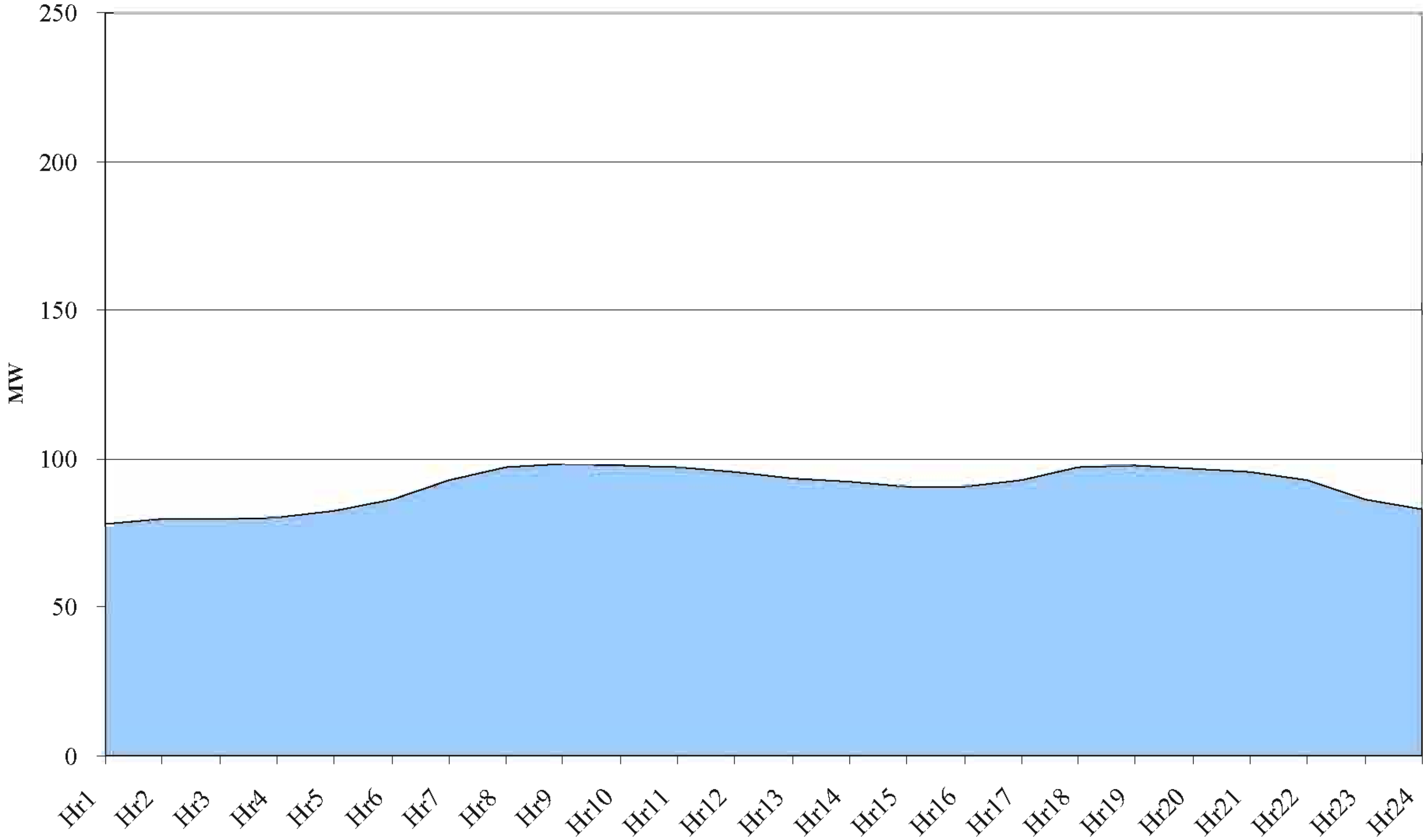
2003 Wholesale Coincident Summer Load Profile





1999 Wholesale Coincident Winter Load Profile
MW
250
200
150
100
50
0
Hr1
Hr2
Hr3
Hr4
Hr5
Hr6
Hr7
Hr8
Hr9
Hr10
Hr11
Hr12
Hr13
Hr14
Hr15
Hr16
Hr17
Hr18
Hr19
Hr20
Hr21
Hr22
Hr23
Hr24

2003 Wholesale Coincident Winter Load Profile



Industrial Energy Usage, Demand, and Customers

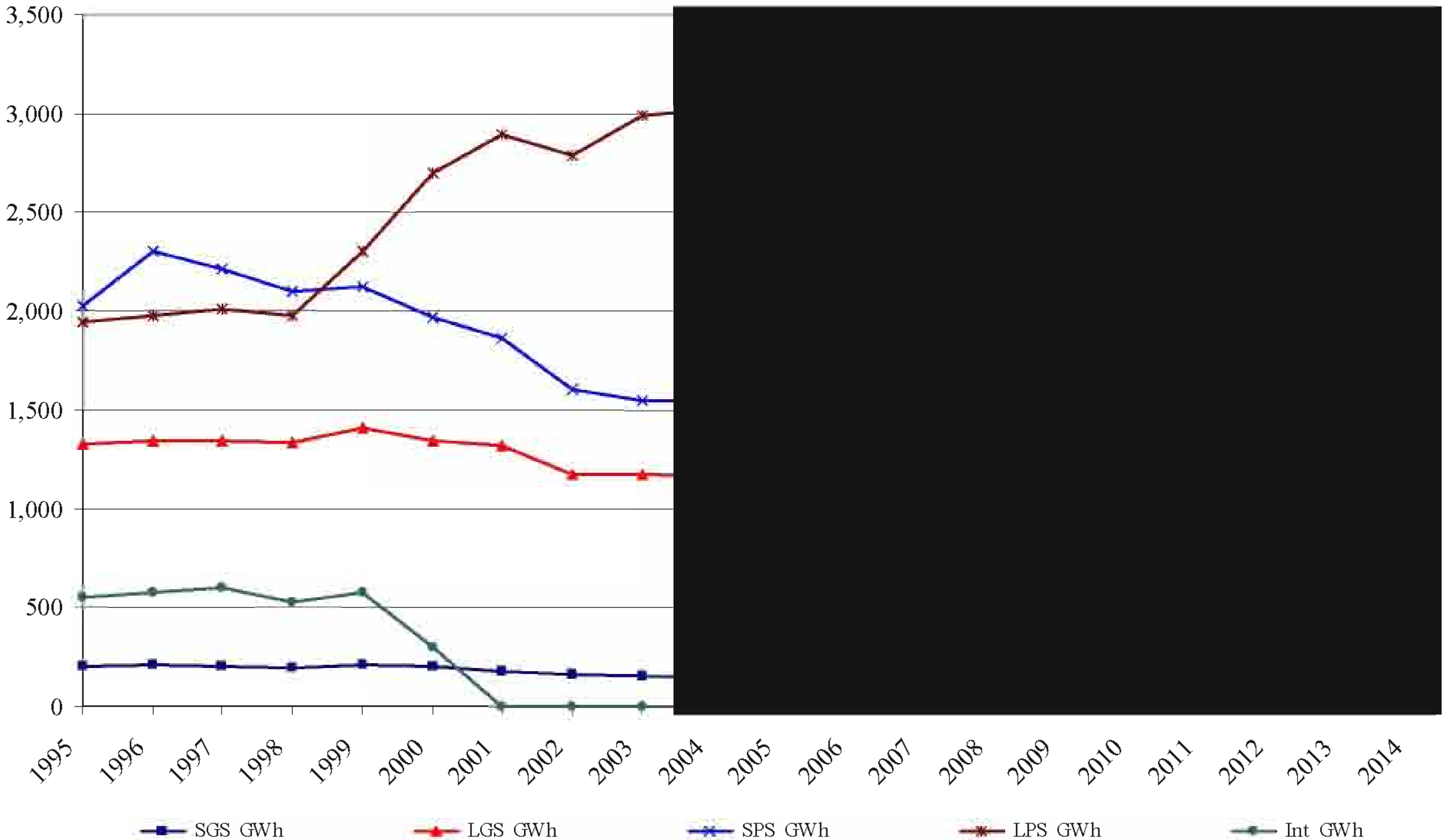
AmerenUE – Missouri

Industrial Energy Use (GWh) by Revenue Class

Year	SGS GWh	LGS GWh	SPS GWh	LPS GWh	Int GWh	Total GWh
1995	204.8	1,329.3	2,025.3	1,943.8	553.4	6,056.5
1996	207.8	1,342.6	2,304.4	1,976.9	577.4	6,409.0
1997	204.6	1,343.3	2,213.6	2,007.9	595.9	6,365.3
1998	197.3	1,338.0	2,098.6	1,976.2	527.8	6,137.9
1999	210.4	1,408.1	2,123.4	2,297.9	576.8	6,616.6
2000	198.9	1,343.5	1,971.4	2,699.2	298.3	6,511.3
2001	177.1	1,320.8	1,861.3	2,889.6	0.0	6,248.9
2002	163.0	1,177.9	1,603.6	2,786.1	0.0	5,730.7
2003	152.4	1,171.9	1,550.8	2,989.1	0.0	5,864.1

[redacted]

AmerenUE - Missouri
Industrial Energy Use (GWh)

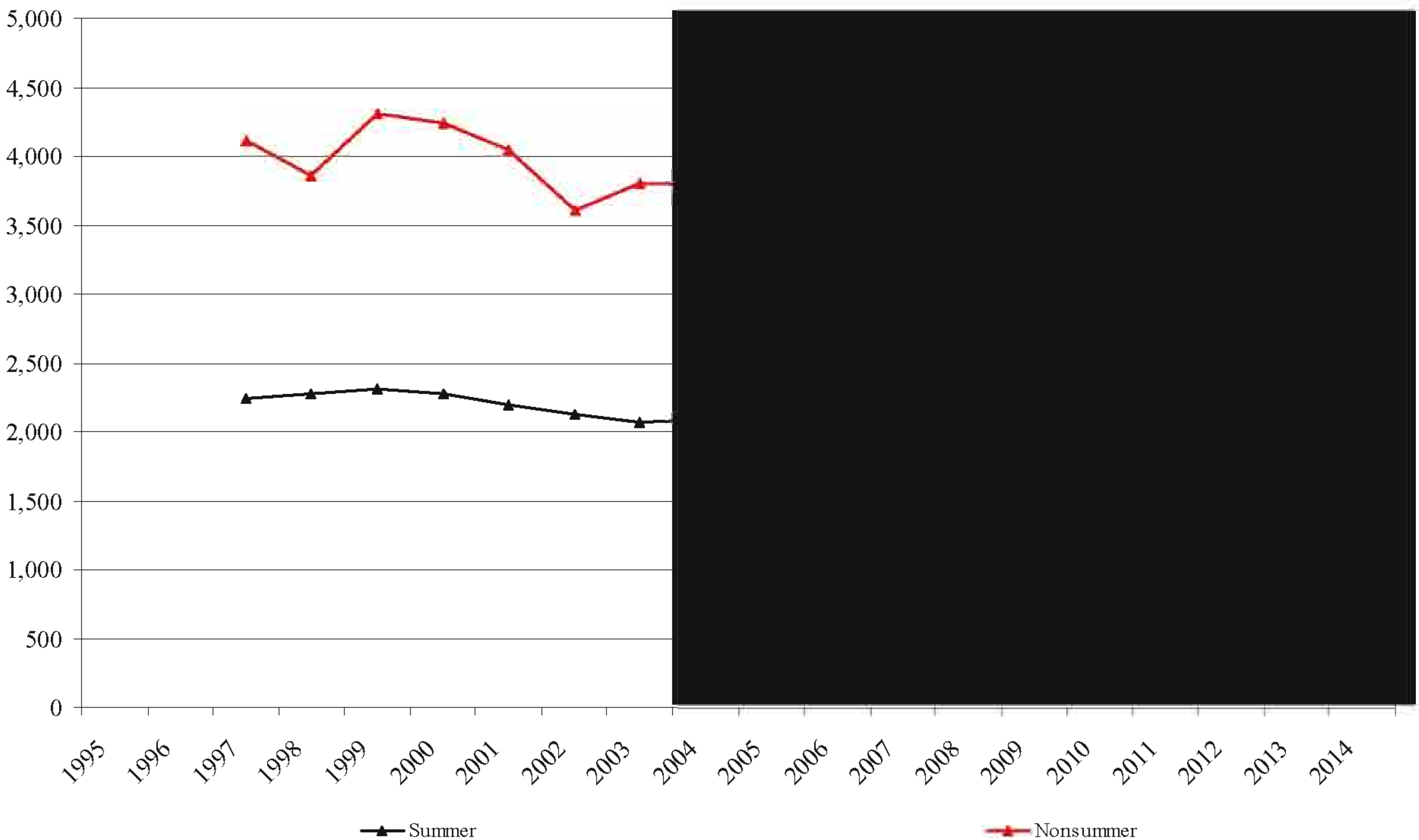


AmerenUE – Missouri

Industrial Total System Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	2,246,921	N.A.	4,118,332	N.A.
1998	2,278,347	1.4%	3,859,526	-6.3%
1999	2,307,313	1.3%	4,309,243	11.7%
2000	2,273,015	-1.5%	4,238,326	-1.6%
2001	2,198,104	-3.3%	4,050,765	-4.4%
2002	2,124,957	-3.3%	3,605,738	-11.0%
2003	2,064,139	-2.9%	3,799,961	5.4%
[redacted]				

AmerenUE - Missouri
Industrial Energy Use (GWh)



AmerenUE – Missouri

Industrial Customers by Revenue Class

Year	SGS Custs	LGS Custs	SPS Custs	LPS Custs	Int Custs	Total Custs
1995	4,571	1,123	212	27	5	5,937
1996	4,451	1,160	221	26	5	5,864
1997	4,387	1,183	226	26	5	5,827
1998	4,247	1,166	225	25	5	5,668
1999	4,032	1,101	204	26	5	5,368
2000	3,905	1,165	211	29	7	5,318
2001	3,806	1,137	205	26	9	5,183
2002	3,855	1,122	202	38	0	5,216
2003	3,767	1,112	207	37	0	5,123

[redacted]

AmerenUE – Missouri

Industrial Total System Energy Use (MWh) – Revenue Month

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	493,026	461,081	502,940	481,648	470,110	504,584	538,311	553,232	552,523	518,662	490,454	489,936	
1996	513,008	480,690	494,379	506,454	506,002	524,248	554,751	550,777	716,858	524,564	520,200	517,036	*5.8%*
1997	507,922	483,441	507,812	511,302	499,216	536,332	566,751	570,364	573,474	546,210	522,576	539,853	*-0.7%*
1998	510,257	504,814	510,792	507,231	514,799	573,108	571,271	564,801	569,167	540,831	531,382	239,420	*-3.6%*
1999	387,296	634,106	504,353	565,396	634,719	562,549	585,703	566,115	592,946	538,143	448,248	596,982	*7.8%*
2000	571,253	558,423	483,096	573,496	491,326	557,174	564,757	583,838	567,246	522,155	521,842	516,735	*-1.6%*
2001	535,381	602,443	430,033	473,047	505,192	522,701	525,017	570,949	579,437	488,213	478,143	538,313	*-4.0%*
2002	444,415	481,797	571,531	358,020	470,518	513,077	494,268	572,117	545,495	536,702	484,066	258,690	*-8.3%*
2003	478,326	474,870	445,863	464,556	467,011	489,848	520,480	527,281	526,529	490,696	514,334	464,307	*2.3%*

[redacted]

AmerenUE – Missouri

Industrial Coincident Demand

[redacted]

Industrial Coincident Demand
Summer & Winter Peak

[redacted]

