The Narragansett Electric Company

d/b/a National Grid

INVESTIGATION AS TO THE PROPRIETY OF PROPOSED TARIFF CHANGES

Testimony and Schedules of:

Joseph F. Gredder
Theodore E. Poe, Jr.

Book 3 of 17

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Testimony of
Joseph F. Gredder

PRE-FILED DIRECT TESTIMONY

OF

JOSEPH F. GREDDER

Dated: November 27, 2017

SUMMARY

Joseph F. Gredder is Manager of Electric Regulatory Support in National Grid's Advanced Data and Analytics and testifies regarding Company's forecast of electric deliveries and customer counts used to support the revenue requirement and rate design for Narragansett Electric presented in this filing. Mr. Gredder's testimony demonstrates the thorough process Narragansett Electric undertakes to develop the electric forecast used in the allocated cost of service study and rate design process to determine rates that will produce the revenue for each rate class as determined in the revenue allocation process.

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I. Introduction and Qualifications

Q. Please state your name and business address.

A. My name is Joseph F. Gredder and my business address is 175 East Old Country Road, Hicksville, New York 11801.

Q. By whom are you employed and in what capacity?

A. I am Manager of Electric Regulatory Support in the Advanced Data and Analytics group in the Business Services function for National Grid USA Service Company, Inc. (the Service Company), a subsidiary of National Grid USA (National Grid). In that capacity, I provide load forecasting services for National Grid's electric distribution companies, including The Narragansett Electric Company d/b/a National Grid (the Company).

Q. Please describe your business experience.

A. I have worked in the electric utility industry for 30 years and have spent the majority of my career in areas related directly or indirectly to load forecasting. I have been in my current position as Manager of Electric Regulatory Support for eight years, and I am responsible for the electric deliveries and peak forecasts for the Company.

Previously, I held manager, analyst, and engineering roles in the Energy Efficiency, Load Research, Integrated Resource Planning, Financial Planning, and Electric Strategy areas at National Grid and its legacy companies. In the late 1980s and early 1990s, I was an engineer in the marketing area of Energy Efficiency and a supervisor in the planning

function of Energy Efficiency. In the mid-1990s, I was promoted to Load Research and Demand Side Management Evaluation supervisor and later accepted the Integrated Resource Planning supervisor position in the late 1990s. In the mid-2000s, I worked as a Financial Planning supervisor and was responsible for analyzing and evaluating potential generation and transmission build and/or buy options. This role required knowledge of system peak and energy requirements. In 2007, I transitioned to the role of Electric Strategy and Analysis manager and was responsible for analyzing and determining strategic and customer impacts of current and emerging technologies, including climate change, renewables, and energy efficiency and related technologies. I began my current position in 2009.

Q. Please describe your educational background.

A. I graduated from the State University of New York - Maritime College with a Bachelor of Engineering degree in Mechanical Engineering. I subsequently received a Master of Business Administration from Hofstra University. In addition, I have taken post-graduate courses in statistics, regression, computer science, and financial analysis.

Q. Are you a member of any professional organizations or industry committees?

A. Yes. I am currently a member of the New England Independent System Operator (NE-ISO) Load Forecasting Committee and the New York Independent System Operator Load Forecasting Task Force. I have represented National Grid on these committees for

the last eight years. I also participate in the ISO-NE's Distributed Generation and Energy Efficiency Working Groups.

Q. Have you previously testified before the Rhode Island Public Utilities Commission (PUC) or any other regulatory commissions?

A. I have not previously testified before the PUC. I was the electric deliveries forecast witness and provided direct testimony, rebuttal testimony, and supporting documentation in Niagara Mohawk Power Corporation's 2017 and 2012 electric rate cases, Case No. 17-E-0238 and Case No. 12-E-0201, respectively. I provided the forecast and supporting documentation for Massachusetts Electric Company and Nantucket Electric Company's 2015 rate case in D.P.U. 15-155 but did not testify in that case. I was also the overseeing supervisor for the forecasting matters involved in the Company's last base distribution rate case, RIPUC Docket No. 4323, The Narragansett Electric Company d/b/a National Grid Application for Approval of Change in Electric Base Distribution Rates and Gas Delivery Service Rates .

Q. Will you please explain the naming conventions that you will be using in your testimony and associated schedules to identify the various entities involved in this proceeding?

A. This proceeding is a ratemaking proceeding for the electric and gas distribution operations of The Narragansett Electric Company, which constitute the regulated operations that National Grid conducts in Rhode Island. In this testimony, I will refer to

the regulated entity as the "Company," when the reference is to both the electric and gas distribution operations on a collective basis. Where there is a need to refer to the "stand-alone" or individual electric or gas operations of The Narragansett Electric Company, I will use the terms "Narragansett Electric" or "Narragansett Gas," respectively, as appropriate. When I refer to "National Grid USA," I will use the term "National Grid;" when I refer to "National Grid plc," I will use that specific term.

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. I present Narragansett Electric's forecast of electric deliveries and customer counts used to support the revenue requirement and rate design for Narragansett Electric presented in this filing. This testimony demonstrates the thorough process Narragansett Electric undertakes to develop the electric forecast used in the allocated cost of service study and rate design process to determine rates that will produce the revenue for each rate class as determined in the revenue allocation process.

Q. Are you sponsoring any schedules?

A. Yes. I am sponsoring the following schedules:

Schedule JFG-1	Econometric Deliveries Forecast by Revenue Class before Demand Energy Resources (with actual historicals) by Rate Year and Test Year
Schedule JFG-2	Econometric Deliveries Forecast by Revenue Class before Demand Energy Resources (with weather-adjusted historicals) by Rate Year and Test Year

Schedule JFG-3	Rhode Island Economic Indicators (non price)
Schedule JFG-4	Rhode Island Price Indicators
Schedule JFG-5	Annual Cooling and Heating Degree Days and Number of Days Billed
Schedule JFG-6	Monthly Normal Cooling and Heating Degree Days
Schedule JFG-7	Key Model Statistics
Schedule JFG-8	Customer Count Forecast by Revenue Class
Schedule JFG-9	ISO-NE Energy Efficiency Forecast
Schedule JFG-10	Annual Cumulative Annual Demand Energy Resources Historicals and Future Projections, Total, Calendar Year
Schedule JFG-11	Annual Cumulative Annual Demand Energy Resources Historicals and Future Projections, Residential, Calendar Year
Schedule JFG-12	Annual Cumulative Annual Demand Energy Resources Historicals and Future Projections, Commercial, Calendar Year
Schedule JFG-13	Annual Cumulative Annual Demand Energy Resources Historicals and Future Projections, Industrial, Calendar Year
Schedule JFG-14	ISO-NE Photovoltaic Capacity Factors
Schedule JFG-15	ISO-NE Photovoltaic Forecast
Schedule JFG-16	Final Deliveries Forecast by Revenue Class, after Energy Efficiency and Photovoltaic Reductions, (with actual historicals) by Rate Year
Schedule JFG-17	Final Deliveries Forecast by Revenue Class, after Energy Efficiency and Photovoltaic Reductions (with weather-adjusted historicals) by Rate Year
Schedule JFG-18	Revenue Class to Rate Class Mappings
Schedule JFG-19	Final Deliveries Forecast by Rate Class, after Energy Efficiency and Photovoltaic Reductions (with actual historicals) by Rate Year

Schedule JFG-20	Final Deliveries Forecast by Rate Class, after Energy Efficiency and Photovoltaic Reductions (with weather-adjusted historicals) by Rate Year
Schedule JFG-21	Final Customer Count Forecast by Rate Class and Rate Year
Schedule JFG-22	Regression Models Outputs

III. Gigawatt-hour Deliveries and Customer Forecast Summary

Q. Please explain how the gigawatt-hour deliveries forecast is created?

A. Narragansett Electric developed the deliveries forecast using industry accepted econometric regression models. This overall process is the same process Narragansett Electric used in the 2012 Rate Case. The process included three main steps. First, Narragansett Electric developed econometric regression forecasts of Gigawatt-hour (GWh) deliveries based on Rhode Island economic conditions, weather, and days billed by revenue classes (residential, commercial, industrial, and streetlighting). The revenue class econometric forecasts predicted future GWh deliveries based on forecasts of Rhode Island economic conditions provided by Moody's economy.com (Moody's) (vintage August 2017) and the assumption of normal weather. The input deliveries and customer counts were derived from the Company's billing system. This historical dataset was first "reconstructed" to add-back historical energy efficiency and solar photovoltaics. These historical add-back values were derived from the Company's tracking systems. Therefore, Narragansett Electric ran the econometric models based on what the historical usage would have been in the absence of historical energy efficiency and photovoltaics.

In this testimony, I will refer to energy efficiency and photovoltaics collectively as distributed energy resources.

Second, Narragansett Electric adjusted the results of these revenue class econometric forecast models to account for impacts from future cumulative energy efficiency programs and photovoltaics installations. Narragansett Electric used future estimates of these resources to reduce the econometric forecasts.

Lastly, the Company allocated these adjusted revenue class forecasts to rate classes using the historical mix of revenue to rate classes in the Company's deliveries and customer counts billing system data.

Narragansett Electric developed these econometric models using revenue classes instead of the rate codes because revenue classes represent more homogeneous and predictable customer classes. Rate code classes are less homogeneous, and changes can occur simply because of changes in the number of customers or business size (i.e., increases or decreases), which requires reclassification in rates. Additionally, distributed energy resources are tracked and projected using revenue classes. Also, the underlying explanatory economic variables are tied to the residential, commercial, and industrial classes and not to rates. Specifying the core models as revenue classes and then using the historical mapping of revenue to rate classes allows consistency with explanatory inputs, providing strong and reliable forecasts at both the revenue and rate class levels.