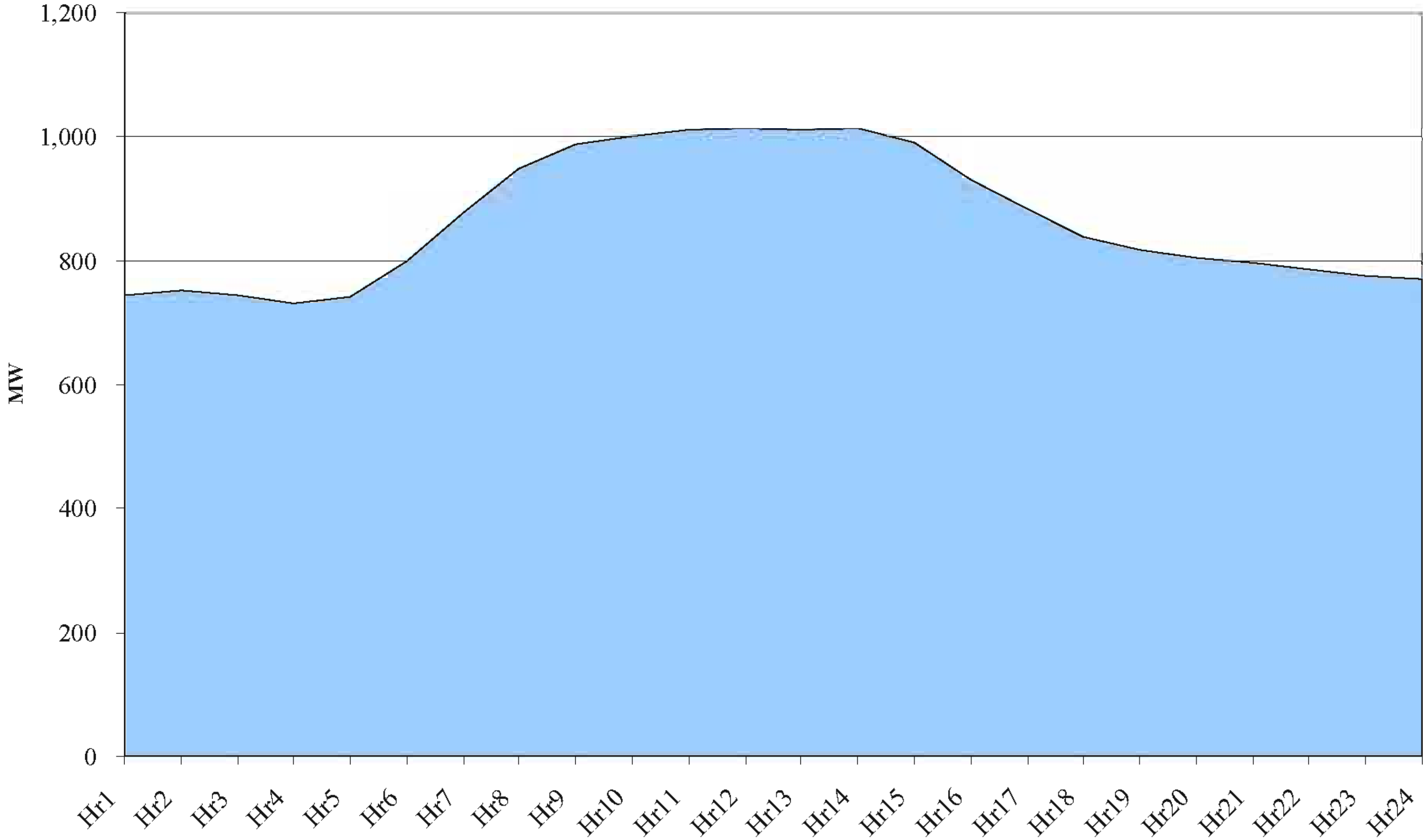
AmerenUE – Missouri

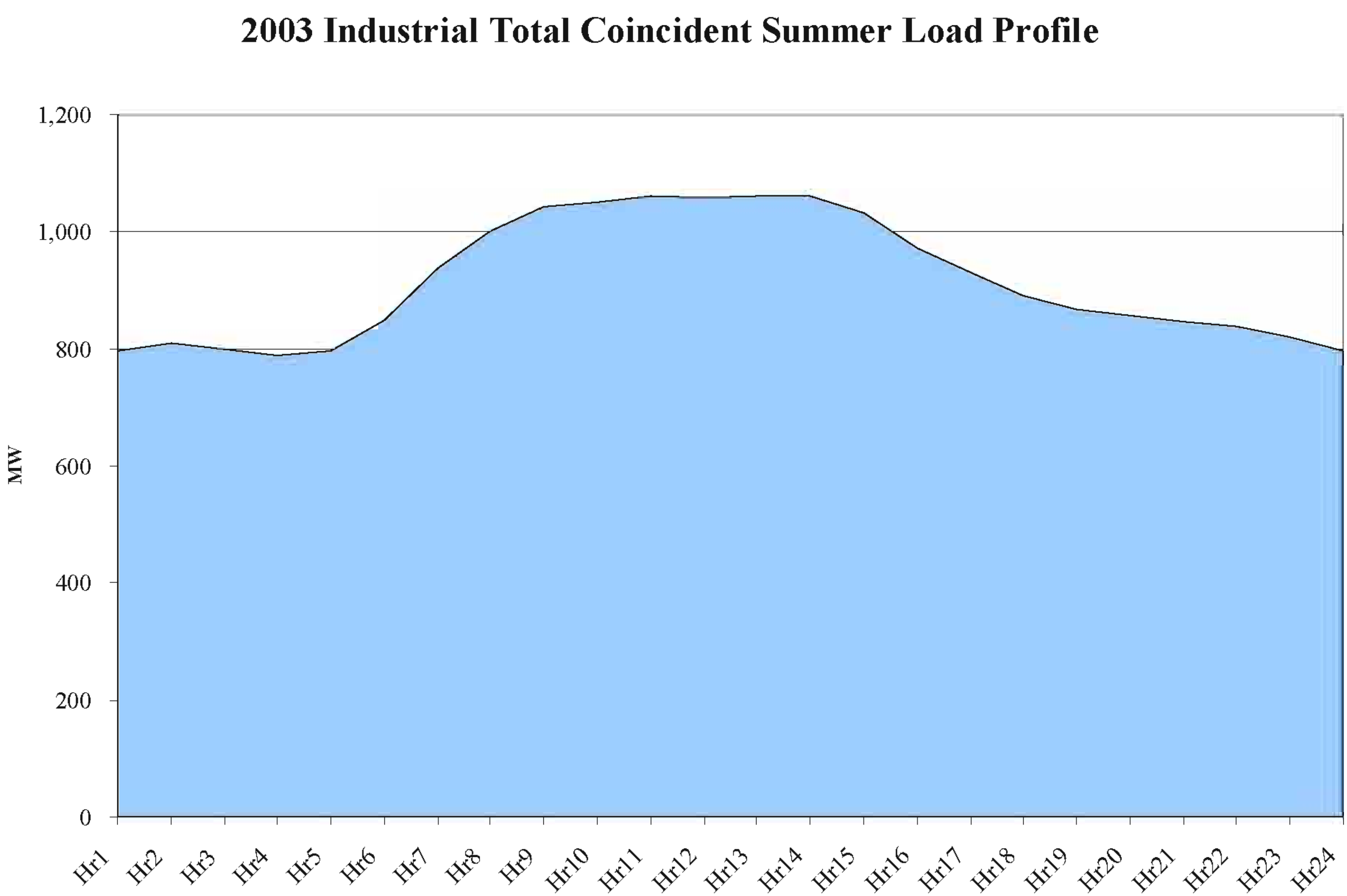
Industrial Summer/Winter Coincident Load Profiles

	Summer			Winter		
Hour	1999 MW	2003 MW	2014 MW	1999 MW	2003 MW	2014 MW
1	745	797	[redacted]	570	674	[redacted]
2	751	809	[redacted]	580	670	[redacted]
3	743	800	[redacted]	585	658	[redacted]
4	730	789	[redacted]	590	656	[redacted]
5	743	796	[redacted]	599	659	[redacted]
6	799	850	[redacted]	621	682	[redacted]
7	877	939	[redacted]	693	742	[redacted]
8	948	1,002	[redacted]	761	795	[redacted]
9	987	1,042	[redacted]	791	817	[redacted]
10	1,001	1,050	[redacted]	800	820	[redacted]
11	1,012	1,062	[redacted]	807	818	[redacted]
12	1,014	1,058	[redacted]	794	804	[redacted]
13	1,012	1,061	[redacted]	793	803	[redacted]
14	1,014	1,061	[redacted]	793	799	[redacted]
15	991	1,031	[redacted]	772	780	[redacted]
16	931	972	[redacted]	730	736	[redacted]
17	884	931	[redacted]	699	717	[redacted]
18	840	891	[redacted]	683	703	[redacted]
19	816	867	[redacted]	677	698	[redacted]
20	805	856	[redacted]	670	692	[redacted]
21	796	847	[redacted]	664	685	[redacted]
22	785	839	[redacted]	668	686	[redacted]
23	776	819	[redacted]	665	684	[redacted]
24	770	798	[redacted]	660	678	[redacted]

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Industrial Total Coincident Summer Load Profile



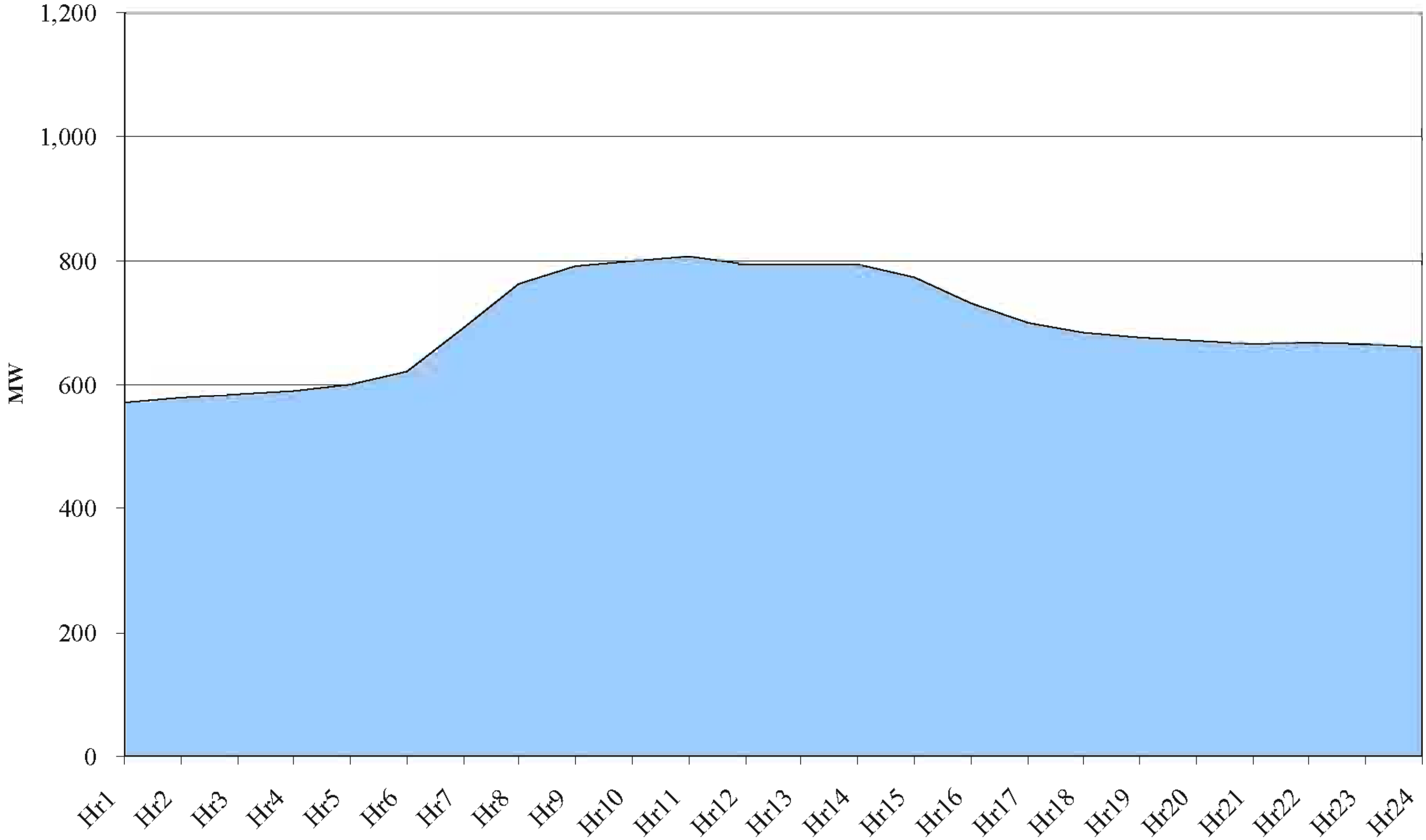


2003 Industrial Total Coincident Summer Load Profile
MW
1,200
1,000
800
600
400
200
0
Hr1
Hr2
Hr3
Hr4
Hr5
Hr6
Hr7
Hr8
Hr9
Hr10
Hr11
Hr12
Hr13
Hr14
Hr15
Hr16
Hr17
Hr18
Hr19
Hr20
Hr21
Hr22
Hr23
Hr24

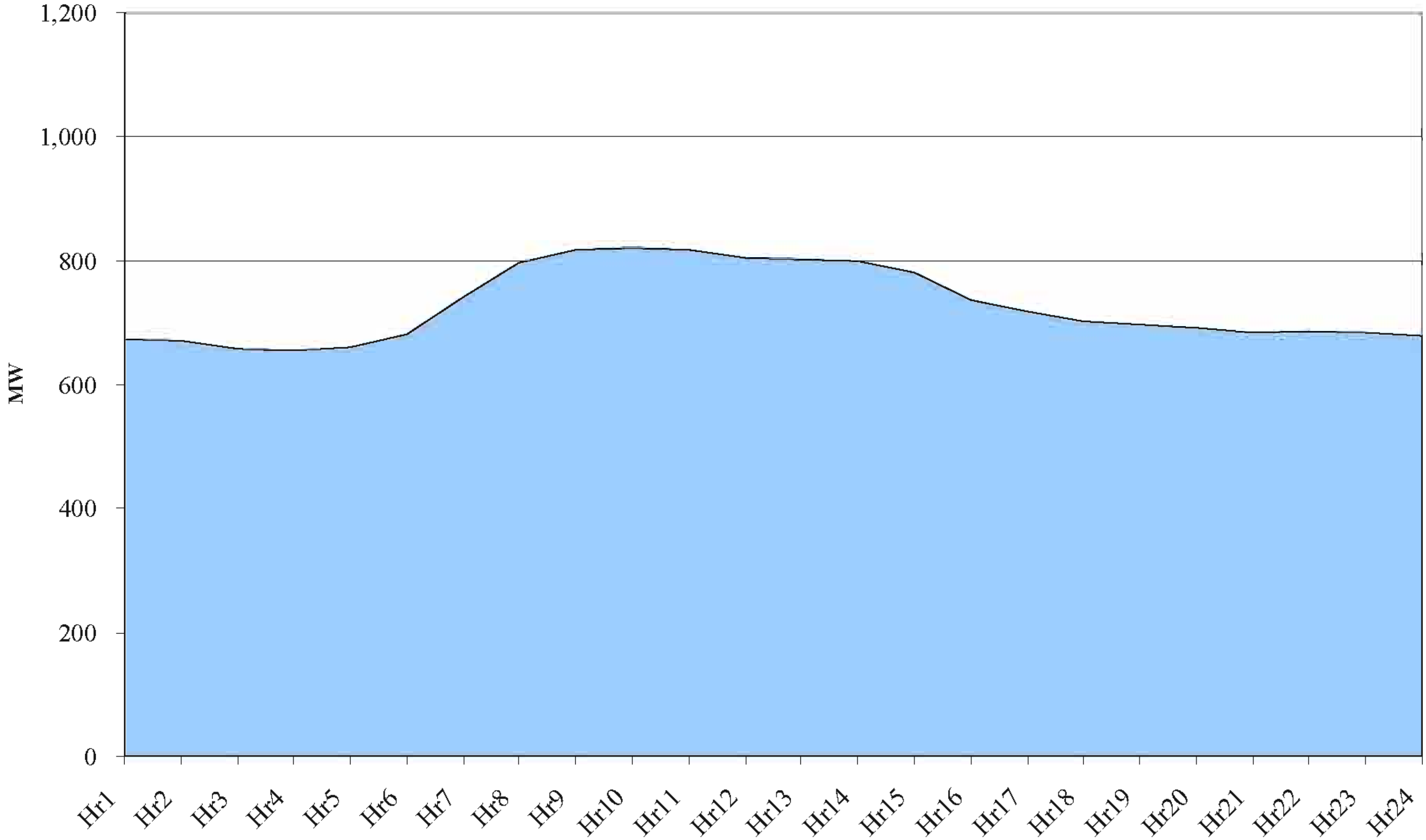
2014 Industrial Total Coincident Summer Load Profile

[redacted]

1999 Industrial Total Coincident Winter Load Profile



2003 Industrial Total Coincident Winter Load Profile



2014 Industrial Total Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Industrial Total System Customers

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	5,904	5,918	5,904	5,942	5,959	5,965	5,951	5,942	5,951	5,951	5,932	5,930	
1996	5,929	5,915	5,898	5,872	5,856	5,844	5,838	5,833	5,829	5,835	5,846	5,868	*-1.2%*
1997	5,862	5,863	5,852	5,847	5,828	5,827	5,825	5,825	5,822	5,795	5,794	5,784	*-0.6%*
1998	5,782	5,763	5,752	5,756	5,746	5,739	5,711	5,703	5,705	5,684	5,663	5,006	*-2.7%*
1999	5,340	5,485	5,394	5,401	5,408	5,405	5,400	5,353	5,335	5,318	5,286	5,288	*-5.3%*
2000	5,330	5,289	5,326	5,409	5,373	5,356	5,343	5,321	5,300	5,273	5,263	5,231	*-0.9%*
2001	5,294	5,179	5,172	5,174	5,171	5,183	5,168	5,162	5,154	5,171	5,159	5,208	*-2.5%*
2002	5,291	5,263	5,285	5,248	5,207	5,179	5,179	5,143	5,155	5,133	5,119	5,392	*0.6%*
2003	5,389	5,265	5,133	5,113	5,114	5,086	5,112	5,083	5,045	5,053	5,057	5,031	*-1.8%*