A. Summary of Econometric Forecast of GWh Deliveries

Q. Please summarize the econometric forecast of GWh deliveries.

A. Schedule JFG-1 incudes a summary by revenue class of the econometric forecast results (with energy efficiency and photovoltaic reconstructed) for the period beginning September 1, 2008 and ending August 31, 2021 (with actual deliveries for historic years). This period includes: the test year in this filing, which is the twelve-month period ending June 30, 2017 (the Test Year); the rate year in this filing, which is the twelve-month period ending August 31, 2019 (the Rate Year); and two subsequent twelve-month periods ending August 31, 2020 (Data Year 1) and August 31, 2021 (Data Year 2) (Data Year 1 and Data Year 2 are collectively referred to as the Data Years). Schedule JFG-2 shows the econometric forecast, including weather-normalized historic deliveries data, for these years. During the Test Year and Rate Year, Narragansett Electric forecasts that total GWh deliveries before distributed energy resources reductions will increase by 5.8 percent on a weather-adjusted basis. For the additional Data Years, Narragansett Electric estimates that forecasted deliveries will continue to increase by 7.5 percent in Data Year 1 and 9.8 percent in Data Year 2. Narragansett Electric based these forecasts on the econometric forecast with historical distributed energy resources reconstructed and, therefore, before any reductions for distributed energy resources. Narragansett Electric obtained historical distributed energy resources values from its database of claimed energy efficiency reductions and its photovoltaic installation tracking database.

B. Economic Outlook

Q. Please summarize Moody's economic forecast for Rhode Island used in preparing the econometric deliveries forecast.

A. Moody's economic forecast for Rhode Island, including historicals, is summarized in Schedule JFG-3 for calendar years 2007 to 2021. The table in Schedule JFG-3 shows key indicators, including non-manufacturing employment, manufacturing employment, gross state product, number of households, population, and per capita income. Each of these indicators has shown growth over the last five years. With the exception of manufacturing employment, Narragansett Electric expects that each indicator will continue to show growth over the Rate Year and Data Years. Narragansett Electric expects that manufacturing employment will return to its longer-term negative direction.

Q. Is Moody's economy.com a well-known, industry accepted forecasting service?

A. Yes. Moody's economy.com is a leading, independent economic research and forecasting firm with more than 500 clients in 50 countries. Clients include the largest commercial and investment banks, money managers, insurance companies, and other financial institutions, state governments, various branches of the federal government, and leading firms in each major U.S. industry.

Q. Please summarize the pricing variables for Rhode Island tested in the econometric deliveries forecast.

A. The Rhode Island forecast for regional prices is summarized in Schedule JFG-4 along with historic data for calendar years 2007 to 2021. The table in Schedule JFG-4 shows key electricity price and electricity-to-gas price ratios for the residential, commercial, and industrial classes. The historical electricity and gas price variables were derived from the Company's billing system and the U.S. Energy Information Administration. The future was projected based on the U.S. Energy Information Administration 2017 Annual Energy Outlook for the region.[1]

C. Weather Variables

Q. Please summarize the weather and other explanatory variables used in the models.

A. Annual weather is summarized in Schedule JFG-5 for calendar years 2007 to 2017. The weather variables are cooling degree days and heating degree days. Each day type is derived using a base temperature of 65°F.

Q. How were historic and forecast cooling degree days and heating degree days calculated?

A. Narragansett Electric calculated historic cooling degree days and heating degree days from the daily temperature readings of the National Weather Service's Providence weather station. Narragansett Electric calculated forecast degree days from the 2007-2016 ten-year average of these daily temperature readings. This corresponds with the most recent full ten years of data. The daily degree day data was converted to revenue

[1] US Energy Information Administration, 2017 Annual Energy Outlook, Energy Prices by Sector, Table 3.1, New England https://www.eia.gov/outlooks/aeo/tables_ref.php.

month heating degree days and cooling degree days. This conversion is made to align degree days with the revenue periods used for billing purposes. To make this conversion, daily heating degree days and cooling degree days were matched with Narragansett Electric's meter reading schedule. These daily heating degree days and cooling degree days were then summed across each of the 20 meter reading cycles to provide "revenue month" degree days versus "calendar day" values. This was done historically and prospectively using the ten-year average of daily heating degree days and cooling degree days. Schedule JFG-6 shows the normalized cooling degree days and heating degree days on a monthly basis.

Q. How were historic actual deliveries weather-normalized?

A. Deliveries were weather-normalized on a monthly basis by first determining the difference between the actual heating degree days and cooling degree days, and the weather-normal heating degree days and cooling degree days. Weather-normalized values are the average for each of the twelve months in the year over the last ten years of weather data. For each revenue class, Narragansett Electric multiplied the weather coefficients from its respective regression model by the degree day differences to determine the amount by which to weather adjust the monthly actual deliveries. Narragansett Electric used this amount for each revenue class to adjust actual monthly deliveries to arrive at the weather-normalized monthly deliveries. Because all future projections are made based on "normal" weather, historicals are similarly weather-normalized for consistency.

D. Billed Days Variable

Q. Please explain how Narragansett Electric calculated and forecasted the number of days billed.

A. The number of days billed refers to the number of days between meter readings when customer GWh data is collected. Narragansett Electric calculated the number of days billed directly from its meter reading schedule. The meter reading schedule depends on the number of non-holiday weekdays, which varies from month to month and year to year. All else being constant, a given percentage increase or decrease in the number of days billed can be expected to increase or decrease GWh delivery volumes by the same percentage amount. On a monthly basis, the billing day impacts can be more than five percent. Therefore, it is important to control for these impacts in the econometric analysis even though they may tend to cancel each other out over the course of a full year. Narragansett Electric gleaned historic days billed from the actual meter reading schedules and days billed for the forecast period on the projected meter reading schedules. Schedule JFG-5 shows the annual historic and projected number of days billed.

E. Econometric Models

Q. Please describe the econometric models used to forecast GWh deliveries.

A. The econometric models matched actual monthly GWh deliveries to economic variables, weather, days billed, and seasonal indicator variables. Narragansett Electric developed separate models for residential (in total), residential electric heat, commercial, industrial,

and streetlighting revenue classes. Narragansett Electric derived the residential non-electric heating revenue class as the difference between the residential total and the residential electric heat models' results. The economic variables used in the final models included number of households, population, non-manufacturing employment, manufacturing employment, and an electric-versus-gas price delta. The economic indicators (non-price) were specified as indices equal to 100 in January 2017 to make comparisons of each indicator more consistent given that they are all on an equal basis as of January 2017. This way, it is easier to see future increases or decreases when comparing variables. The models predicted future GWh deliveries based on Moody's forecast of the economic variables, the assumption of normal weather, and forecasts of the other explanatory variables.

Q. Please describe the models used to forecast customer counts.

A. Customer counts are active electric bill accounts. Narragansett Electric forecasted customer counts using regression models relating customer counts to economics, time trends, and historic monthly patterns. Narragansett Electric used time trends in addition to economic indicators for some models because of the lack of correlation between customer counts with the regional economic variables. As with the GWh deliveries models, Narragansett Electric estimated customer count models for the residential (in total), residential electric heat, commercial, industrial, and streetlighting revenue classes. Narragansett Electric again derived residential non-electric heat customer counts by

subtracting the residential electric heat customer counts from the total residential customer count models.

Q. How were the econometric models developed?

A. Narragansett Electric designed the econometric models to ensure that the variables used to estimate the energy deliveries and customer counts were relevant (causal and correlated) to the revenue class, statistically valid, and produced meaningful results. Narragansett Electric gauged the overall explanatory strength of the model by examining "Adjusted R-squares," the significance of the models' explanatory variables confirmed by strong "T-stats," and the reasonableness of results by reviewing future projections versus historic values. Narragansett Electric tested each model for autocorrelation using the Durbin-Watson test statistic and, when necessary, added autoregressive[2] correction terms. Each of the above tests are well known, standard statistical tests used in the industry. Narragansett Electric also reviewed other typical statistical tests, including normality of residuals, multicollinearity, and influential data points.

Narragansett Electric specified the delivery models for the residential, residential electric heat, and commercial revenue classes as "Use per Customer" models. That is, Narragansett Electric derived the dependent variables from the monthly kWh per customer counts. To arrive at kWh deliveries, Narragansett Electric multiplied the results of these "Use per Customer" models by the customer count models' results. For the

[2] An autoregressive process operates under the premise that past values have an effect on current values.

industrial and streetlighting revenue classes, Narragansett Electric directly modeled kWh deliveries.

Narragansett Electric used historic actual monthly data to develop the equations using ordinary least squares[3]. The forecast was accomplished by inputting the future values of the explanatory variables into these equations to determine the projected deliveries and customer counts. Schedule JFG-7 summarizes key statistics for each of the models. Schedules JFG-22 and JFG-23 contain the model outputs from the regression runs.

Q. What was the historic estimation period for the models?

A. Narragansett Electric estimated all models using the monthly data for the period January 2003 through August 2017.

IV. GWh Deliveries and Customer Forecast, Detail by Revenue Class

A. Residential (in total) GWh Deliveries and Customer Count Forecasts

Q. How were residential GWh deliveries modeled?

A. Narragansett Electric modeled residential deliveries, which account for approximately 41 percent[4] of total GWh deliveries, as "Use per Customer" as a function of the number of households, revenue month cooling degree days, heating degree days, and the monthly

[3] In statistics, ordinary least squares or linear least squares is a method for estimating the unknown parameters in a linear regression model with the goal of minimizing the sum of the squares of the differences between the observed responses (values of the variable being predicted) in the given dataset and those predicted by a linear function of a set of explanatory variables.

[4] The percentages for residential, commercial, and industrial customers are based on weather-normalized deliveries for fiscal year 2016, which is the twelve-month period ending March 31, 2016.

number of days billed. Price was not a statistically significant explanatory variable in this model.

Narragansett Electric derived residential deliveries by multiplying the monthly "Use per Customer" results by the monthly customer counts results.

Q. Please summarize the econometric forecast of residential deliveries.

A. Schedule JFG-1 shows the residential deliveries forecast for 2008 to 2021 using actual deliveries before reductions for distributed energy resources. Schedule JFG-2 shows the forecast with the history of weather-normalized deliveries. These Schedules also show the residential deliveries forecasted growth between the Test Year and Rate Year. The forecast projects an increase of 6.2 percent from the Test Year to the Rate Year. Residential GWh deliveries continue to increase to 8.0 percent for Data Year 1 and 10.8 percent for Data Year 2. Overall, future growth of 2.1 percent per Data Year is generally consistent with five-year historical growth of 1.9 percent. Notably, these are the "reconstructed" values, which have <u>not</u> yet been reduced for distributed energy resources.

The overall "Goodness of Fit" for this "Use per Customer" deliveries model, as measured statistically by the adjusted R-squared test, is very good at 0.96. All explanatory variables are significant, as measured by the "T-value" statistic. Autoregressive terms were added based on the Durbin-Watson test to correct for autocorrelation. Schedule JFG-7 includes a summary of the key statistical results.

Q. Please summarize the econometric forecast of residential customer counts.

A. Narragansett Electric forecasted the number of residential customers based on a linear time trend and monthly indicator variables. Economic variables were not statistically significant in this model.

Schedule JFG-8 shows the residential customer counts forecast for years 2008 to 2021. It also shows the growth between Test Year and Rate Year and the growth between the Data Years. The forecast projects an increase of 2.0 percent from the Test Year to Rate Year. Residential customer counts continue to increase to 2.4 percent for Data Year 1 and 2.8 percent for Data Year 2. Overall, future growth of 0.4 percent for each of the Data Years is generally consistent with the five-year historical growth of 0.3 percent.

The overall "Goodness of Fit" for this "Use per Customer" deliveries model, as measured statistically by the adjusted R-squared test, is reasonable at 0.82. All explanatory variables are significant as measured by the "T-value" statistic. Autocorrelation was not found to be an issue based on the Durbin-Watson test, so Narragansett Electric did not add any autoregressive terms. *See* Schedule JFG-7 for a summary of the statistical results.

B. Residential Electric Heat GWh Deliveries and Customer Count Forecasts

Q. How were residential electric heat GWh deliveries modeled?

A. Narragansett Electric modeled residential electric heat deliveries as "Use per Customer" as a function of the population, revenue month cooling degree days, heating degree days, and the monthly number of days billed. Price was not a statistically significant explanatory variable in this model. This means that price was not statistically correlated to the load growth and does not contribute much to explaining the relationship between growth and other factors.

Narragansett Electric derived Residential deliveries by multiplying the monthly "Use per Customer" results by the monthly customer counts results.

Q. Please summarize the econometric forecast of residential electric heat deliveries.

A. Schedule JFG-1 shows the residential electric heat deliveries forecast for data years 2008 to 2021 using actual deliveries before reductions for demand energy resources, and Schedule JFG-2 shows the forecast with weather-normalized deliveries history. These schedules also show the residential deliveries forecasted growth between the Test Year and Rate Year. The forecast projects a small decrease of -0.2 percent from the Test Year to the Rate Year. Residential electric heat GWh deliveries continue to remain flat for the Rate Year and Data Years. Overall, future negative growth of -0.1 percent for each of the Data Years is generally consistent with ten-year historical negative growth of -0.2 percent per year. Again, these are "reconstructed" values, which have not yet been reduced for distributed energy resources.

The overall "Goodness of Fit" for this "Use per Customer" deliveries model, as measured statistically by the adjusted R-squared test, is very strong at 0.98. All explanatory variables are significant, as measured by the "T-value" statistic. Autoregressive terms were added based on the Durbin-Watson test to correct for autocorrelation. Schedule JFG-7 summarizes the key statistical results.

Q. Please summarize the econometric forecast of residential electric heat customer counts.

A. Narragansett Electric forecasted the number of residential electric heat customers based on a linear time trend and monthly indicator variables. Economic variables were not statistically significant in this model.

Schedule JFG-8 shows a projected a decrease of -0.5 percent from the Test Year to the Rate Year. Residential electric heat customer counts continue to decrease to -0.8 percent for Data Year 1 and -1.1 percent for Data Year 2. Overall, future negative growth of -0.3 percent for Data Year 1 and Data Year 2 is consistent with five-year historical negative growth of -0.3 percent.

The overall "Goodness of Fit" for this "Use per Customer" deliveries model, as measured statistically by the adjusted R-squared test, is reasonable at 0.82. All explanatory variables are significant as measured by the "T-value" statistic. Autoregressive terms

were added based on the Durbin-Watson test to correct for autocorrelation. Schedule JFG-7 includes a summary of the key statistical results.

C. Commercial GWh Deliveries and Customer Count Forecasts

Q. How were commercial GWh deliveries modeled?

A. Narragansett Electric modeled commercial deliveries, which account for approximately 49 percent of total GWh deliveries, as "Use per Customer" as a function of the number of households, revenue month cooling degree days, heating degree days, and the monthly number of days billed. Price was not a statistically significant explanatory variable in this model. As noted above, this means that price was not statistically correlated to the load growth and does not contribute much to explaining the relationship between growth and other factors.

Narragansett Electric derived commercial deliveries by multiplying the monthly "Use per Customer" results by the monthly customer counts results.

Q. Please summarize the econometric forecast of commercial deliveries.

A. Schedules JFG-1 and JFG-2 show the commercial deliveries forecast before reductions for distributed energy resources. These schedules show a projected increase of 6.8 percent from the Test Year to the Rate Year. Commercial GWh deliveries continue to increase to 9.0 percent for Data Year 1 and to 11.7 percent for Data Year 2. Overall, future growth of 2.4 percent per data year from 2019 to 2021 is generally consistent with

five-year historical growth of 2.5 percent. These are the "reconstructed" values and have not yet been reduced for distributed energy resources.

The overall "Goodness of Fit" for this "Use per Customer" deliveries model is good at 0.89. All explanatory variables are significant as measured by the "T-value" statistic. Autocorrelation was not found to be an issue based on the Durbin-Watson test, so no autoregressive terms were added. *See* Schedule JFG-7 for a summary of the statistical results.

Q. Please summarize the econometric forecast of commercial customer counts.

A. Narragansett Electric forecasted the number of commercial customers on a linear time trend and monthly indicator variables. Economic variables were not found to be statistically significant in this model.

The forecast projects an increase of 2.1 percent from the Test Year to the Rate Year. Commercial customer counts continue to increase to 2.5 percent for Data Year 1 and 2.7 percent for Data Year 2. Overall, future growth of 0.4 percent per year for the Rate Year and the Data Years is generally consistent with five-year historical growth of 0.5 percent.

The adjusted R-squared test is good at 0.89. All explanatory variables are significant, as measured by the "T-value" statistic. Autoregressive terms were added based on the Durbin-Watson test to correct for autocorrelation.

D. Industrial GWh Deliveries and Customer Count Forecasts

Q. How were industrial GWh deliveries modeled?

A. Narragansett Electric modeled industrial deliveries, which account for approximately 10 percent of total deliveries, as "total kWh" as a function of the number of manufacturing employment, electric versus gas price delta, and cooling degree days.

Q. Please summarize the econometric forecast of industrial deliveries.

A. The forecast projects an increase of 0.9 percent from the Test Year to the Rate Year. Industrial GWh deliveries then decline to 0.7 percent for Data Year 1 and to 0.1 percent for Data Year 2 as compared to the Test Year. Overall, future negative growth of -0.6 percent per year for the Rate Year and the Data Years is lower than the long-term ten year historical negative growth of -1.8 percent. However, the economic indicators for manufacturing similarly show higher short-term growth than the longer term negative growth.

The adjusted R-squared test is good at 0.84. All explanatory variables are significant. In this industrial kWh model, the price delta between electric and gas was statistically significant and was, therefore, included in the model specification. Autocorrelation was not found to be an issue based on the Durbin-Watson test so no autoregressive terms were added.

Q. Please summarize the econometric forecast of industrial customer counts.

A. Narragansett Electric forecasted the number of industrial customers based on manufacturing employment and the price delta between electric and gas.

The forecast projects an increase of 4.3 percent from the Test Year to the Rate Year. Industrial customer counts then begin to flatten and decline with customer level still at 4.3 percent for Data Year 1 and 3.7 percent for Data Year 2. Overall, future growth of 0.2 percent per year for the Rate Year and the Data Years is higher than the five-year historical negative growth of -0.6 percent. However, as with the kWh model above, the economic indicators for manufacturing similarly show higher short-term growth than the longer term negative growth.

The adjusted R-squared test is excellent at 0.98. All explanatory variables "T-value" statistics are significant. Autoregressive terms were added based on the Durbin-Watson test to correct for autocorrelation.

E. Streetlighting GWh Deliveries and Customer Count Forecasts

Q. How were streetlighting GWh deliveries modeled?

A. Narragansett Electric modeled streetlighting deliveries as "total kWh" as a function of a linear time trend and hours of daylight in the state.

Q. Please summarize the econometric forecast of streetlighting deliveries.

A. The forecast projects a decrease of -3.9 percent from Test Year to the Rate Year. Streetlighting GWh deliveries then decline -6.3 percent for Data Year 1 and -8.7 percent for Data Year 2 compared to the Test Year. Overall, future negative growth of -2.6 percent per year for the Rate Year and the Data Years is lower than the long-term ten-year historical negative growth of -4.7 percent. However, the historical growth rates are skewed downward by a large decrease in 2016, which is not representative of other years.

The adjusted R-squared test is weak at 0.62, in part due to the large change in 2016. However, all explanatory variables are statistically significant based on their T-Stats. Narragansett Electric added autoregressive terms based on the Durbin-Watson test to correct for autocorrelation.

Q. Please summarize the econometric forecast of streetlighting customer counts.

A. The forecast projects an increase of 2.0 percent from the Test Year to the Rate Year. Streetlighting customer counts continue to increase to 2.4 percent for Data Year 1 and 2.8 percent for Data Year 2 beyond the Test Year. Overall, future growth of 0.4 percent per year for the Rate Year and the Data Years is consistent with the five-year historical growth of 0.4 percent.