[redacted]

AmerenUE – Missouri

Industrial SGS Energy Use (MWh) – Revenue Month
Small General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	18,860	17,198	17,505	22,874	6,600	14,092	16,547	17,837	18,212	14,867	20,055	20,111	
1996	19,049	17,880	17,707	16,076	13,558	14,602	16,777	16,844	16,863	16,058	21,408	20,941	*1.5%*
1997	19,034	17,490	16,552	14,631	13,337	13,687	16,736	17,091	16,168	16,183	22,330	21,380	*-1.5%*
1998	18,003	16,662	16,470	15,016	13,681	15,813	17,667	17,050	16,870	16,393	19,211	14,416	*-3.6%*
1999	17,572	16,677	15,643	14,555	13,386	15,630	16,553	18,672	17,329	13,268	13,349	37,815	*6.7%*
2000	39,446	15,819	14,355	12,303	12,564	13,789	15,149	15,093	14,643	15,326	15,013	15,425	*-5.5%*
2001	17,882	14,949	14,022	12,274	11,882	12,071	14,113	14,525	19,842	14,036	16,000	15,500	*-11.0%*
2002	14,429	14,014	12,662	11,799	10,516	11,776	14,174	14,278	13,594	14,876	15,495	15,413	*-7.9%*
2003	14,094	13,379	13,070	10,248	10,029	10,526	12,628	12,750	12,546	12,072	16,611	14,415	*-6.5%*

[redacted]

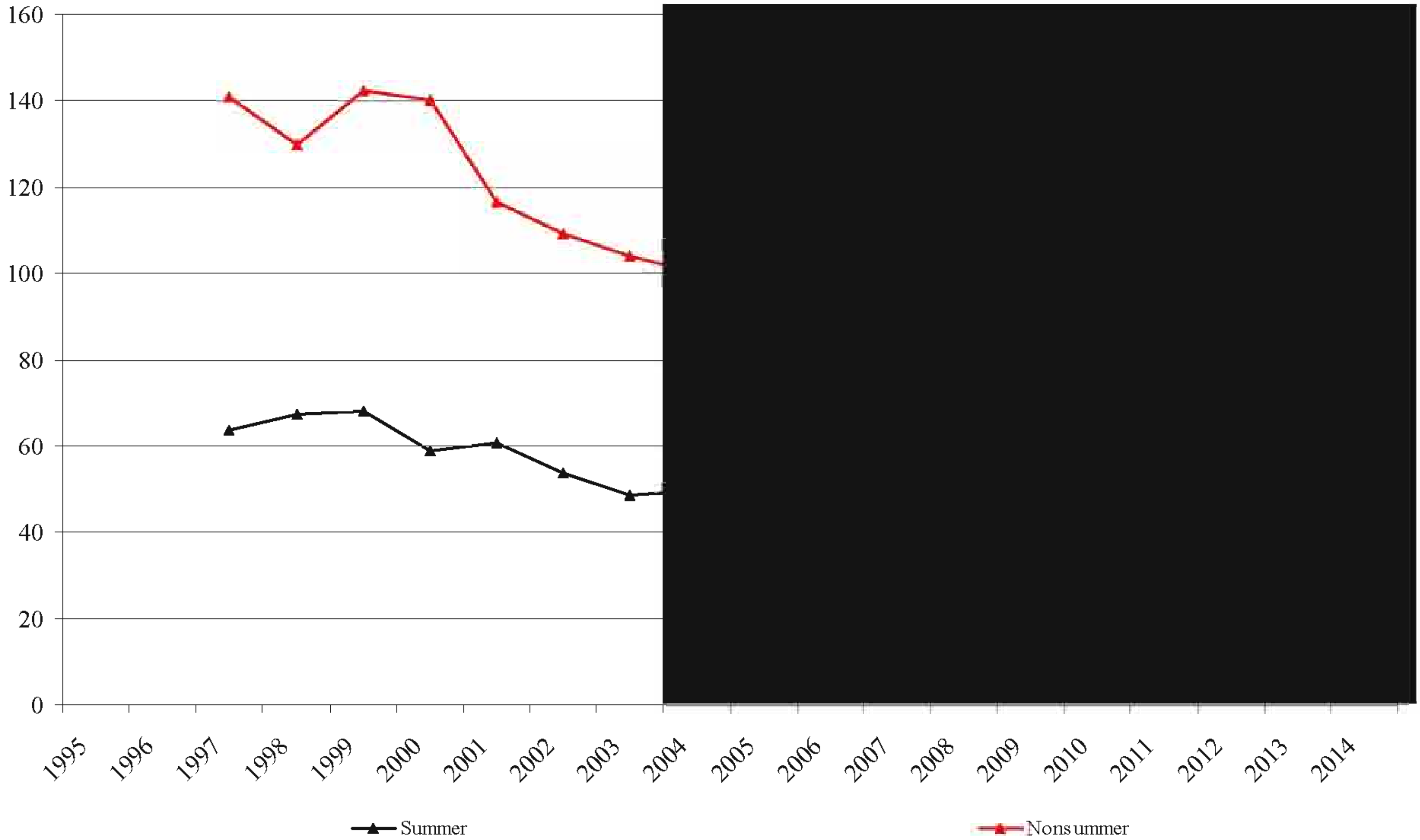
AmerenUE – Missouri

Industrial SGS Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	63,682	N.A.	140,937	N.A.
1998	67,400	5.8%	129,852	-7.9%
1999	68,184	1.2%	142,265	9.6%
2000	58,674	-13.9%	140,251	-1.4%
2001	60,551	3.2%	116,545	-16.9%
2002	53,822	-11.1%	109,203	-6.3%
2003	48,451	-10.0%	103,917	-4.8%

[redacted]

AmerenUE - Missouri
SGS Energy Use (GWh)



AmerenUE – Missouri

Industrial SGS Energy Use (MWh) – Calendar Month
Small General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	18,860	17,198	17,505	22,828	6,697	14,792	17,075	17,428	17,042	14,541	19,961	20,111	
1996	19,049	17,879	17,693	16,063	13,625	15,107	17,294	17,177	12,471	15,777	21,333	20,941	*0.2%*
1997	19,034	17,490	16,552	14,631	13,593	14,639	17,163	17,013	15,607	15,483	22,109	21,380	*0.1%*
1998	18,003	16,662	16,461	14,948	13,697	16,064	17,768	17,140	15,876	15,498	19,110	30,382	*3.4%*
1999	22,893	13,271	15,643	12,989	10,875	16,120	16,944	18,243	15,506	12,441	15,027	31,962	*-4.6%*
2000	34,842	15,818	14,341	10,825	12,580	14,311	15,669	14,740	13,657	14,814	14,843	15,416	*-5.0%*
2001	15,824	11,756	15,448	12,087	11,607	12,603	14,501	14,237	17,129	13,727	15,961	13,641	*-12.2%*
2002	15,382	14,014	10,496	15,613	10,573	12,120	15,777	13,850	12,666	14,231	15,469	28,226	*5.9%*
2003	14,094	13,379	13,070	10,179	10,125	11,298	12,988	12,721	11,728	11,791	16,525	14,408	*-14.6%*

[redacted]

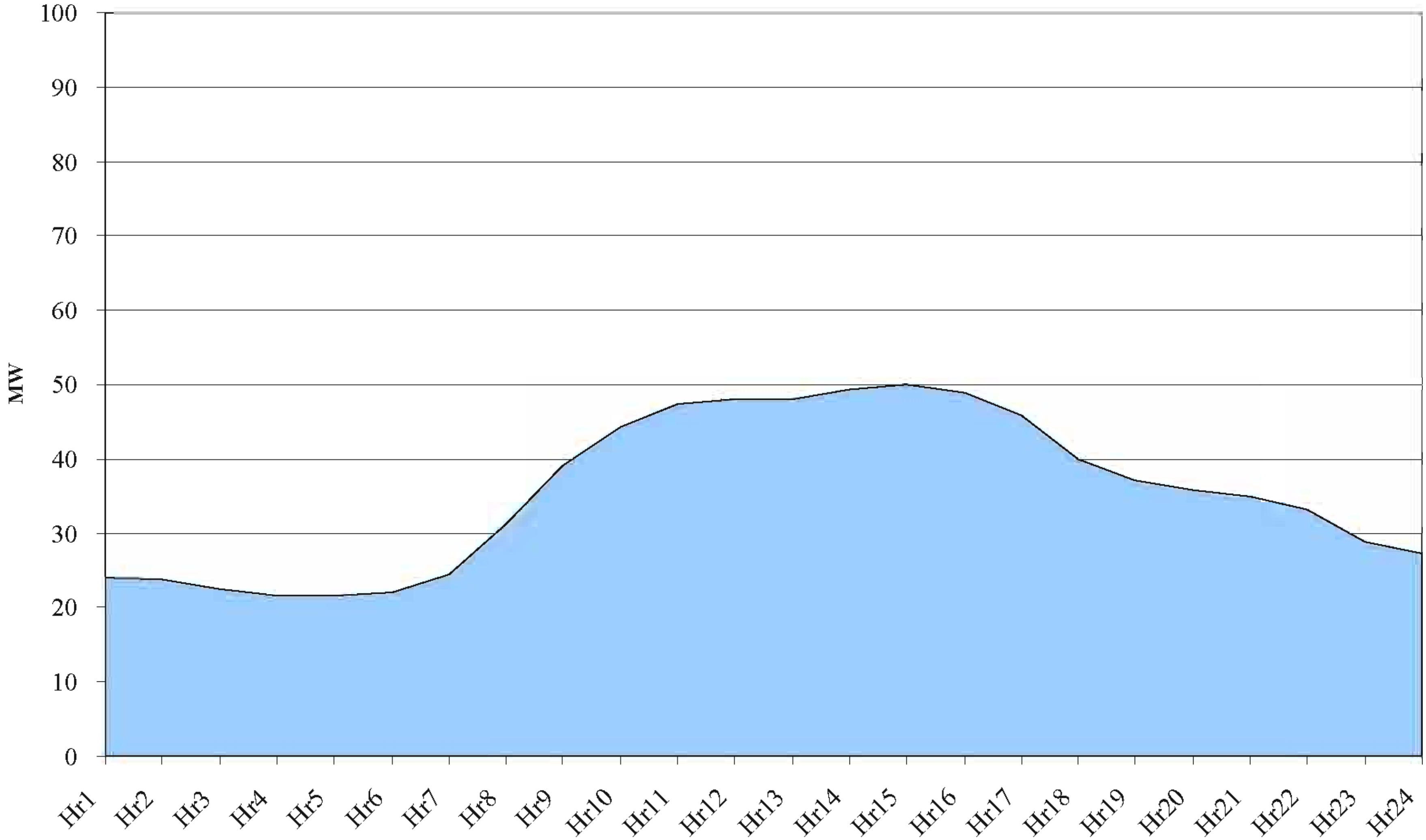
AmerenUE – Missouri

Industrial SGS Summer/Winter Coincident Load Profiles

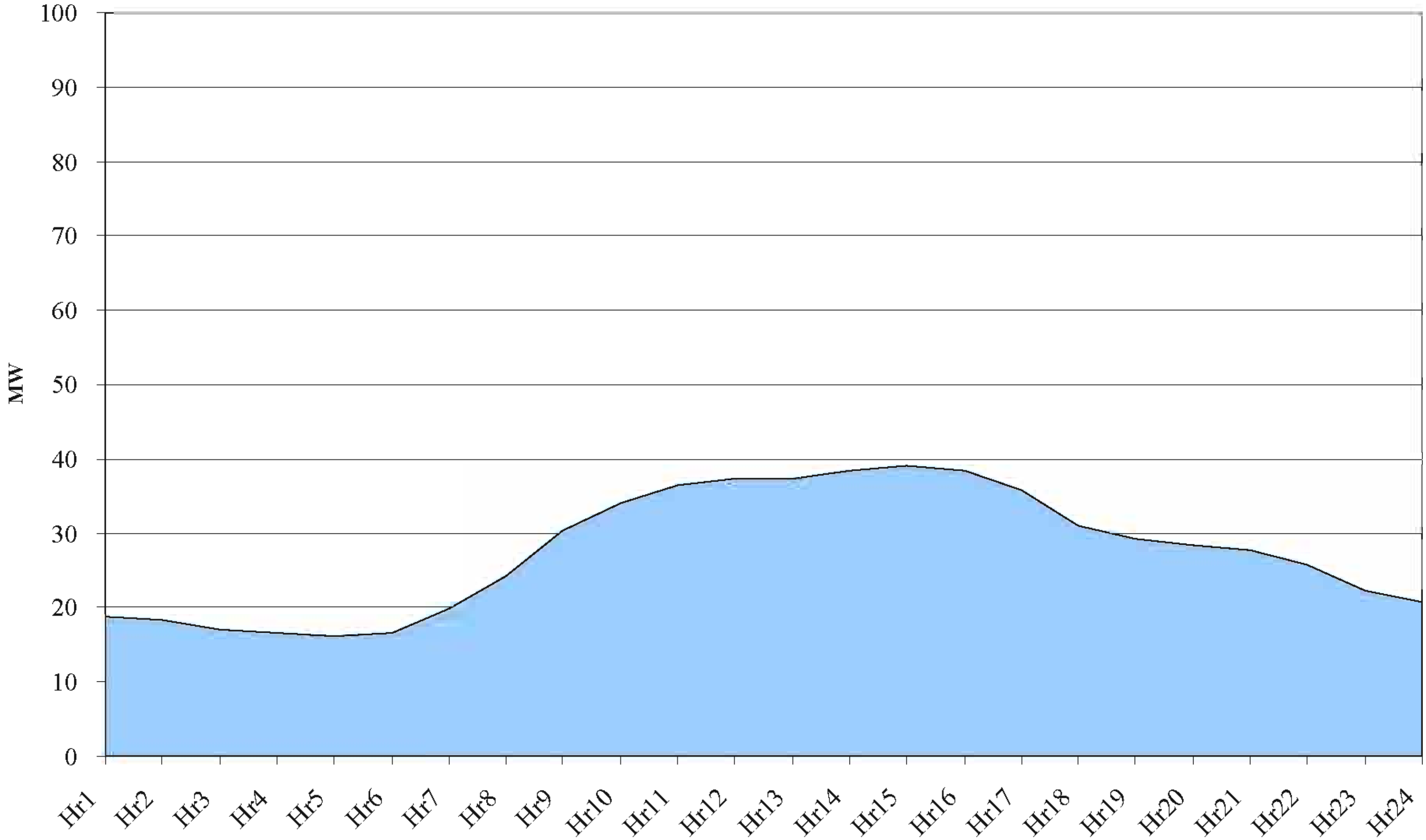
	Summer			Winter		
Hour	1999 MW	2003 MW	2014 MW	1999 MW	2003 MW	2014 MW
1	24	19	[redacted]	24	19	[redacted]
2	24	18		24	19	
3	22	17		24	19	
4	22	17		24	19	
5	22	16		24	19	
6	22	17		26	20	
7	25	20		29	22	
8	31	24		33	25	
9	39	30		37	27	
10	44	34		39	29	
11	47	37		41	31	
12	48	37		41	30	
13	48	37		39	29	
14	49	38		38	29	
15	50	39		37	28	
16	49	38		34	26	
17	46	36		33	25	
18	40	31		31	24	
19	37	29		30	22	
20	36	28		29	22	
21	35	28		28	22	
22	33	26		27	21	
23	29	22		26	20	
24	27	21		25	19	

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Industrial SGS Coincident Summer Load Profile



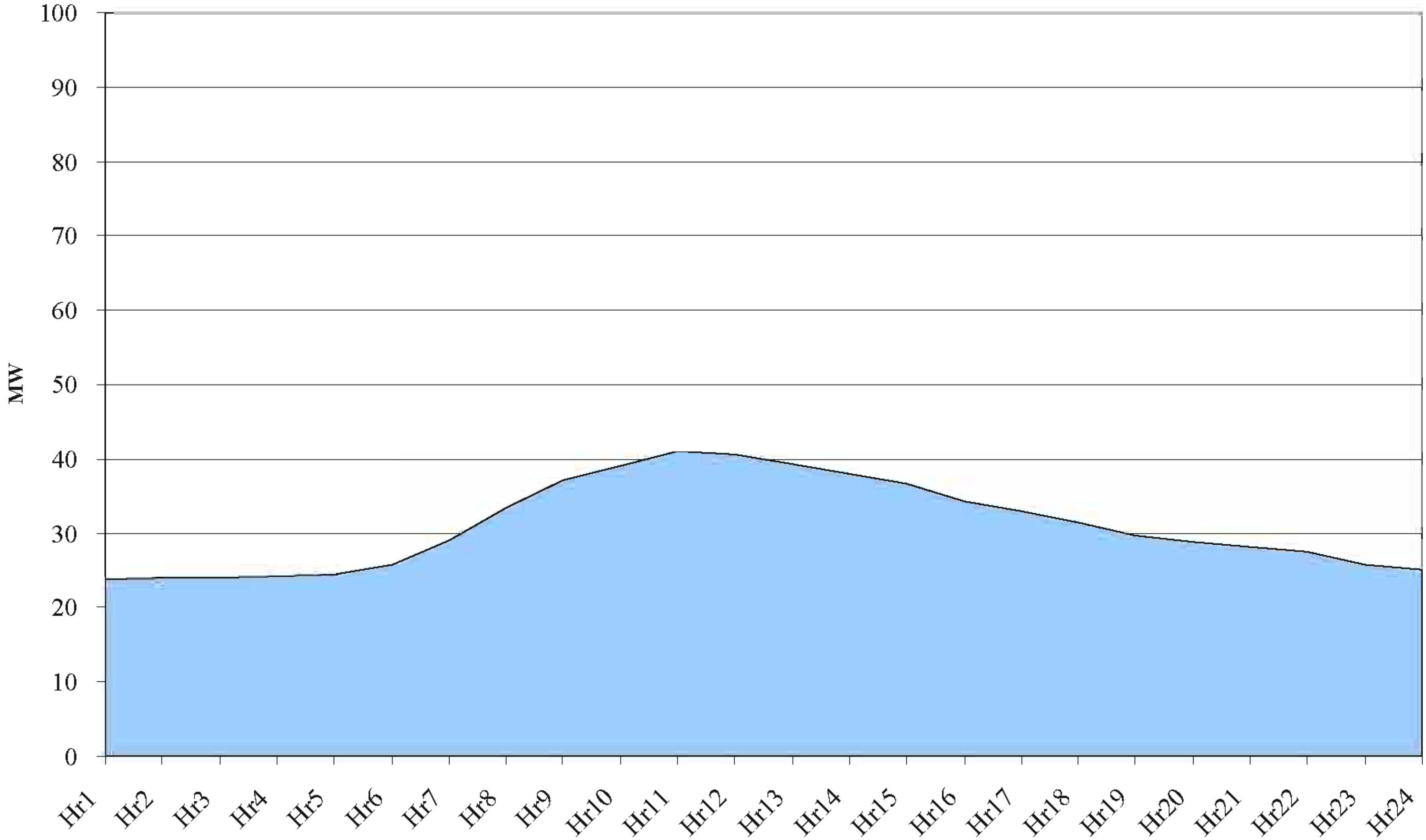
2003 Industrial SGS Coincident Summer Load Profile



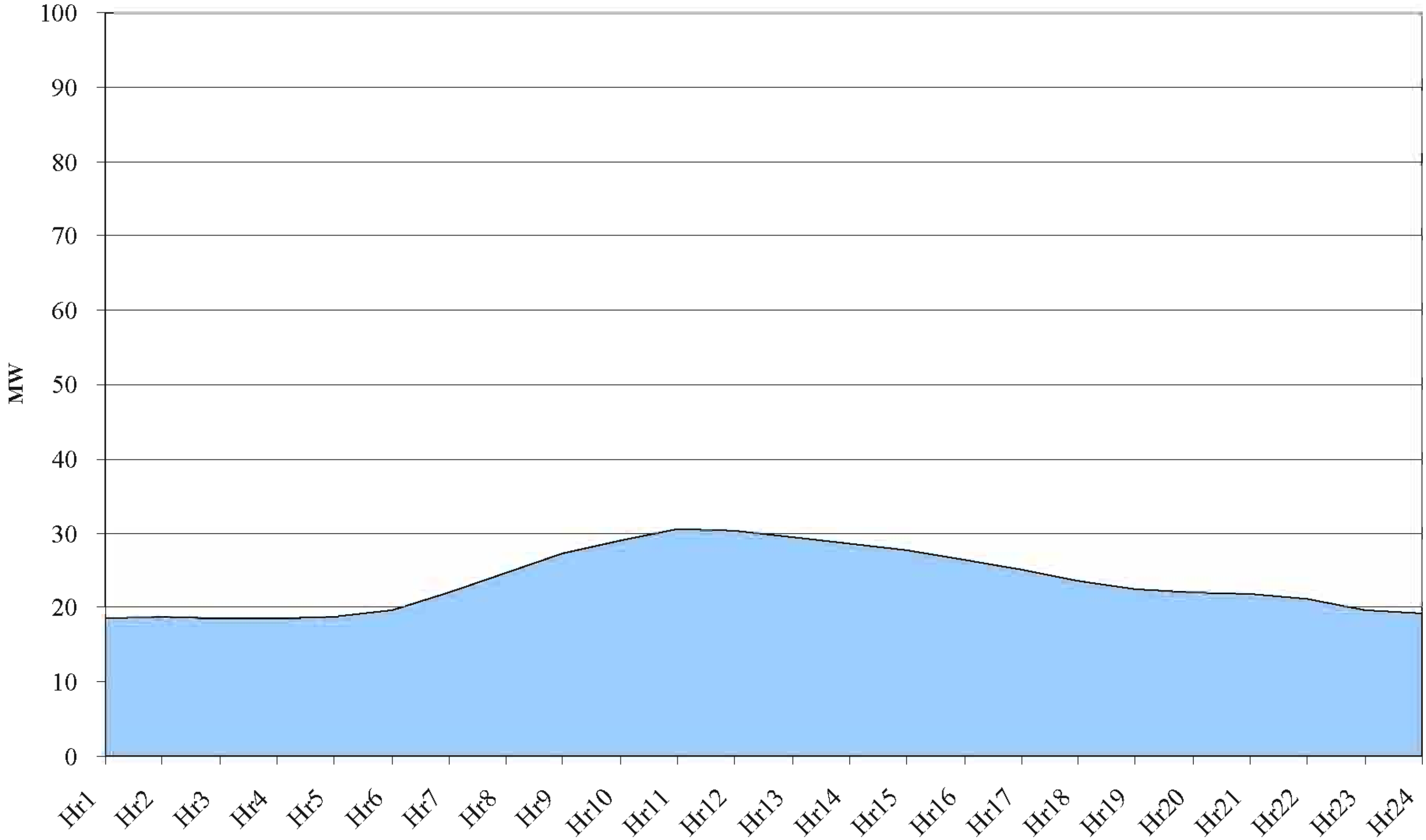
2014 Industrial SGS Coincident Summer Load Profile

[redacted]

1999 Industrial SGS Coincident Winter Load Profile



2003 Industrial SGS Coincident Winter Load Profile



2014 Industrial SGS Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Industrial SGS Customers
Small General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	4,561	4,577	4,563	4,598	4,613	4,623	4,577	4,558	4,557	4,551	4,541	4,534	
1996	4,533	4,519	4,503	4,477	4,457	4,446	4,417	4,409	4,404	4,401	4,410	4,436	*-2.6%*
1997	4,431	4,433	4,427	4,423	4,408	4,405	4,380	4,372	4,367	4,328	4,332	4,333	*-1.4%*
1998	4,322	4,306	4,305	4,319	4,303	4,296	4,245	4,230	4,223	4,204	4,185	4,020	*-3.2%*
1999	4,084	4,103	4,070	4,059	4,063	4,059	4,042	4,006	3,989	3,970	3,982	3,962	*-5.0%*
2000	3,966	3,944	3,954	3,962	3,939	3,915	3,908	3,885	3,864	3,853	3,843	3,828	*-3.2%*
2001	3,822	3,792	3,800	3,796	3,796	3,801	3,794	3,788	3,784	3,808	3,830	3,861	*-2.5%*
2002	3,889	3,897	3,900	3,898	3,842	3,827	3,822	3,797	3,786	3,781	3,775	4,043	*1.3%*
2003	4,021	3,888	3,780	3,762	3,761	3,740	3,751	3,722	3,709	3,707	3,687	3,680	*-2.3%*

[redacted]

AmerenUE – Missouri

Industrial LGS Energy Use (MWh) – Revenue Month
Large General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	111,919	107,842	109,944	102,213	102,074	109,133	117,039	122,491	130,772	108,740	102,802	104,303	
1996	106,395	107,577	108,371	105,674	103,178	115,481	120,956	121,694	127,233	109,646	107,981	108,378	*1.0%*
1997	107,985	106,512	106,451	103,925	100,644	111,991	122,873	124,181	122,138	116,381	111,261	108,946	*0.1%*
1998	108,779	106,206	109,401	106,769	103,732	121,991	122,901	124,782	124,160	116,264	109,421	83,623	*-0.4%*
1999	99,561	113,482	104,764	117,950	159,084	128,527	120,236	126,869	122,899	107,177	102,324	105,188	*5.2%*
2000	108,986	114,129	107,484	105,526	108,822	117,919	118,894	121,473	120,203	112,186	112,186	95,723	*-4.6%*
2001	119,206	104,203	105,564	100,041	104,006	108,642	113,980	125,999	113,009	102,400	94,959	128,816	*-1.7%*
2002	66,606	97,140	95,771	107,796	84,720	111,265	108,086	105,897	112,282	103,199	92,147	93,030	*-10.8%*
2003	94,305	97,243	96,502	90,331	91,805	94,403	103,917	109,401	106,434	97,831	96,078	93,625	*-0.5%*

[redacted]

AmerenUE – Missouri

Industrial LGS Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	481,183	N.A.	862,105	N.A.
1998	493,834	2.6%	844,195	-2.1%
1999	498,531	1.0%	909,530	7.7%
2000	478,489	-4.0%	865,042	-4.9%
2001	461,630	-3.5%	859,195	-0.7%
2002	437,530	-5.2%	740,409	-13.8%
2003	414,155	-5.3%	757,719	2.3%

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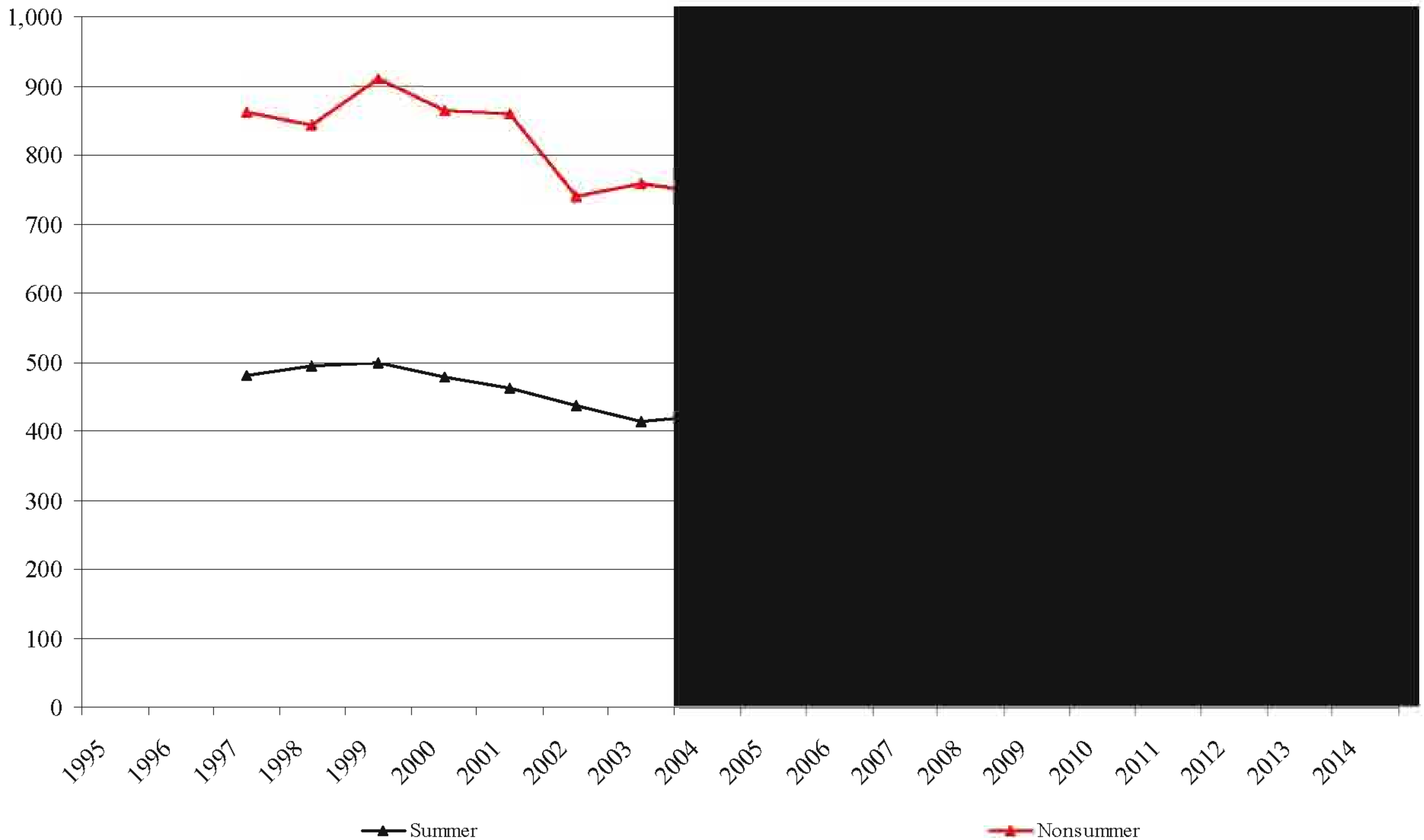
AmerenUE - Missouri
LGS Energy Use (GWh)



[redacted]

AmerenUE – Missouri

Industrial LGS Energy Use (MWh) – Calendar Month
Large General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	111,919	107,842	109,944	102,004	103,575	114,549	120,773	119,686	122,372	106,354	102,320	104,303	
1996	106,395	107,573	108,284	105,587	103,688	119,476	124,686	124,099	94,092	107,726	107,600	108,378	*-0.6%*
1997	107,985	106,512	106,451	103,925	102,579	119,782	126,007	123,617	117,900	111,349	110,161	108,946	*2.1%*
1998	108,779	106,206	109,339	106,284	103,856	123,930	123,605	125,440	116,843	109,917	108,845	176,237	*5.5%*
1999	129,711	90,302	104,764	105,263	129,244	132,554	123,076	123,954	109,968	100,493	115,184	88,907	*-4.6%*
2000	96,266	114,119	107,377	92,845	108,960	122,382	122,979	118,636	112,112	108,437	110,918	95,668	*-3.2%*
2001	105,485	81,945	116,297	98,516	101,602	113,433	117,115	123,497	97,557	100,148	94,730	113,368	*-3.6%*
2002	71,004	97,140	79,387	142,644	85,182	114,522	120,309	102,721	104,617	98,728	91,997	170,372	*1.2%*
2003	94,305	97,243	96,502	89,725	92,684	101,324	106,876	109,145	99,495	95,551	95,576	93,578	*-8.3%*

[redacted]