The adjusted R-squared test is strong at 0.91. The explanatory trend variable is marginal based on its "T-value" statistic. Nevertheless, the resulting forecast is generally consistent with past history, as discussed above. Narragansett Electric added

autoregressive terms based on the Durbin-Watson test to correct for autocorrelation. Schedule JFG-7 summarizes the key statistical results.

V. Distributed Energy Resource Reductions

A. Energy Efficiency Adjustments

Q. Please explain how Narragansett Electric "reconstructed" historical deliveries to account for embedded energy efficiency.

A. Narragansett Electric has been tracking its achievements for residential and non-residential energy efficiency since the early 2000s. Narragansett Electric used these cumulative values to add-back to the historical deliveries to arrive at the "reconstructed" values used in the econometric models. Because the input data for the models began in 2003, the cumulative energy efficiency inputs into the models similarly were set to zero and accumulated starting then. Narragansett Electric tracked residential values and used them directly. Non-residential savings first were allocated to commercial and industrial revenue classes based on load share, then applied to the historical datasets. Narragansett Electric did not apply historical energy efficiency to the streetlighting revenue class.

Q. Please explain how Narragansett Electric derived the future energy efficiency targets to deduct from the reconstructed econometric forecast.

A. Narragansett Electric took forecasted future energy efficiency targets for the calendar years 2017 to 2019 directly from Narragansett Electric's approved program for those years. For years beyond the approved program window (2020 and 2021), energy

efficiency is included in the ISO-NE's projection in their load and capacity forecast. *See* Schedule JFG-9. Narragansett Electric used this as a proxy for longer term energy efficiency. Again, as with the historical energy efficiency, Narragansett Electric knew the residential values and used them directly for years 2017 to 2019. Narragansett Electric allocated non-residential program goals for years 2017 to 2019 to commercial and industrial revenue classes based on load share. For the years 2020 and 2021, when the ISO-NE values were used, Narragansett Electric again used energy efficiency shares by revenue class as of 2019, which is the known program year. Again, Narragansett Electric did not apply future energy efficiency to the streetlighting revenue class. Narragansett Electric used cumulative energy efficiency projections to reduce the econometric forecast. Schedules JFG-10, JFG-11, JFG-12, and JFG-13 show the annual historical and future energy efficiency used in total and for each revenue class – residential, commercial, and industrial.

Cumulative annual energy efficiency reductions are 1,718 GWh in calendar year 2017, growing to 2,509 GWh by calendar year 2019. These values represent 18.7 percent of pre-demand energy resource deliveries in 2017 growing to 25.3 percent by the 2021. Similarly, residential energy efficiency represents 19.3 percent of 2017 deliveries growing to 27.0 percent; commercial 17.8 percent growing to 23.5 percent; and industrial 21.6 percent growing to 28.5 percent. These values are significant and reduce the original econometric model forecasts before demand energy resources substantially. To put this in perspective, Schedule JFG-10 shows that, prior to any distributed energy

resources, annual future growth would have been 1.9 percent per year, but drops to negative -0.2 percent per year after energy efficiency reductions.

Narragansett Electric converted these annual values to monthly values prior to using them to reconstruct the historical datasets.

B. Solar – Photovoltaic Adjustments

Q. Please explain how Narragansett Electric "reconstructed" historical deliveries to account for embedded photovoltaic.

A. For the past decade, Narragansett Electric has been tracking photovoltaic installations in Rhode Island for residential and non-residential photovoltaic. Narragansett Electric used these cumulative values to add-back to the historical deliveries to arrive at the "reconstructed" values used in the econometric models. As with energy efficiency, because the econometric model input data started in 2003, any cumulative photovoltaic was reset to zero in 2003 and accumulated beginning then. Again, as with energy efficiency, Narragansett Electric tracked and used residential values directly. Narragansett Electric allocated business customer savings first to the commercial and industrial revenue classes based on load share, then added-back to the historical datasets. Narragansett Electric did not apply historical photovoltaic to the streetlighting revenue class.

Because Narragansett Electric tracks only "Installed Nameplate kW" for PV installations – and not kWh – Narragansett Electric needed to make assumptions to convert these installed kW to energy delivery reductions. Narragansett Electric did this by using as a proxy the monthly capacity factors used by the ISO-NE to convert connected kW to energy. ISO-NE shows these adjustments as part of its Distributed Generation Working Group process. Schedule JFG-14 summarizes these values. On an annual basis, this capacity factor value is approximately 15 percent.

Q. Please explain how Narragansett Electric derived the future photovoltaic used to reduce the "reconstructed" econometric forecast.

A. Narragansett Electric took future solar photovoltaic projections from ISO-NE's photovoltaic projections for Rhode Island. ISO-NE has a detailed process in which utilities, including National Grid, participate. The ISO-NE forecast considers factors including currently installed photovoltaics and future state policies. Narragansett Electric uses this ISO-NE forecast as the basis for its projections. Schedule JFG-15 shows the ISO-NE forecast. Because the ISO-NE forecast is not broken out by revenue class, Narragansett Electric used its current photovoltaic installation mix as the proxy for future photovoltaic impacts. Schedules JFG-10, JFG-11, JFG-12, and JFG-13 show the annual historical and future energy efficiency used in total and for each revenue class – residential, commercial, and industrial.

Cumulative annual photovoltaic reductions are 75 GWh in the calendar year 2017, growing to 252 GWh by the year 2019. These values represent 0.8 percent of pre-demand energy resource deliveries in 2017 growing to 2.5 percent by the 2021. Similarly, residential photovoltaic represents 0.7 percent of 2017 deliveries growing to 2.3 percent; commercial 0.9 percent growing to 2.8 percent; and industrial 0.9 percent growing to 2.8 percent. These values are used to reduce the original "before demand energy resources" econometric model forecasts. These reductions are significant. To put this in perspective, Schedule JFG-10 shows that, prior to photovoltaic reductions (but after energy efficiency reductions) annual future growth would have been -0.2 percent per year, but drops to negative -0.9 percent per year after photovoltaic reductions.

Narragansett Electric converted these annual values to monthly values prior to using them to reconstruct the historical datasets.

Q. What is the final revenue class GWh deliveries forecast after the impacts of energy efficiency and photovoltaic are applied?

A. Schedule JFG-16 shows the cumulative annual deliveries forecast by revenue class after adjustments for energy efficiency and photovoltaic (with historical actuals). The table in Schedule JFG-16 also shows the before and after distributed energy resources deliveries growth between the Test Year and Rate Year. Schedule JFG-17 shows the same information, but with historical deliveries weather-normalized.

Overall, Narragansett Electric expects that total deliveries after demand energy resource reductions will decline from 7,314.4 GWh in the Test Year to 7,280.0 GWh in the Rate Year. Narragansett Electric expects that deliveries will continue to decline to 7,191.4 GWh in Data Year 1 and 7,172.4 GWh in Data Year 2. These values represent declines of -0.5 percent between the Test Year and Rate Year, -0.7 percent by Data Year 1, and -1.0 percent by Data Year 2. Overall, future negative growth of -1.1 percent per year for the Rate Year and the Data Years is generally consistent with the ten-year historical negative growth of -0.7 percent. The slightly higher negative value for future years may be associated with higher distributed energy resource projections in the future than occurred in the past.

Overall, Narragansett Electric expects residential deliveries after distributed energy resource reductions to decline from 2,978.6 GWh in the Test Year to 2,937.6 GWh in the Rate Year. Narragansett Electric expects deliveries to continue declining to 2,888.2 GWh in Data Year 1and 2,885.2 GWh in Data Year 2. These values represent declines of -1.4 percent between the Test Year and Rate Year, -3.0 percent by Data Year 1, and -3.1 percent by Data Year 2. Overall, future negative growth of -1.0 percent per year for the Rate Year and the Data Years is generally consistent with the five-year historical negative growth of -1.3 percent.

Overall, Narragansett Electric expects that commercial deliveries after distributed energy resources reductions will decline from 3,572.0 GWh in the Test Year to 3,619.5 GWh in

the Rate Year. Narragansett Electric expects deliveries to continue declining to 3,603.1 GWh by Data Year 1 and 3,610.1 GWh by Data Year 2. These values represent declines of -1.3 percent between the Test Year and Rate Year, -0.9 percent by Data Year 1, and -1.1 percent by Data Year 2. Overall, future flat growth of 0.0 percent per year for the Rate Year and the Data Years is generally consistent with the five- and ten-year historical negative growths of -0.1 percent each.

Overall, Narragansett Electric expects industrial deliveries after distributed energy resource reductions to decline from 723.5 GWh in the Test Year to 684.3 GWh in the Rate Year. Narragansett Electric expects that deliveries will continue to decline to 662.6 GWh in Data Year 1 and 640.3 GWh in Data Year 2. These values represent declines of -5.4 percent between the Test Year and Rate Year, -8.4 percent by Data Year 1, and -11.5 percent by Data Year 2. Overall, future negative growth of 3.7 percent per year for the Rate Year and the Data Years is generally consistent with the ten-year historical negative growths of -4.0 percent each year.

Overall, results both in total and by revenue class are consistent with historical values and produce reasonable future projections based on this history, expected future economics, and distributed energy resources.

VI. GWh Deliveries and Customer Count Allocations by Rate Class

Q. How was the forecast of GWh deliveries and customer counts by rate class derived from the econometric forecast of GWh deliveries and customer counts by revenue class?

A. Narragansett Electric allocated the revenue class GWh deliveries and customer forecasts described above to rate classes based on each rate class' share within each revenue class. Narragansett Electric knows the historic deliveries for each rate class within each revenue class based on its tracking data. Narragansett Electric used the current shares as they existed in calendar years 2016 and 2017 for the mapping the allocations. Narragansett Electric does not expect that these mappings would change significantly, if at all, over the life of this forecast. Schedule JFG-18 shows these percentages for the deliveries kWh and customer counts.