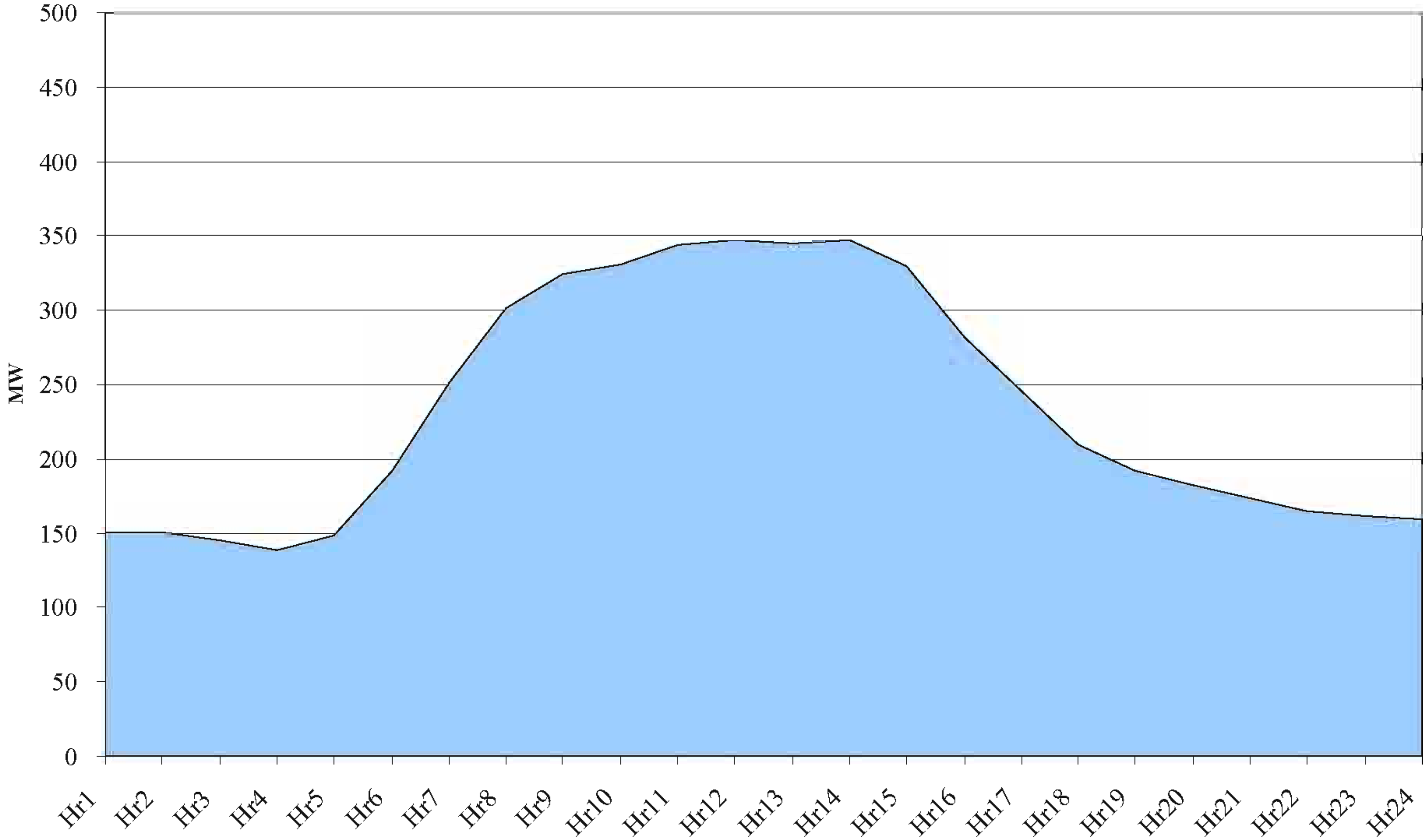
AmerenUE – Missouri

Industrial LGS Summer/Winter Coincident Load Profiles

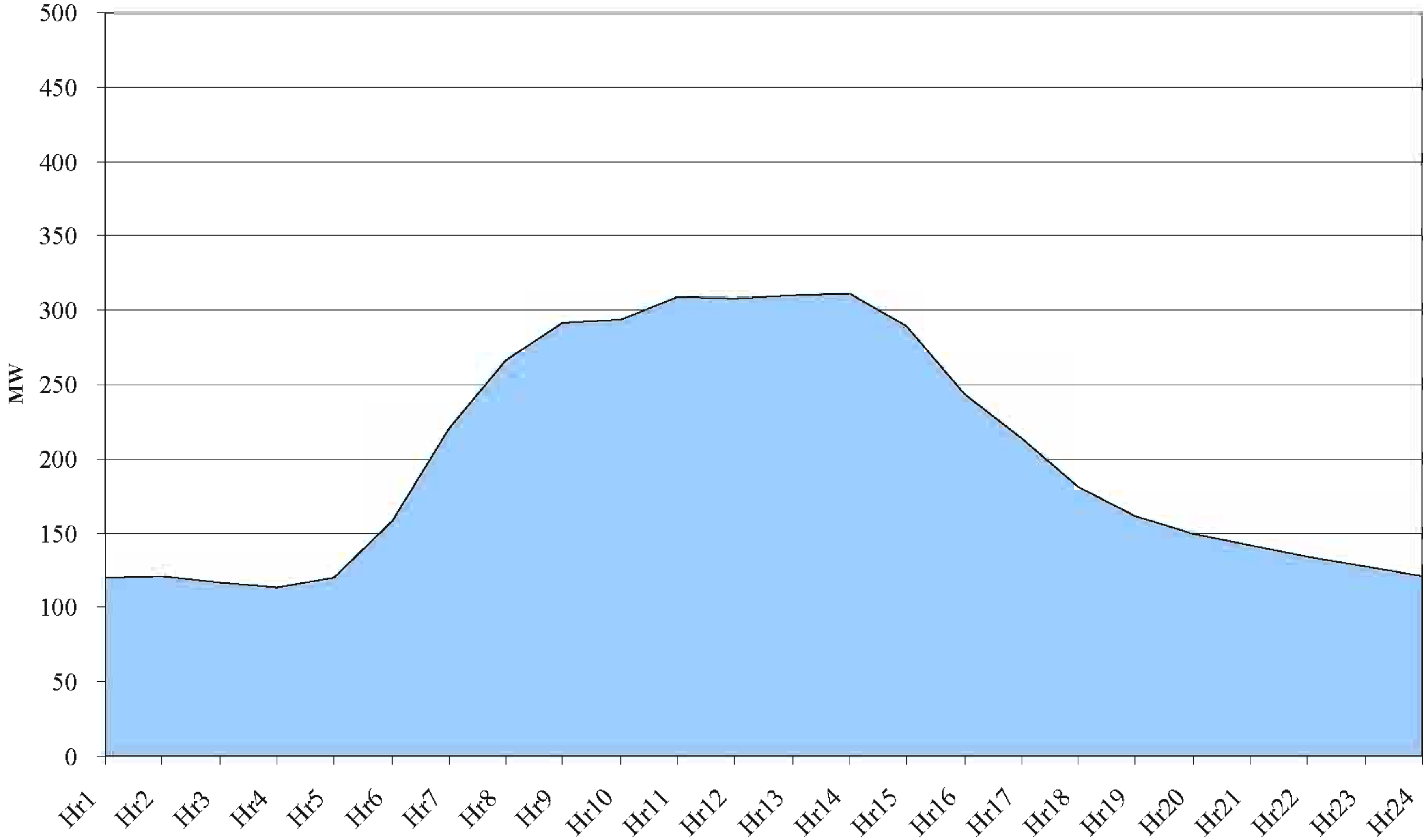
	Summer			Winter		
Hour	**1999 MW**	**2003 MW**	**2014 MW**	**1999 MW**	**2003 MW**	**2014 MW**
1	151	120	[redacted]	115	121	[redacted]
2	151	121	[redacted]	119	118	[redacted]
3	145	116	[redacted]	119	116	[redacted]
4	139	114	[redacted]	120	116	[redacted]
5	148	120	[redacted]	122	117	[redacted]
6	192	158	[redacted]	130	126	[redacted]
7	251	220	[redacted]	177	163	[redacted]
8	302	266	[redacted]	224	201	[redacted]
9	324	291	[redacted]	243	216	[redacted]
10	331	294	[redacted]	249	221	[redacted]
11	344	309	[redacted]	257	225	[redacted]
12	347	308	[redacted]	248	216	[redacted]
13	345	310	[redacted]	243	212	[redacted]
14	347	311	[redacted]	247	214	[redacted]
15	330	289	[redacted]	233	202	[redacted]
16	282	244	[redacted]	202	171	[redacted]
17	246	214	[redacted]	176	155	[redacted]
18	210	181	[redacted]	161	141	[redacted]
19	192	161	[redacted]	156	139	[redacted]
20	182	150	[redacted]	151	134	[redacted]
21	174	142	[redacted]	146	128	[redacted]
22	165	135	[redacted]	151	132	[redacted]
23	162	128	[redacted]	147	128	[redacted]
24	159	121	[redacted]	144	124	[redacted]

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Industrial LGS Coincident Summer Load Profile



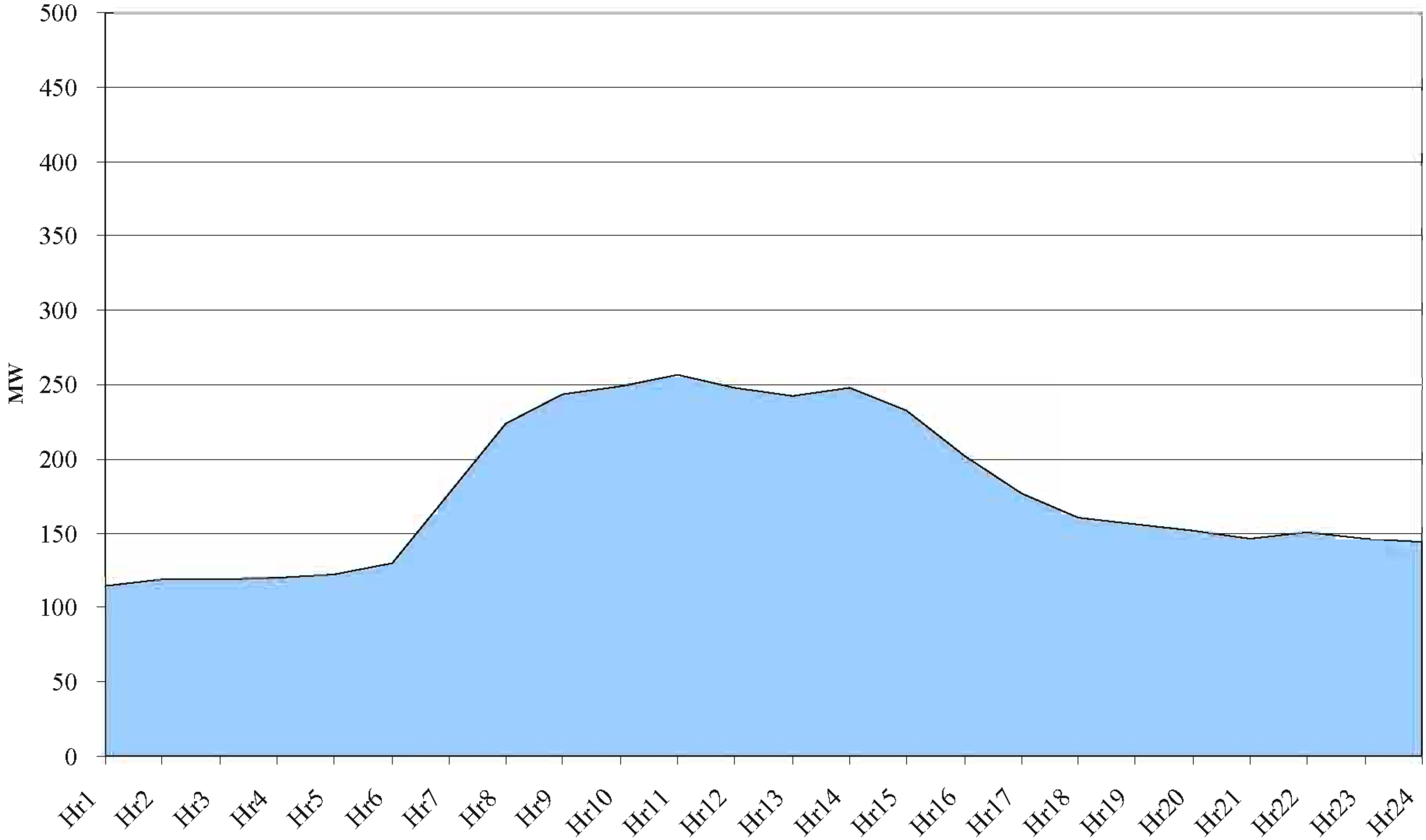
2003 Industrial LGS Coincident Summer Load Profile



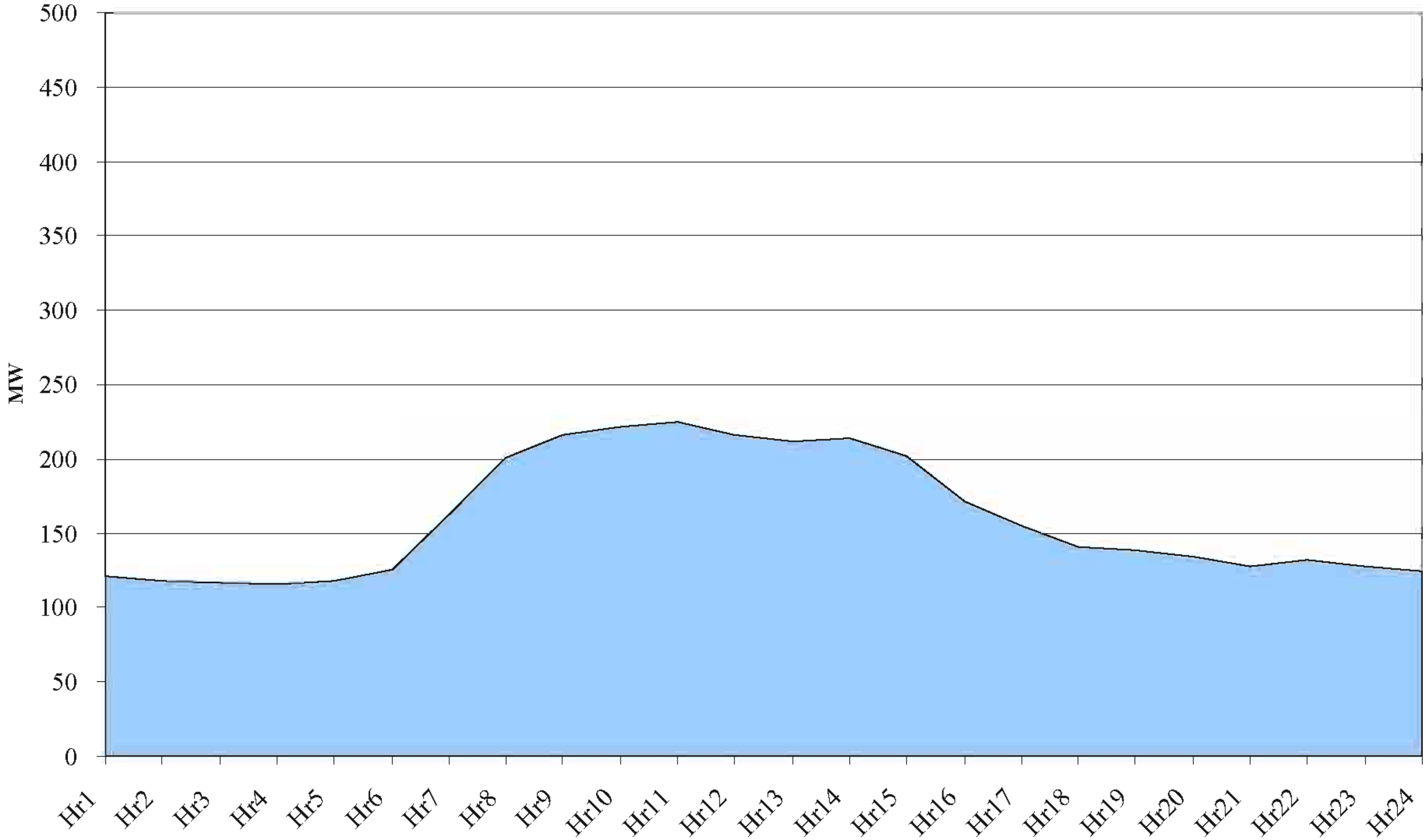
2014 Industrial LGS Coincident Summer Load Profile

[redacted]

1999 Industrial LGS Coincident Winter Load Profile



2003 Industrial LGS Coincident Winter Load Profile



2014 Industrial LGS Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Industrial LGS Customers
Large General Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	1,103	1,104	1,102	1,103	1,106	1,099	1,130	1,140	1,149	1,153	1,144	1,147	
1996	1,147	1,146	1,145	1,145	1,148	1,145	1,168	1,170	1,173	1,179	1,180	1,177	*3.3%*
1997	1,176	1,172	1,167	1,166	1,163	1,164	1,189	1,197	1,197	1,208	1,204	1,190	*1.9%*
1998	1,194	1,188	1,181	1,171	1,176	1,178	1,199	1,207	1,218	1,215	1,211	857	*-1.4%*
1999	1,052	1,143	1,090	1,099	1,101	1,110	1,115	1,104	1,103	1,112	1,093	1,093	*-5.6%*
2000	1,116	1,104	1,139	1,190	1,182	1,190	1,186	1,183	1,187	1,175	1,175	1,158	*5.8%*
2001	1,206	1,145	1,142	1,138	1,135	1,141	1,136	1,136	1,130	1,126	1,101	1,111	*-2.4%*
2002	1,156	1,125	1,131	1,128	1,130	1,114	1,120	1,114	1,124	1,108	1,105	1,105	*-1.4%*
2003	1,121	1,140	1,109	1,106	1,105	1,102	1,114	1,119	1,105	1,109	1,114	1,105	*-0.8%*

[redacted]

AmerenUE – Missouri

Industrial SPS Energy Use (MWh) – Revenue Month
Small Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	160,926	159,683	167,331	155,498	156,389	163,537	177,570	183,230	188,461	173,743	168,769	170,133	
1996	179,286	174,797	180,165	176,284	173,039	180,272	181,568	177,109	349,400	176,885	177,831	177,714	*13.8%*
1997	182,428	178,296	181,624	181,440	177,998	187,002	195,160	196,257	189,931	185,049	177,957	180,430	*-3.9%*
1998	179,201	173,504	182,515	170,602	168,360	186,860	187,352	196,196	188,119	186,759	181,035	98,138	*-5.2%*
1999	151,243	232,161	182,523	195,575	169,917	183,187	166,006	174,214	170,402	182,459	139,558	176,161	*1.2%*
2000	169,396	163,449	146,140	209,202	148,553	168,587	160,828	169,639	160,409	160,292	160,292	154,594	*-7.2%*
2001	169,672	236,361	107,326	146,823	151,667	148,826	157,629	159,517	167,843	148,611	130,960	136,074	*-5.6%*
2002	130,255	131,993	134,081	104,101	125,363	138,658	143,786	141,228	150,928	140,509	128,612	134,087	*-13.8%*
2003	130,672	129,745	125,941	108,093	134,651	126,261	139,389	138,133	135,559	127,473	128,459	126,402	*-3.3%*

[redacted]

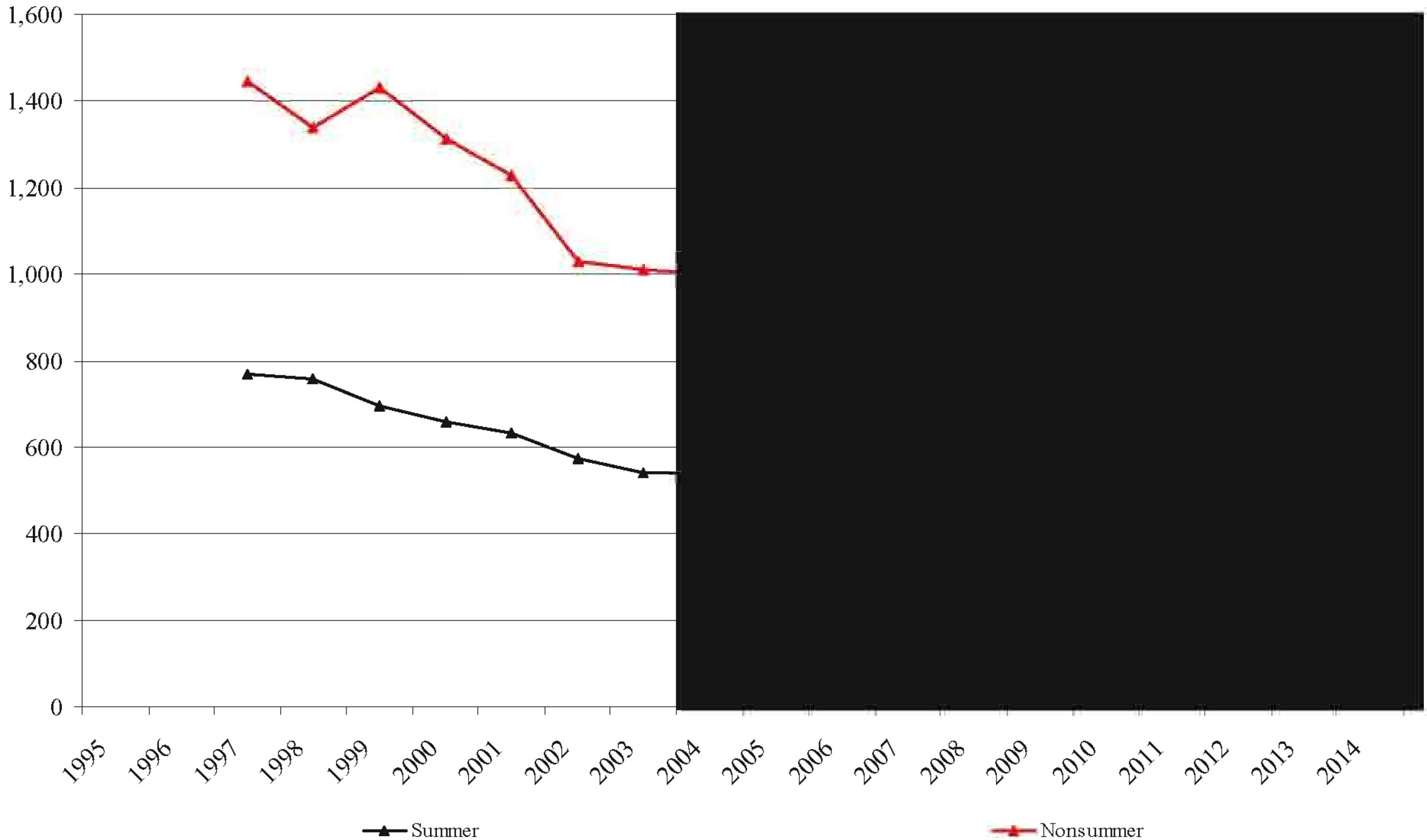
AmerenUE – Missouri

Industrial SPS Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	768,350	N.A.	1,445,222	N.A.
1998	758,527	-1.3%	1,340,114	-7.3%
1999	693,809	-8.5%	1,429,597	6.7%
2000	659,463	-5.0%	1,311,918	-8.2%
2001	633,815	-3.9%	1,227,494	-6.4%
2002	574,599	-9.3%	1,029,000	-16.2%
2003	539,341	-6.1%	1,011,436	-1.7%

[redacted]

AmerenUE - Missouri
SPS Energy Use (GWh)



AmerenUE – Missouri

Industrial SPS Energy Use (MWh) – Calendar Month
Small Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	160,926	159,683	167,331	155,181	158,688	171,654	183,235	179,033	176,356	169,931	167,977	170,133	
1996	179,286	174,790	180,020	176,139	173,894	186,508	187,167	180,609	258,391	173,788	177,204	177,714	*10.2%*
1997	182,428	178,296	181,624	181,440	181,419	200,011	200,138	195,365	183,341	177,048	176,198	180,430	*-0.3%*
1998	179,201	173,504	182,411	169,827	168,561	189,830	188,425	197,231	177,033	176,564	180,082	206,828	*-1.3%*
1999	197,044	184,739	182,523	174,539	138,045	188,927	169,927	170,212	152,473	171,080	157,097	148,895	*-7.0%*
2000	149,626	163,434	145,995	184,063	148,741	174,967	166,354	165,676	149,611	154,935	158,480	154,504	*-5.9%*
2001	150,142	185,873	118,238	144,584	148,161	155,390	161,964	156,349	144,893	145,342	130,645	119,756	*-8.1%*
2002	138,855	131,993	111,143	137,753	126,047	142,716	160,047	136,992	140,624	134,421	128,403	245,564	*-1.5%*
2003	130,672	129,745	125,941	107,367	135,941	135,517	143,359	137,811	126,721	124,502	127,788	126,339	*-10.5%*

[redacted]

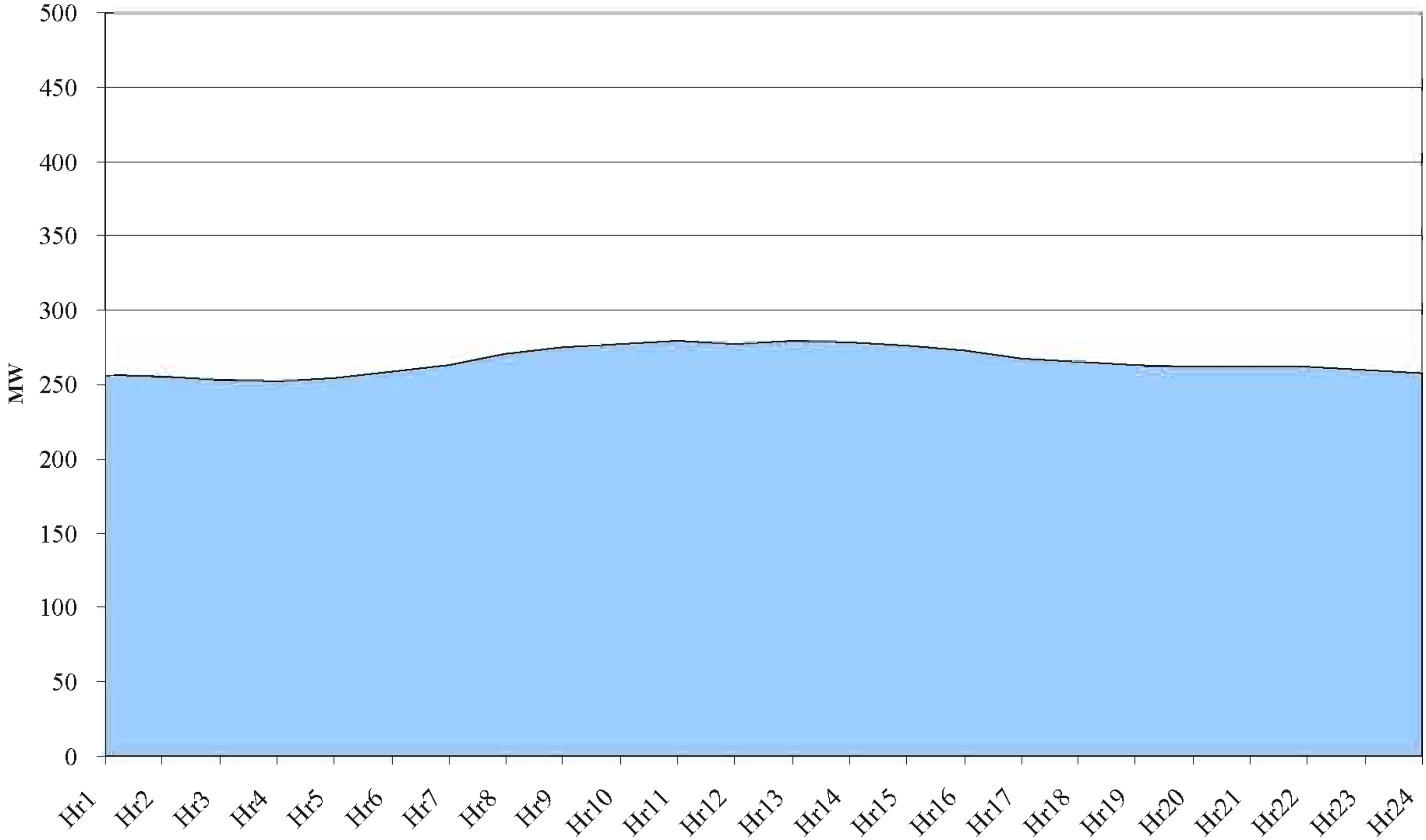
AmerenUE – Missouri

Industrial SPS Summer/Winter Coincident Load Profiles

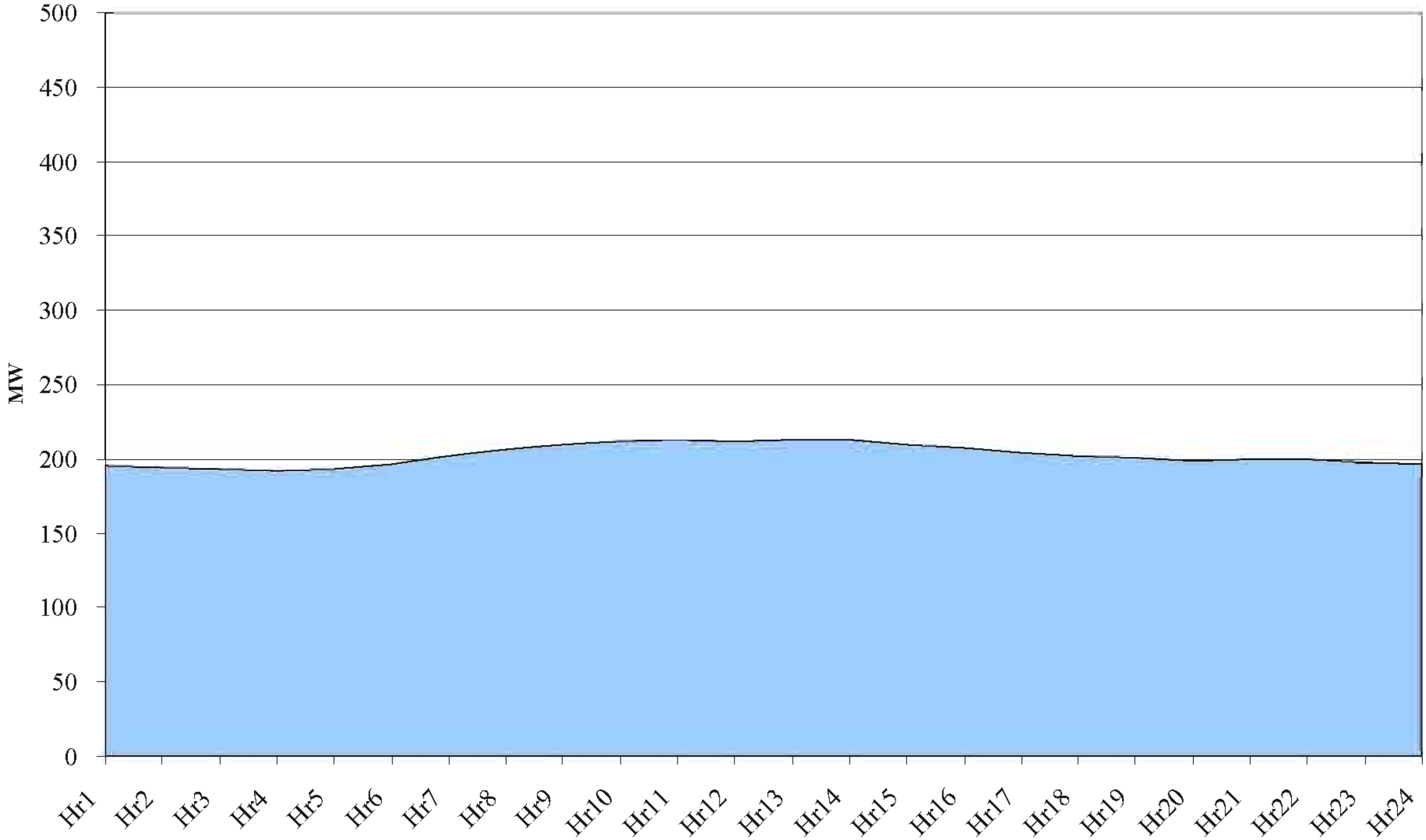
Hour	Summer 1999 MW	Summer 2003 MW	Summer 2014 MW	Winter 1999 MW	Winter 2003 MW	Winter 2014 MW
1	257	196	[redacted]	221	188	[redacted]
2	255	195	[redacted]	224	186	[redacted]
3	253	193	[redacted]	224	185	[redacted]
4	252	192	[redacted]	224	185	[redacted]
5	254	193	[redacted]	226	185	[redacted]
6	258	197	[redacted]	232	188	[redacted]
7	264	202	[redacted]	243	195	[redacted]
8	271	206	[redacted]	255	203	[redacted]
9	275	209	[redacted]	260	205	[redacted]
10	278	212	[redacted]	261	204	[redacted]
11	280	213	[redacted]	263	205	[redacted]
12	278	212	[redacted]	260	202	[redacted]
13	279	213	[redacted]	263	205	[redacted]
14	279	212	[redacted]	262	203	[redacted]
15	276	210	[redacted]	258	200	[redacted]
16	273	208	[redacted]	253	196	[redacted]
17	268	204	[redacted]	251	194	[redacted]
18	265	202	[redacted]	249	192	[redacted]
19	263	200	[redacted]	248	192	[redacted]
20	262	199	[redacted]	247	190	[redacted]
21	262	199	[redacted]	248	191	[redacted]
22	262	199	[redacted]	248	191	[redacted]
23	260	197	[redacted]	249	191	[redacted]
24	258	196	[redacted]	247	189	[redacted]

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Industrial SPS Coincident Summer Load Profile