Because Narragansett Electric is allocating the revenue class forecasts to the rate classes after the distributed energy resource reductions, the rate class forecasts are consistent with, and already reduced for, demand energy resources. Schedule JFG-19 shows the historical and final deliveries forecast (after demand energy resources) by rate class for the period beginning September 1, 2008 and ending August 31, 2021 using historical actuals. Schedule JFG-20 is the same but with weather-adjusted historicals. Schedule JFG-21 shows the historical and final customer counts forecast by rate class for the period beginning September 1, 2008 and ending August 31, 2021.

Q. Are the final rate class forecasts reasonable based on historical actuals and future distributed energy resources and economic projections?

A. Yes, they are. As I described earlier in this testimony above regarding the revenue class future growths versus historical growths, the results for rate classes are similarly reasonable and consistent. A review of the historical five- and ten-year kWh growth rates and the future projected three-year growth rates on Schedule JFG-20 for the major rates shows:

- The Rate A-16 historical five-year growth of -0.9 percent per year is consistent with the next three years (2019-2021), which is an average negative growth rate of -1.0 percent per year.
- The Rate G-02 historical five-year growth of -0.2 percent per year is consistent with the next three data years' average negative growth rate of -0.2 percent per year.
- The Rate G-32 historical five- and ten-year growth of -0.8 percent per year is consistent with the next three years average negative growth rate of -0.8 percent per year.
- The Rate G-62 rate code’s historical five year growth of -0.9 percent per year is similar with the next three years average negative growth rate of -1.2 percent per year.

Rate A-16 represents the core residential customer class, mainly the non-electric heating class. Rate G-02 represents the majority of small to medium commercial customers, Rate

G-32 represents large commercial and industrial customers, and Rate G-62 very large commercial and industrial customers. Each of these rate classes shows reasonable projections consistent with past use and future projected economics and distributed energy resources.

VII. Conclusion

Q. Does Narragansett Electric have any concluding remarks?

A. Yes. Narragansett Electric recommends that the PUC accept its delivery and customer counts forecasts, as described in this testimony and related schedules. Each of the models provides reasonable results that are consistent with historical values and future economic and energy resource projections. In addition, each of the models are based on causal and correlated models with strong supportable statistical backing.

Q. Does this conclude your testimony?

A. Yes, it does.

Schedules of
Joseph F. Gredder

Index of Schedules

Schedule JFG-1	Econometric Deliveries Forecast by Revenue Class before Demand Energy Resources (with actual historicals) by Rate Year and Test Year
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Schedule JFG-20	Final Deliveries Forecast by Rate Class, after Energy Efficiency and Photovoltaic Reductions (with weather-adjusted historicals) by Rate Year
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Schedule JFG-1

Schedule __ (JFG-1)

Econometric Deliveries Forecast by Revenue Class before Demand Energy

Resources (with actual historicals) by Rate Year and Test Year

ANNUAL GWh (*and percent growth*) (Historicals: Actuals; Projections: Weather-Normal) by Revenue Class
BEFORE Energy Efficiency and Solar Reductions

YEAR *	RESIDENTIAL Non-Heating		RESIDENTIAL Elec-Heating		RESIDENTIAL Total		COMMERCIAL		INDUSTRIAL		StreetLighting & Other		TOTAL	
2008	2,995.9		226.1		3,222.1		3,799.6		1,129.8		64.1		8,216.3	
2009	2,838.6	-5.3%	206.1	-8.9%	3,044.7	-5.5%	3,771.0	-0.8%	1,005.2	-11.0%	61.9	-3.4%	7,882.7	-4.1%
2010	3,070.1	8.2%	208.6	1.2%	3,278.7	7.7%	3,871.9	2.7%	1,005.8	0.1%	56.9	-8.1%	8,213.3	4.2%
2011	3,093.1	0.8%	213.2	2.2%	3,306.3	0.8%	3,897.3	0.7%	1,002.9	-0.3%	60.4	6.1%	8,266.9	0.7%
2012	3,126.1	1.1%	195.7	-8.2%	3,321.8	0.5%	3,922.3	0.6%	989.9	-1.3%	59.5	-1.4%	8,293.5	0.3%
2013	3,278.8	4.9%	212.8	8.7%	3,491.6	5.1%	4,014.4	2.3%	1,017.9	2.8%	59.6	0.0%	8,583.4	3.5%
2014	3,212.3	-2.0%	220.3	3.5%	3,432.6	-1.7%	4,005.9	-0.2%	1,026.8	0.9%	58.4	-2.0%	8,523.6	-0.7%
2015	3,319.0	3.3%	225.7	2.5%	3,544.7	3.3%	4,314.9	7.7%	948.6	-7.6%	59.1	1.2%	8,867.2	4.0%
2016	3,458.8	4.2%	211.6	-6.3%	3,670.4	3.5%	4,326.9	0.3%	934.6	-1.5%	53.9	-8.7%	8,985.7	1.3%
2017	3,511.3	1.5%	222.4	5.1%	3,733.7	1.7%	4,400.8	1.7%	925.4	-1.0%	41.9	-22.3%	9,101.8	1.3%
2018	3,584.4	2.1%	221.9	-0.2%	3,806.3	1.9%	4,518.2	2.7%	940.9	1.7%	39.8	-5.1%	9,305.1	2.2%
2019	3,665.0	2.2%	221.2	-0.3%	3,886.2	2.1%	4,644.6	2.8%	930.5	-1.1%	38.7	-2.6%	9,500.0	2.1%
2020	3,727.1	1.7%	221.5	0.1%	3,948.6	1.6%	4,741.7	2.1%	928.7	-0.2%	37.8	-2.5%	9,656.7	1.6%
2021	3,824.8	2.6%	221.5	0.0%	4,046.3	2.5%	4,858.1	2.5%	923.7	-0.5%	36.8	-2.6%	9,864.9	2.2%
Compound Annual Growth Rates:														
2008 to 2018 Ten-Year				-0.2%		1.7%		1.7%		-1.8%		-4.7%		1.3%
2013 to 2018 Five-Year		1.8%		0.8%		1.7%		2.4%		-1.6%		-7.8%		1.6%
2018 to 2021 Three-Year		2.2%		-0.1%		2.1%		2.4%		-0.6%		-2.6%		2.0%

YEAR *	RESIDENTIAL Non-Heating		RESIDENTIAL Elec-Heating		RESIDENTIAL Total		COMMERCIAL		INDUSTRIAL		StreetLighting & Other		TOTAL	
	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth
Test Year 2017 **	3,531.6		223.2		3,754.8		4,395.2		927.7		40.3		9,118.1	
Rate Year 2019 *	3,665.0	3.8%	221.2	-0.9%	3,886.2	3.5%	4,644.6	5.7%	930.5	0.3%	38.7	-3.9%	9,500.0	4.2%
Data Year 1 (2020) *	3,727.1	5.5%	221.5	-0.8%	3,948.6	5.2%	4,741.7	7.9%	928.7	0.1%	37.8	-6.3%	9,656.7	5.9%
Data Year 2 (2021) *	3,824.8	8.3%	221.5	-0.7%	4,046.3	7.8%	4,858.1	10.5%	923.7	-0.4%	36.8	-8.7%	9,864.9	8.2%

* year: September to August

** test year: July 2016 to June 2017

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Schedule __ (JFG-2)

Econometric Deliveries Forecast by Revenue Class before Demand Energy Resources (with weather-adjusted historicals) by Rate Year and Test Year

ANNUAL GWh (*and percent growth*) (Historicals & Projections: Weather-Normal) by Revenue Class
BEFORE Energy Efficiency and Solar Reductions

YEAR *	RESIDENTIAL Non-Heating		RESIDENTIAL Elec-Heating		RESIDENTIAL Total		COMMERCIAL		INDUSTRIAL		StreetLighting & Other		TOTAL	
2008	2,969.7		226.7		3,196.4		3,782.4		1,127.7		64.1		8,171.3	
2009	2,953.6	-0.5%	207.7	-8.4%	3,161.3	-1.1%	3,839.8	1.5%	1,012.9	-10.2%	61.9	-3.4%	8,075.8	-1.2%
2010	3,036.9	2.8%	211.1	1.6%	3,248.0	2.7%	3,847.8	0.2%	1,002.7	-1.0%	56.9	-8.1%	8,155.3	1.0%
2011	3,034.0	-0.1%	206.3	-2.3%	3,240.3	-0.2%	3,871.0	0.6%	1,000.8	-0.2%	60.4	6.1%	8,172.5	0.2%
2012	3,156.2	4.0%	207.4	0.5%	3,363.6	3.8%	3,923.4	1.4%	988.5	-1.2%	59.5	-1.4%	8,335.0	2.0%
2013	3,258.9	3.3%	212.4	2.4%	3,471.3	3.2%	4,002.9	2.0%	1,016.6	2.8%	59.6	0.0%	8,550.3	2.6%
2014	3,249.4	-0.3%	215.6	1.5%	3,465.1	-0.2%	4,035.3	0.8%	1,030.7	1.4%	58.4	-2.0%	8,589.5	0.5%
2015	3,284.4	1.1%	216.5	0.4%	3,500.9	1.0%	4,307.8	6.8%	949.0	-7.9%	59.1	1.2%	8,816.7	2.6%
2016	3,423.6	4.2%	217.7	0.6%	3,641.3	4.0%	4,296.3	-0.3%	930.2	-2.0%	53.9	-8.7%	8,921.7	1.2%
2017	3,484.7	1.8%	223.5	2.6%	3,708.2	1.8%	4,382.8	2.0%	923.2	-0.8%	41.9	-22.3%	9,056.1	1.5%
2018	3,584.4	2.9%	221.9	-0.7%	3,806.3	2.6%	4,518.2	3.1%	940.9	1.9%	39.8	-5.1%	9,305.1	2.7%
2019	3,665.0	2.2%	221.2	-0.3%	3,886.2	2.1%	4,644.6	2.8%	930.5	-1.1%	38.7	-2.6%	9,500.0	2.1%
2020	3,727.1	1.7%	221.5	0.1%	3,948.6	1.6%	4,741.7	2.1%	928.7	-0.2%	37.8	-2.5%	9,656.7	1.6%
2021	3,824.8	2.6%	221.5	0.0%	4,046.3	2.5%	4,858.1	2.5%	923.7	-0.5%	36.8	-2.6%	9,864.9	2.2%
Compound Annual Growth Rates:														
2008 to 2018 Ten-Year		1.9%		-0.2%		1.8%		1.8%		-1.8%		-4.7%		1.3%
2013 to 2018 Five-Year		1.9%		0.9%		1.9%		2.5%		-1.5%		-7.8%		1.7%
2018 to 2021 Three-Year		2.2%		-0.1%		2.1%		2.4%		-0.6%		-2.6%		2.0%