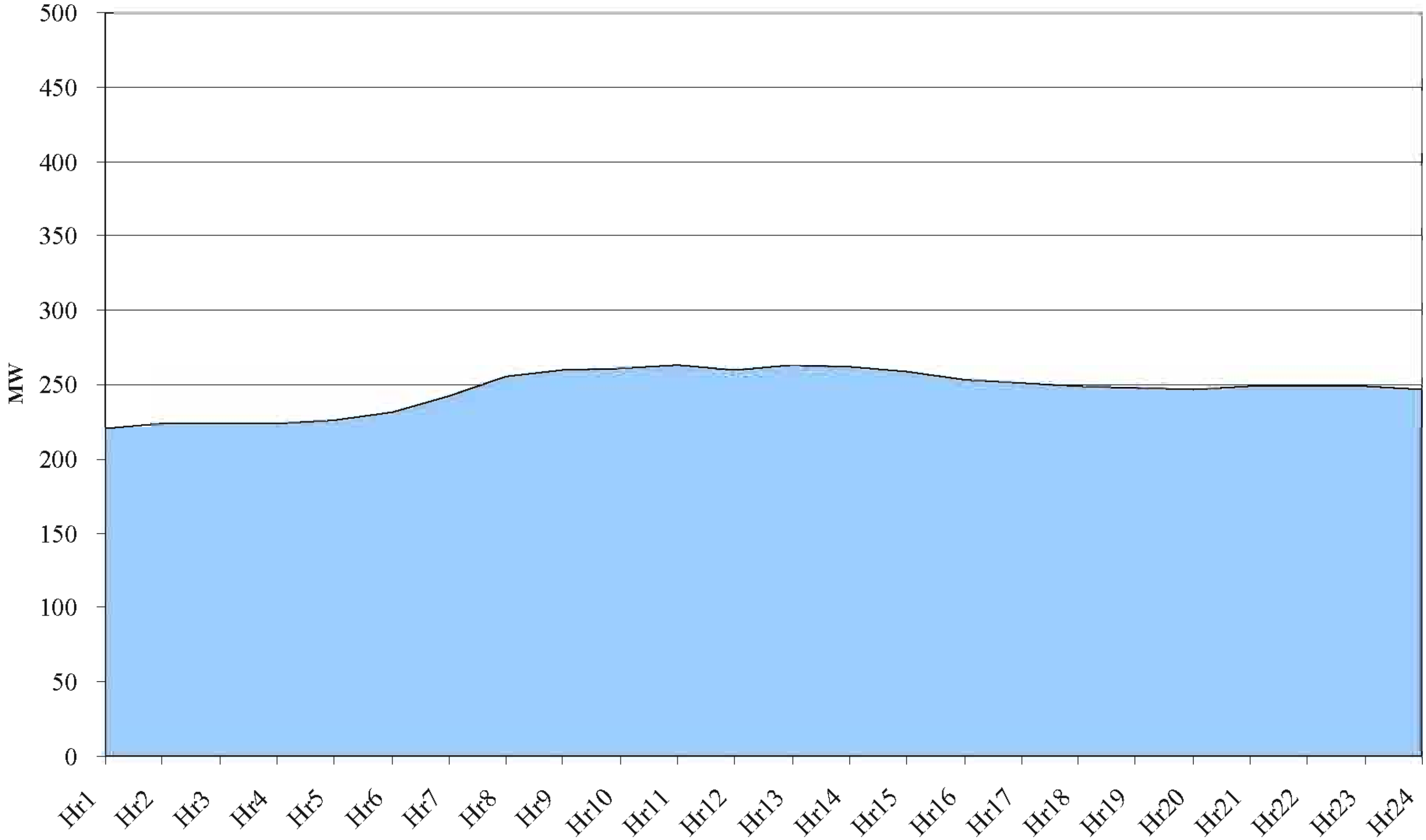
2003 Industrial SPS Coincident Summer Load Profile



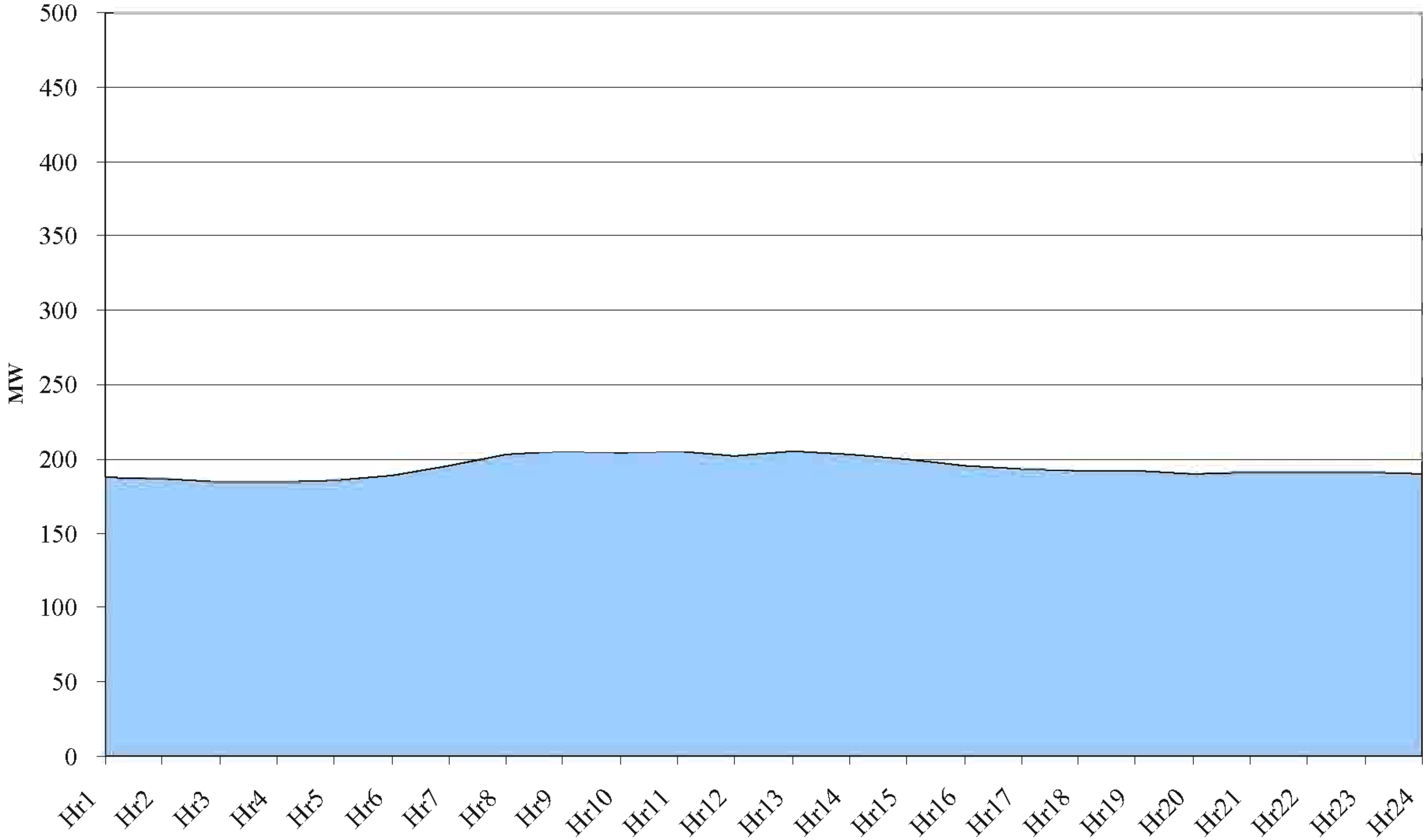
2014 Industrial SPS Coincident Summer Load Profile

[redacted]

1999 Industrial SPS Coincident Winter Load Profile



2003 Industrial SPS Coincident Winter Load Profile



2014 Industrial SPS Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Industrial SPS Customers
Small Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	208	205	207	209	209	212	213	213	213	215	216	218	
1996	218	218	219	220	221	221	222	222	221	223	225	224	*4.6%*
1997	224	227	226	227	226	226	225	225	226	228	227	230	*2.4%*
1998	235	237	234	234	234	232	233	233	231	234	237	123	*-0.7%*
1999	180	211	206	213	215	213	212	210	208	198	182	198	*-9.3%*
2000	213	205	201	218	215	213	212	215	212	211	211	209	*3.6%*
2001	228	206	199	206	204	205	203	202	204	202	196	201	*-3.1%*
2002	208	202	205	198	198	202	199	194	208	208	202	203	*-1.2%*
2003	210	201	208	206	213	209	209	206	194	197	218	209	*2.2%*

[redacted]

AmerenUE – Missouri

Industrial LPS Energy Use (MWh) – Revenue Month
Large Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	158,275	146,262	155,336	153,525	154,255	175,533	179,268	183,904	167,546	169,583	153,068	147,293	_
1996	165,669	148,582	150,835	159,725	163,326	167,084	182,205	181,730	174,181	167,745	159,237	156,552	*1.7%*
1997	158,853	148,585	156,310	156,119	153,741	176,044	178,448	176,179	191,367	174,100	163,243	174,910	*1.6%*
1998	162,590	165,592	170,473	167,717	174,160	197,904	186,394	175,025	191,602	172,525	168,927	43,243	*-1.6%*
1999	80,900	203,806	174,623	179,224	221,642	207,139	229,051	209,490	218,460	191,210	143,240	239,105	*16.3%*
2000	191,198	215,685	181,629	191,804	175,706	218,943	239,133	293,444	271,991	234,351	234,351	250,993	*17.5%*
2001	228,621	246,930	203,121	213,909	237,637	253,162	239,295	270,908	278,743	223,166	236,224	257,923	*7.1%*
2002	233,125	238,651	329,017	134,324	249,919	251,378	228,222	310,714	268,692	278,118	247,812	16,160	*-3.6%*
2003	239,256	234,503	210,350	255,884	230,526	258,659	264,547	266,997	271,990	253,319	273,186	229,865	*7.3%*

[redacted]

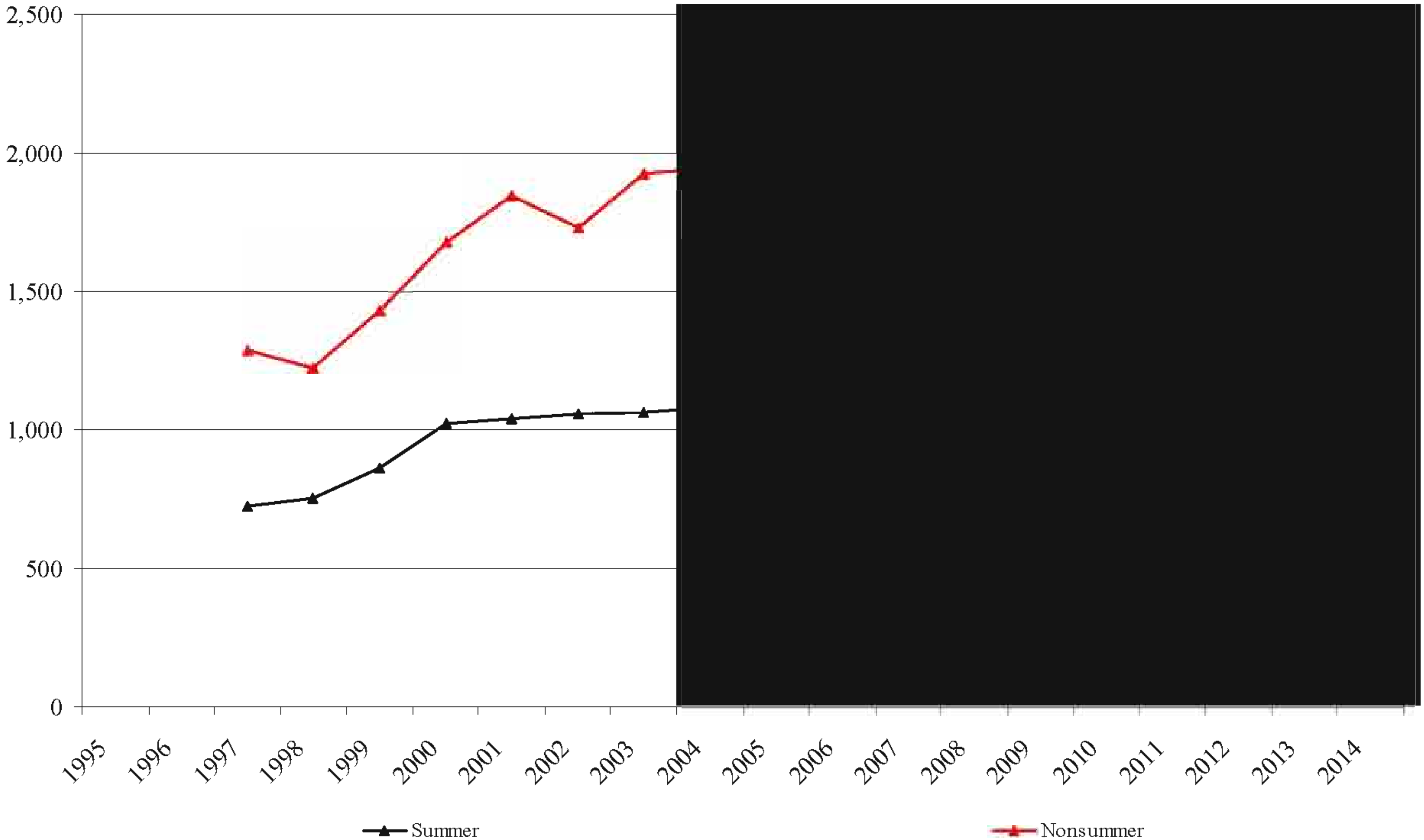
AmerenUE – Missouri

Industrial LPS Summer/Nonsummer Energy Use (MWh)

	Summer Months (June-September)		Nonsummer Months (Jan.-May and Oct.-December)	
1995				
1996		N.A		N.A
1997	722,038	N.A.	1,285,861	N.A.
1998	750,925	4.0%	1,225,227	-4.7%
1999	864,140	15.1%	1,433,750	17.0%
2000	1,023,511	18.4%	1,675,717	16.9%
2001	1,042,108	1.8%	1,847,531	10.3%
2002	1,059,005	1.6%	1,727,127	-6.5%
2003	1,062,193	0.3%	1,926,889	11.6%

[redacted]

AmerenUE - Missouri
LPS Energy Use (GWh)



[redacted]

AmerenUE – Missouri

Industrial LPS Energy Use (MWh) – Revenue Month
Large Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	158,275	146,262	155,336	153,212	156,523	184,245	184,988	179,692	156,784	165,863	152,350	147,293	
1996	165,669	148,576	150,714	159,593	164,133	172,863	187,824	185,321	128,811	164,808	158,676	156,552	*0.1%*
1997	158,853	148,585	156,310	156,119	156,696	188,291	183,000	175,378	184,727	166,572	161,630	174,910	*3.5%*
1998	162,590	165,592	170,376	166,955	174,368	201,049	187,462	175,948	180,311	163,107	168,037	91,135	*-0.2%*
1999	105,399	162,176	174,623	159,947	180,068	213,630	234,461	204,677	195,474	179,285	161,242	202,097	*8.3%*
2000	168,883	215,665	181,449	168,756	175,928	227,229	247,349	286,590	253,682	226,520	231,701	250,848	*21.2%*
2001	202,306	194,184	223,773	210,648	232,144	264,327	245,876	265,528	240,629	218,257	235,655	226,992	*4.8%*
2002	248,517	238,651	272,731	177,747	251,284	258,734	254,033	301,395	250,349	266,068	247,409	29,595	*1.3%*
2003	239,256	234,503	210,350	254,165	232,735	277,621	272,082	266,374	254,258	247,414	271,760	229,751	*6.9%*

[redacted]