YEAR *	RESIDENTIAL Non-Heating		RESIDENTIAL Elec-Heating		RESIDENTIAL Total		COMMERCIAL		INDUSTRIAL		StreetLighting & Other		TOTAL	
	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth
Test Year 2017 **	3,450.5		221.6		3,672.0		4,348.5		922.6		40.3		8,983.4	
Rate Year 2019 *	3,665.0	6.2%	221.2	-0.2%	3,886.2	5.8%	4,644.6	6.8%	930.5	0.9%	38.7	-3.9%	9,500.0	5.8%
Data Year 1 (2020	3,727.1	8.0%	221.5	0.0%	3,948.6	7.5%	4,741.7	9.0%	928.7	0.7%	37.8	-6.3%	9,656.7	7.5%
Data Year 2 (2021	3,824.8	10.8%	221.5	0.0%	4,046.3	10.2%	4,858.1	11.7%	923.7	0.1%	36.8	-8.7%	9,864.9	9.8%

* year: September to August

** test year: July 2016 to June 2017

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Schedule __ (JFG-3)

Rhode Island Economic Indicators (non price)

RHODE ISLAND ECONOMIC INDICATORS (NON-PRICE)

CALENDAR YEAR	EMPLOYMENT NON-MANUFACTURING (000)		MANUFACTURING EMPLOYMENT (000)		GROSS STATE PRODUCT (real) ($billions, base 2009)		HOUSEHOLDS (000)		POPULATION (000)		PER CAPITA INCOME (real) ($, base 2009)	
2007	441.3		50.7		49.8		411.8		1,057.4		42,134.1	
2008	433.1	-1.8%	47.9	-5.5%	48.3	-3.2%	413.9	0.5%	1,054.9	-0.2%	41,953.6	-0.4%
2009	417.6	-3.6%	41.7	-12.9%	47.7	-1.1%	414.1	0.1%	1,053.7	-0.1%	40,932.2	-2.4%
2010	417.7	0.0%	40.3	-3.4%	48.8	2.3%	414.5	0.1%	1,053.2	0.0%	42,051.0	2.7%
2011	420.4	0.6%	40.1	-0.5%	48.4	-0.8%	417.2	0.6%	1,052.5	-0.1%	42,545.7	1.2%
2012	425.8	1.3%	39.6	-1.3%	48.6	0.4%	421.4	1.0%	1,052.9	0.0%	43,498.9	2.2%
2013	431.5	1.3%	40.0	0.9%	48.8	0.4%	425.0	0.8%	1,053.2	0.0%	43,064.8	-1.0%
2014	437.7	1.4%	40.8	2.1%	49.2	0.8%	427.6	0.6%	1,054.5	0.1%	44,010.9	2.2%
2015	444.0	1.4%	41.1	0.7%	49.7	1.1%	427.8	0.0%	1,055.6	0.1%	45,713.9	3.9%
2016	449.8	1.3%	40.4	-1.7%	50.3	1.2%	428.4	0.1%	1,056.5	0.1%	46,378.7	1.5%
2017	455.6	1.3%	41.0	1.3%	51.3	2.0%	430.3	0.5%	1,058.0	0.1%	46,308.2	-0.2%
2018	460.5	1.1%	41.0	0.1%	52.1	1.6%	432.5	0.5%	1,059.5	0.1%	46,249.4	-0.1%
2019	465.0	1.0%	40.6	-0.9%	52.9	1.4%	434.8	0.5%	1,060.6	0.1%	46,555.3	0.7%
2020	467.6	0.5%	40.0	-1.5%	53.5	1.1%	437.4	0.6%	1,061.5	0.1%	47,145.5	1.3%
2021	469.7	0.4%	39.3	-1.7%	54.6	2.0%	439.7	0.5%	1,062.2	0.1%	47,754.4	1.3%
Compound Annual Growth Rates:												
10-year (2007 to 2017)		0.3%		-2.1%		0.3%		0.4%		0.0%		0.9%
5-year (2012 to 2017)		1.4%		0.7%		1.1%		0.4%		0.1%		1.3%
4-year (2017 to 2021)		0.8%		-1.0%		1.5%		0.5%		0.1%		0.8%

Notes:

Calendar year 2017 is the current year for the forecast

(2) Source: Moodys, vintage August 2017

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Rhode Island Price Indicators

RHODE ISLAND PRICE INDICATORS

CALENDAR YEAR	PRICE (cents per kwh, real) Residential		Commercial		Industrial		PRICE DELTA (electric vs gas) Residential		Commercial		Industrial	
2007	16.5		15.0		13.8		0.8		0.8		1.0	
2008	19.8	19.7%	18.2	21.3%	16.8	22.0%	1.0	20.7%	1.0	20.1%	1.1	19.9%
2009	17.8	-10.3%	16.0	-11.8%	14.6	-13.3%	0.9	-10.4%	0.9	-7.8%	1.0	-9.1%
2010	17.8	0.5%	15.0	-6.6%	13.8	-5.5%	0.9	1.8%	0.9	-3.5%	1.0	-0.2%
2011	15.6	-12.7%	13.7	-8.3%	12.8	-6.9%	0.9	-1.7%	0.9	2.4%	1.1	7.6%
2012	15.3	-1.6%	13.2	-4.1%	12.4	-3.5%	1.0	7.9%	1.0	6.6%	1.2	9.7%
2013	15.9	3.7%	14.0	6.2%	13.1	5.7%	1.0	1.2%	1.0	5.4%	1.4	14.1%
2014	17.6	10.9%	16.0	14.5%	15.3	17.1%	1.0	6.0%	1.1	7.5%	1.5	6.0%
2015	19.9	12.7%	16.3	1.6%	14.2	-7.5%	1.3	21.5%	1.2	11.6%	1.5	2.2%
2016	19.0	-4.6%	15.0	-7.6%	13.8	-2.8%	1.3	0.6%	1.2	1.0%	1.6	3.7%
2017	18.7	-1.4%	14.8	-1.4%	13.5	-2.0%	1.3	1.8%	1.3	2.9%	1.4	-9.9%
2018	19.7	5.2%	14.1	-5.2%	13.7	1.2%	1.4	5.2%	1.1	-10.4%	1.4	-0.9%
2019	19.9	1.1%	14.3	1.7%	13.7	0.0%	1.4	0.8%	1.1	-3.7%	1.3	-10.5%
2020	19.2	-3.6%	13.5	-5.6%	13.1	-4.1%	1.3	-4.4%	1.0	-10.9%	1.1	-10.4%
2021	19.1	-0.5%	13.4	-0.7%	12.8	-2.4%	1.3	-1.9%	1.0	-2.3%	1.0	-7.1%
		1.2%		-0.1%		-0.2%		4.6%		4.3%		4.0%
		4.1%		2.4%		1.7%		6.0%		5.6%		2.9%
		0.5%		-2.5%		-1.3%		-0.1%		-6.9%		-7.3%

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Annual Cooling and Heating Degree Days and Number of Days Billed

ANNUAL COOLING AND HEATING
DEGREE DAYS (HDDs & CDDs) &
NUMBER OF DAYS BILLED

CALENDAR YEAR	CDDs	HDDs	DAYS BILLED	
2007	802.8	5,384.0	364.3	
2008	769.1	5,453.4	365.3	
2009	504.1	5,691.8	365.6	
2010	987.6	5,169.3	365.2	
2011	849.9	5,561.1	365.3	
2012	785.8	4,868.0	365.6	
2013	808.6	5,575.1	365.4	
2014	654.6	5,876.6	365.6	
2015	887.9	5,788.7	363.9	
2016	967.2	5,000.9	366.5	
2017	779.9	5,301.1	365.5	*
2018	801.8	5,436.9	364.2	*
2019	801.8	5,436.9	365.4	*
2020	801.8	5,436.9	365.5	*
2021	801.8	5,436.9	365.2	*

* Represents "normal" HDDs & CDDs.