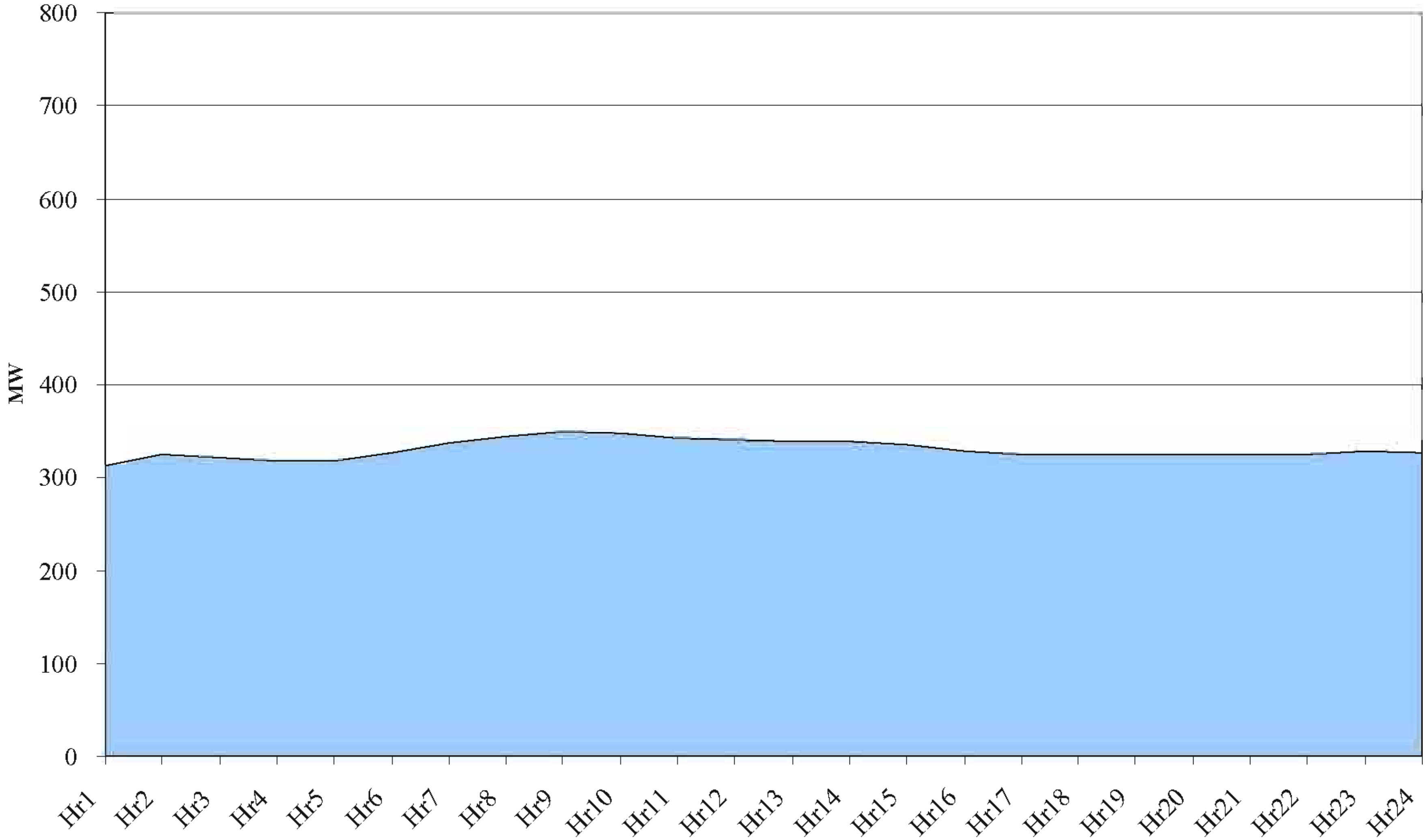
AmerenUE – Missouri

Industrial LPS Summer/Winter Coincident Load Profiles

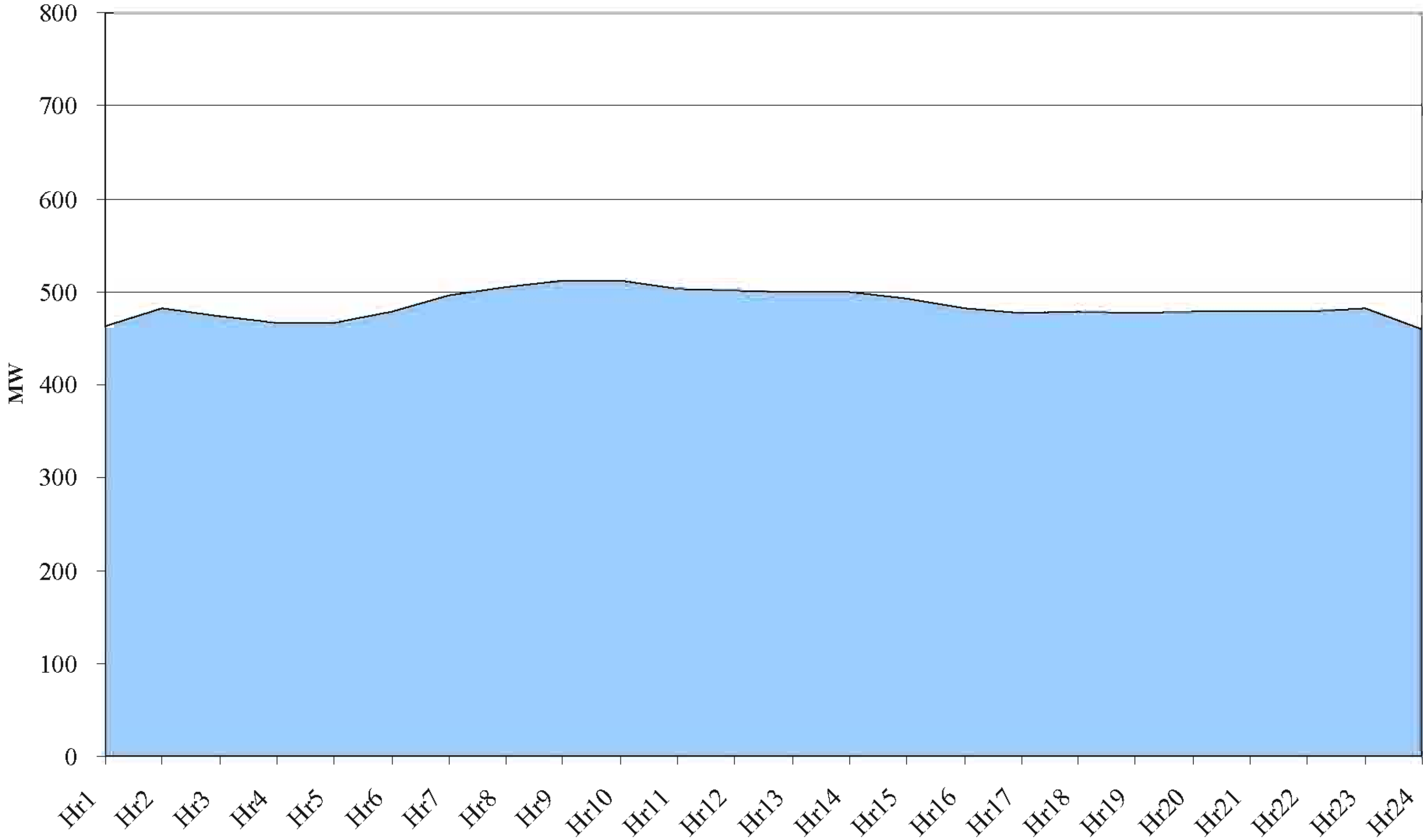
	Summer			Winter		
Hour	1999 MW	2003 MW	2014 MW	1999 MW	2003 MW	2014 MW
1	312	462	[redacted]	213	347	[redacted]
2	326	481	[redacted]	217	345	[redacted]
3	322	473	[redacted]	218	338	[redacted]
4	318	466	[redacted]	222	337	[redacted]
5	319	466	[redacted]	226	338	[redacted]
6	327	478	[redacted]	233	348	[redacted]
7	338	496	[redacted]	244	362	[redacted]
8	345	505	[redacted]	249	366	[redacted]
9	349	511	[redacted]	251	369	[redacted]
10	348	511	[redacted]	250	366	[redacted]
11	342	503	[redacted]	247	357	[redacted]
12	341	500	[redacted]	245	355	[redacted]
13	339	500	[redacted]	247	357	[redacted]
14	339	499	[redacted]	246	355	[redacted]
15	335	493	[redacted]	244	350	[redacted]
16	328	482	[redacted]	240	343	[redacted]
17	324	477	[redacted]	239	343	[redacted]
18	325	478	[redacted]	242	346	[redacted]
19	324	477	[redacted]	242	345	[redacted]
20	325	478	[redacted]	243	345	[redacted]
21	325	478	[redacted]	242	344	[redacted]
22	325	479	[redacted]	241	342	[redacted]
23	328	482	[redacted]	246	347	[redacted]
24	327	460	[redacted]	245	347	[redacted]

The load profile and peak data are preliminary estimates based on the experimental conversion of the peak forecasting process to MetrixLT.

1999 Industrial LPS Coincident Summer Load Profile



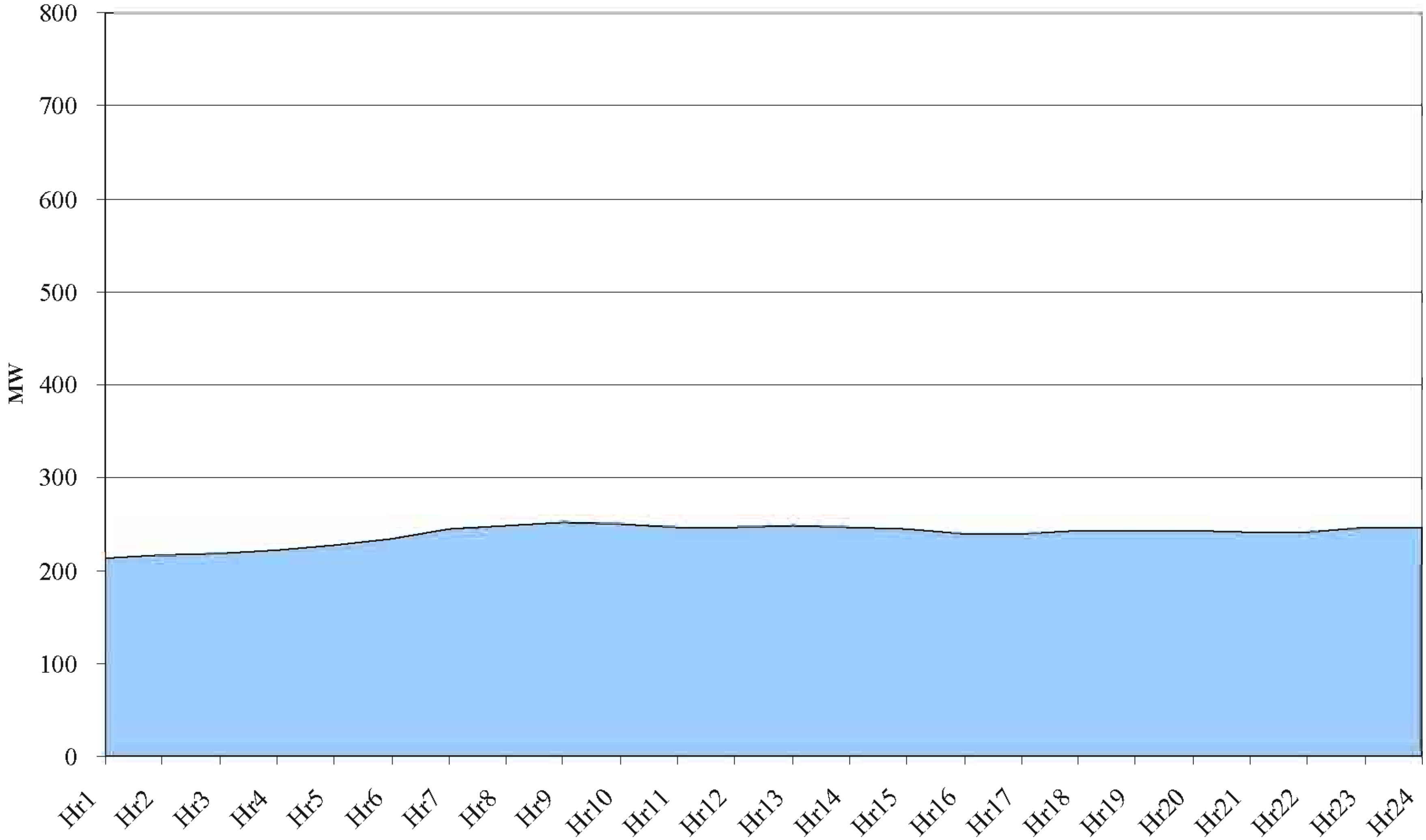
2003 Industrial LPS Coincident Summer Load Profile



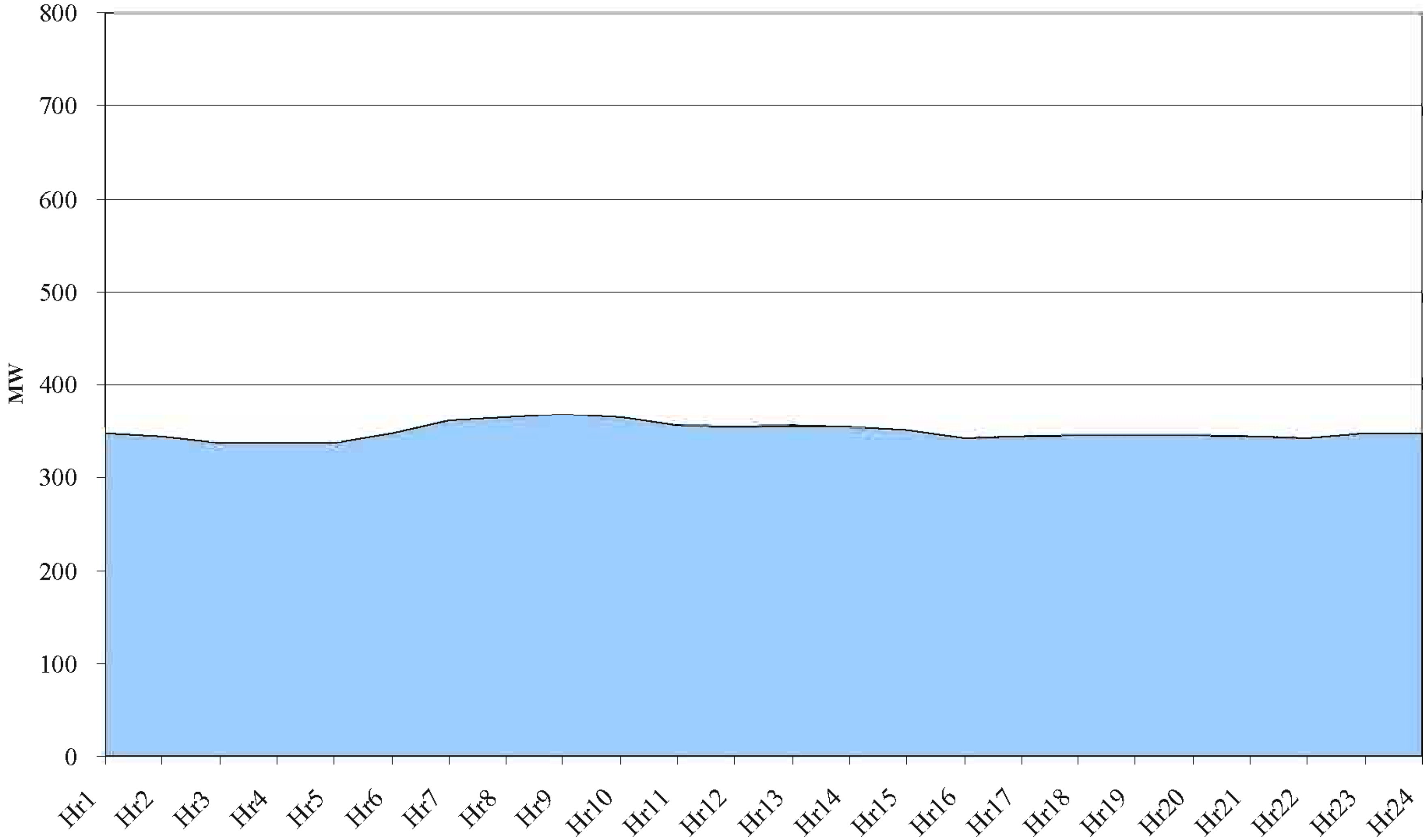
2014 Industrial LPS Coincident Summer Load Profile

[redacted]

1999 Industrial LPS Coincident Winter Load Profile



2003 Industrial LPS Coincident Winter Load Profile



2014 Industrial LPS Coincident Winter Load Profile

[redacted]

AmerenUE – Missouri

Industrial LPS Customers
Large Primary Service

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year-to-Year Growth
1995	27	27	27	27	26	26	26	26	27	27	26	26	
1996	26	27	26	25	25	27	26	27	26	27	26	26	*-1.3%*
1997	26	26	27	26	26	27	26	26	27	26	26	26	*0.3%*
1998	26	27	27	27	28	28	29	28	28	27	25	6	*-3.0%*
1999	20	23	23	25	24	21	26	29	30	33	24	30	*0.8%*
2000	31	31	28	34	32	34	27	27	27	26	26	27	*13.6%*
2001	28	27	23	25	27	27	27	27	27	26	25	27	*-9.7%*
2002	38	39	49	24	37	36	38	38	37	36	37	41	*42.4%*
2003	37	36	36	39	35	35	38	36	37	40	38	37	*-1.3%*

[redacted]

SAE Data

SAE XHeat

Residential – Revenue Month

[redacted]

SAE HeatUse
Residential – Revenue Month

[redacted]

SAE XCool

Residential – Revenue Month

[redacted]

SAE CoolUse
Residential – Revenue Month

[redacted]

SAE XOther
Residential – Revenue Month

[redacted]

SAE OtherUse
Residential – Revenue Month

[redacted]