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Monthly Normal Cooling and Heating Degree Days

MONTHLY NORMAL COOLING & HEATING
DEGREE DAYS (CDDs, HDDs)

CALENDAR MONTH	CDDs	HDDs
1	-	1,020.3
2	-	1,045.6
3	0.1	913.8
4	2.0	652.5
5	33.9	335.2
6	124.3	111.1
7	301.2	13.1
8	239.1	0.7
9	93.4	18.8
10	8.2	148.6
11	0.1	422.0
12	-	755.3

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Key Model Statistics

KWH MODELS	Adjst R-square *	Model Type	Economic Variable	T-stat (eco)	p-value (eco)	Price	T-Stat (price)	p-value (price)	AR Terms	DW
RESIDENTIAL	0.96	Use per Customer	Households	14.1	< 0.0001	n/a			Yes	1.73
RESI ELEC HEAT	0.98	Use per Customer	Population	5.30	< 0.0001	n/a			Yes	1.95
COMMERCIAL	0.89	Use per Customer	Households	23.10	< 0.0001	n/a			No	1.79
INDUSTRIAL	0.84	Total kWh	Empl - Man	21.14	< 0.0001	Price Delta	(5.46)	< 0.0001	No	1.95
STREETLIGHTING	0.62	Total kWh	Trend	(5.30)	< 0.0001	n/a			Yes	2.21
CUSTOMER COUNT MODELS										
RESIDENTIAL	0.82	Total Customer Count	Trend	14.15	< 0.0001	n/a			No	2.23
RESI ELECT HEAT	0.82	Total Customer Count	Trend	(16.33)	< 0.0001	n/a			Yes	2.03
COMMERCIAL	0.89	Total Customer Count	Households	23.10	< 0.0001	n/a			Yes	1.79
INDUSTRIAL	0.98	Total Customer Count	Empl_manuf	15.60	< 0.0001	price delta	(4.94)	< 0.0001	Yes	2.05
STREETLIGHTING	0.91	Total Customer Count	Trend	(1.36)	0.177	n/a			Yes	2.06

** total r-square for autoregressive models*

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Customer Count Forecast by Revenue Class

ANNUAL CUSTOMER COUNTS, by Revenue Class

YEAR *	RESIDENTIAL Non-Heating		RESIDENTIAL Elec-Heating		RESIDENTIAL Total		COMMERCIAL		INDUSTRIAL		StreetLighting & Other		TOTAL	
2008	406,739		18,112		424,851		56,028		2,109		1,126		484,114	
2009	408,439	0.4%	18,140	0.2%	426,578	0.4%	56,279	0.4%	2,045	-3.0%	1,214	8.0%	486,116	0.4%
2010	408,262	0.0%	18,057	-0.5%	426,319	-0.1%	56,508	0.4%	2,018	-1.3%	1,187	-2.2%	486,032	0.0%
2011	408,234	0.0%	17,976	-0.4%	426,210	0.0%	57,215	1.2%	1,995	-1.1%	1,123	-5.4%	486,543	0.1%
2012	411,059	0.7%	17,988	0.1%	429,047	0.7%	57,719	0.9%	1,974	-1.1%	1,124	0.1%	489,863	0.7%
2013	414,632	0.9%	18,035	0.3%	432,668	0.8%	58,115	0.7%	1,941	-1.6%	1,146	1.9%	493,870	0.8%
2014	415,544	0.2%	18,023	-0.1%	433,567	0.2%	58,259	0.2%	1,910	-1.6%	1,160	1.3%	494,897	0.2%
2015	416,563	0.2%	18,003	-0.1%	434,565	0.2%	58,422	0.3%	1,874	-1.9%	1,152	-0.7%	496,013	0.2%
2016	416,685	0.0%	17,899	-0.6%	434,585	0.0%	58,915	0.8%	1,856	-1.0%	1,140	-1.0%	496,495	0.1%
2017	414,559	-0.5%	17,766	-0.7%	432,325	-0.5%	58,989	0.1%	1,824	-1.7%	1,117	-2.0%	494,256	-0.5%
2018	420,477	1.4%	17,728	-0.2%	438,205	1.4%	59,720	1.2%	1,883	3.2%	1,123	0.5%	500,931	1.4%
2019	422,301	0.4%	17,672	-0.3%	439,973	0.4%	60,034	0.5%	1,907	1.3%	1,127	0.3%	503,040	0.4%
2020	424,120	0.4%	17,619	-0.3%	441,740	0.4%	60,280	0.4%	1,907	0.0%	1,126	-0.1%	505,053	0.4%
2021	425,940	0.4%	17,567	-0.3%	443,507	0.4%	60,408	0.2%	1,896	-0.6%	1,124	-0.2%	506,935	0.4%
Compound Annual Growth Rates:														
2008 to 2018 Ten-Year				-0.2%		0.3%		0.6%		-1.1%		0.0%		0.3%
2013 to 2018 Five-Year		0.3%		-0.3%		0.3%		0.5%		-0.6%		-0.4%		0.3%
2018 to 2021 Three-Year		0.4%		-0.3%		0.4%		0.4%		0.2%		0.0%		0.4%

YEAR * , **	RESIDENTIAL Non-Heating		RESIDENTIAL Elec-Heating		RESIDENTIAL Total		COMMERCIAL		INDUSTRIAL		StreetLighting & Other		TOTAL	
	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth
Test Year 2017 **	413,685.6		17,759.2		431,444.8		58,811.3		1,828.6		1,119.5		493,204.1	
Rate Year 2019 *	422,300.7	2.1%	17,671.9	-0.5%	439,972.5	2.0%	60,034.2	2.1%	1,907.2	4.3%	1,126.6	0.6%	503,040.5	2.0%
Data Year 1 (2020) *	424,120.4	2.5%	17,619.4	-0.8%	441,739.8	2.4%	60,280.4	2.5%	1,907.1	4.3%	1,125.6	0.5%	505,053.0	2.4%
Data Year 2 (2021) *	425,940.2	3.0%	17,567.0	-1.1%	443,507.2	2.8%	60,407.6	2.7%	1,896.1	3.7%	1,123.6	0.4%	506,934.5	2.8%

* year: September to August

** test year: July 2016 to June 2017

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ISO-NE Energy Efficiency Forecast

Energy and Summer Peak EE Forecast Data

GWh Savings							
	ISONE	ME	NH	VT	CT	RI	MA
2021	2,403	152	69	117	431	188	1,447
2022	2,218	140	64	111	401	172	1,330
2023	2,023	127	60	104	368	156	1,209
2024	1,825	114	54	96	334	139	1,087
2025	1,630	101	49	90	299	124	966
2026	1,438	89	44	81	265	109	849
Total 2021-2026	11,537	723	340	600	2,098	887	6,888
Average	1,923	120	57	100	350	148	1,148
MW Savings							
	ISONE	ME	NH	VT	CT	RI	MA
2021	330	18	10	14	59	26	202
2022	304	16	10	13	55	24	186
2023	278	15	9	12	50	22	169
2024	250	13	8	11	46	19	152
2025	223	12	7	11	41	17	135
2026	197	10	7	10	36	15	119
Total 2021-2026	1,582	84	51	71	287	123	963
Average	264	14	9	12	48	21	161

SOURCE: ISO-NE Final 2017 Energy-Efficiency Forecast for 2021-2026, May 1, 2017, page 31

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Annual Cumulative Annual Demand Energy Resources Historicals and Future Projections, Total, Calendar Year

NECO TOTAL Deliveries (weather-normalize, 50/50) (GWh) (before & after DERs)

Calendar Year	DELIVERIES (50/50) Reconstituted (before reductions)	DELIVERIES (50/50) Final Forecast w/ EE Reduction only	DELIVERIES (50/50) Final Forecast (after all reductions)	DER REDUCTIONS EE Reduction Forecast	DER REDUCTIONS PV Reduction Forecast	EE % of 'Reconstituted' Deliveries	PV % of 'Reconstituted' Deliveries
2007	8,153	7,875	**7,875**	278	0	3.4%	0.0%
2008	8,083	7,743	**7,743**	340	0	4.2%	0.0%
2009	8,094	7,682	**7,682**	412	0	5.1%	0.0%
2010	8,124	7,631	**7,631**	493	0	6.1%	0.0%
2011	8,231	7,649	**7,648**	582	1	7.1%	0.0%
2012	8,407	7,716	**7,714**	691	2	8.2%	0.0%
2013	8,563	7,732	**7,722**	831	9	9.7%	0.1%
2014	8,737	7,688	**7,669**	1,049	19	12.0%	0.2%
2015	8,805	7,513	**7,486**	1,292	26	14.7%	0.3%
2016	8,924	7,414	**7,375**	1,511	39	16.9%	0.4%
2017	9,189	7,471	**7,396**	1,718	75	18.7%	0.8%
2018	9,340	7,421	**7,292**	1,919	129	20.5%	1.4%
2019	9,542	7,421	**7,243**	2,120	179	22.2%	1.9%
2020	9,739	7,421	**7,199**	2,318	223	23.8%	2.3%
2021	9,906	7,397	**7,145**	2,509	252	25.3%	2.5%

'07 to '17: 10-year av	1.2%	-0.5%	**-0.6%**
'12 to '17: 5-year avg	1.8%	-0.6%	**-0.8%**
'17 to '21: 4-year avg	1.9%	-0.2%	**-0.9%**

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Annual Cumulative Annual Demand Energy Resources Historicals and Future Projections, Residential, Calendar Year

NECO RESIDENTIAL Deliveries (weather-normalize, 50/50) (GWh) (before & after DERs)

Calendar Year	DELIVERIES (50/50) Reconstituted (before reductions)	DELIVERIES (50/50) Final Forecast w/ EE Reduction only	DELIVERIES (50/50) Final Forecast (after all reductions)	DER REDUCTIONS EE Reduction Forecast	DER REDUCTIONS PV Reduction Forecast	EE % of 'Reconstituted' Deliveries	PV % of 'Reconstituted' Deliveries
2007	3,179	3,073	**3,073**	107	0	3.4%	0.0%
2008	3,156	3,028	**3,028**	128	0	4.1%	0.0%
2009	3,197	3,043	**3,043**	153	0	4.8%	0.0%
2010	3,226	3,043	**3,043**	184	0	5.7%	0.0%
2011	3,283	3,066	**3,066**	217	0	6.6%	0.0%
2012	3,412	3,156	**3,156**	256	1	7.5%	0.0%
2013	3,456	3,143	**3,142**	312	1	9.0%	0.0%
2014	3,490	3,092	**3,090**	398	2	11.4%	0.1%
2015	3,553	3,050	**3,046**	503	4	14.2%	0.1%
2016	3,641	3,023	**3,011**	618	11	17.0%	0.3%
2017	3,769	3,043	**3,016**	726	27	19.3%	0.7%
2018	3,814	2,990	**2,944**	823	47	21.6%	1.2%
2019	3,902	2,981	**2,916**	920	65	23.6%	1.7%
2020	3,987	2,974	**2,893**	1,014	81	25.4%	2.0%
2021	4,063	2,964	**2,873**	1,099	92	27.0%	2.3%
'07 to '17: 10-year av	1.7%	-0.1%	**-0.2%**				
'12 to '17: 5-year avg	2.0%	-0.7%	**-0.9%**				
'17 to '21: 4-year avg	1.9%	-0.7%	**-1.2%**				

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Annual Cumulative Annual Demand Energy Resources Historicals and Future Projections, Commercial, Calendar Year

NECO COMMERCIAL Deliveries (weather-normalize, 50/50) (GWh) (before & after DERs)

Calendar Year	DELIVERIES (50/50) Reconstituted (before reductions)	DELIVERIES (50/50) Final Forecast w/ EE Reduction only	DELIVERIES (50/50) Final Forecast (after all reductions)	DER REDUCTIONS EE Reduction Forecast	DER REDUCTIONS PV Reduction Forecast	EE % of 'Reconstituted' Deliveries	PV % of 'Reconstituted' Deliveries
2007	3,750	3,623	**3,623**	128	0	3.4%	0.0%
2008	3,773	3,614	**3,614**	159	0	4.2%	0.0%
2009	3,840	3,645	**3,645**	196	0	5.1%	0.0%
2010	3,841	3,605	**3,605**	236	0	6.2%	0.0%
2011	3,903	3,622	**3,622**	281	0	7.2%	0.0%
2012	3,938	3,601	**3,600**	337	1	8.6%	0.0%
2013	4,024	3,620	**3,613**	404	7	10.0%	0.2%
2014	4,173	3,663	**3,649**	510	14	12.2%	0.3%
2015	4,254	3,631	**3,613**	623	18	14.6%	0.4%
2016	4,310	3,602	**3,580**	708	22	16.4%	0.5%
2017	4,445	3,654	**3,615**	791	39	17.8%	0.9%
2018	4,552	3,674	**3,606**	878	68	19.3%	1.5%
2019	4,674	3,707	**3,613**	966	95	20.7%	2.0%
2020	4,786	3,731	**3,612**	1,056	119	22.1%	2.5%
2021	4,885	3,738	**3,603**	1,147	135	23.5%	2.8%
'07 to '17: 10-year av	1.7%	0.1%	**0.0%**				
'12 to '17: 5-year avg	2.5%	0.3%	**0.1%**				
'17 to '21: 4-year avg	2.4%	0.6%	**-0.1%**				

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Annual Cumulative Annual Demand Energy Resources Historicals and Future Projections, Industrial, Calendar Year

NECO INDUSTRIAL Deliveries (weather-normalize, 50/50) (GWh) (before & after DERs)

Calendar Year	DELIVERIES (50/50) Reconstituted (before reductions)	DELIVERIES (50/50) Final Forecast w/ EE Reduction only	DELIVERIES (50/50) Final Forecast (after all reductions)	DER REDUCTIONS EE Reduction Forecast	DER REDUCTIONS PV Reduction Forecast	EE % of 'Reconstituted' Deliveries	PV % of 'Reconstituted' Deliveries
2007	1,160	1,116	**1,116**	44	0	3.8%	0.0%
2008	1,090	1,037	**1,037**	53	0	4.9%	0.0%
2009	993	930	**930**	63	0	6.3%	0.0%
2010	1,003	930	**930**	73	0	7.3%	0.0%
2011	985	901	**901**	85	0	8.6%	0.0%
2012	998	900	**899**	98	0	9.9%	0.0%
2013	1,024	909	**907**	115	2	11.3%	0.2%
2014	1,015	874	**870**	141	3	13.9%	0.3%
2015	940	773	**769**	167	4	17.7%	0.5%
2016	927	742	**737**	184	5	19.9%	0.6%
2017	932	731	**723**	201	9	21.6%	0.9%
2018	936	718	**704**	218	14	23.3%	1.5%
2019	928	694	**675**	234	19	25.2%	2.0%
2020	928	680	**657**	249	23	26.8%	2.5%
2021	922	659	**633**	263	26	28.5%	2.8%
'07 to '17: 10-year av	-2.2%	-4.1%	**-4.3%**				
'12 to '17: 5-year avg	-1.4%	-4.1%	**-4.3%**				
'17 to '21: 4-year avg	-0.3%	-2.6%	**-3.3%**				

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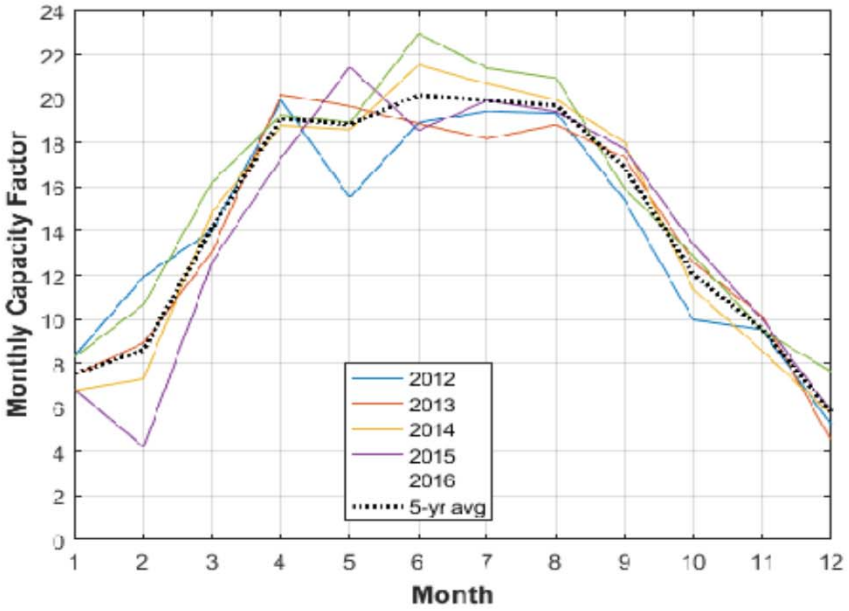
ISO-NE Photovoltaic Capacity Factors

Monthly PV Capacity Factors

PV Production Data, 2012-2016



SOURCE: ISO-NE PV Forecast, May 1, 2017, page 37

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ISO-NE Photovoltaic Forecast

Final 2017 PV Forecast

Nameplate Capacity, MW_{ac}

States	Annual Total MW (AC nameplate rating)											Totals
	Thru 2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
CT	281.5	132.8	132.8	132.8	58.9	44.7	43.5	42.2	40.9	39.6	38.4	**988.2**
MA	1324.8	273.9	260.2	164.4	160.0	155.6	151.1	146.7	71.1	68.9	66.7	**2,843.3**
ME	22.1	6.8	6.8	6.8	6.2	5.8	5.8	5.8	5.8	5.8	5.8	**83.7**
NH	54.3	18.1	12.0	7.4	7.2	7.0	6.8	6.6	6.4	6.2	6.0	**138.2**
RI	36.8	41.3	41.3	35.3	31.8	15.2	11.3	11.1	10.8	10.6	10.4	**255.9**
VT	198.4	25.0	25.0	25.0	22.5	21.3	21.3	21.3	21.3	21.3	21.3	**423.4**
Regional - Annual (MW)	**1918.0**	**497.9**	**478.2**	**371.8**	**286.6**	**249.6**	**239.8**	**233.6**	**156.3**	**152.4**	**148.5**	**4,732.7**
Regional - Cumulative (MW)	**1918.0**	**2415.9**	**2894.1**	**3265.9**	**3552.5**	**3802.1**	**4041.9**	**4275.5**	**4431.8**	**4584.2**	**4732.7**	**4,732.7**

Notes:
(1) Forecast values include FCM Resources, non-FCM Energy Only Resources, and behind-the-meter PV
(2) The forecast reflects discount factors to account for uncertainty in meeting state policy goals
(3) All values represent end-of-year installed capacities

SOURCE: ISO-NE PV Forecast, May 1, 2017, page 37

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Final Deliveries Forecast by Revenue Class, after Energy Efficiency and Photovoltaic Reductions, (with actual historicals) by Rate Year

ANNUAL GWh (*and percent growth*) (Historicals: Actuals; Projections: Weather-Normal) by Revenue Class
After Energy Efficiency and Solar Reductions

YEAR *	RESIDENTIAL Non-Heating		Elec-Heating		RESIDENTIAL Total		COMMERCIAL		INDUSTRIAL		StreetLighting & Other		TOTAL	
2008	2,883.2		217.5		3,100.7		3,651.1		1,079.8		64.1		7,896.4	
2009	2,704.5	-6.2%	196.6	-9.6%	2,901.2	-6.4%	3,588.4	-1.7%	945.8	-12.4%	61.9	-3.4%	7,497.2	-5.1%
2010	2,907.7	7.5%	197.3	0.3%	3,104.9	7.0%	3,649.4	1.7%	936.0	-1.0%	56.9	-8.1%	7,747.2	3.3%
2011	2,901.3	-0.2%	200.1	1.4%	3,101.4	-0.1%	3,631.5	-0.5%	922.2	-1.5%	60.4	6.1%	7,715.4	-0.4%
2012	2,898.1	-0.1%	180.7	-9.7%	3,078.8	-0.7%	3,604.9	-0.7%	896.3	-2.8%	59.5	-1.4%	7,639.5	-1.0%
2013	3,005.4	3.7%	194.9	7.9%	3,200.3	3.9%	3,629.3	0.7%	907.3	1.2%	59.6	0.0%	7,796.4	2.1%
2014	2,867.8	-4.6%	197.4	1.3%	3,065.2	-4.2%	3,526.1	-2.8%	892.9	-1.6%	58.4	-2.0%	7,542.6	-3.3%
2015	2,878.1	0.4%	196.6	-0.4%	3,074.7	0.3%	3,707.7	5.1%	784.9	-12.1%	59.1	1.2%	7,626.4	1.1%
2016	2,906.7	1.0%	176.3	-10.3%	3,083.0	0.3%	3,624.6	-2.2%	750.6	-4.4%	53.9	-8.7%	7,512.2	-1.5%
2017	2,839.6	-2.3%	179.1	1.6%	3,018.7	-2.1%	3,605.7	-0.5%	722.6	-3.7%	41.9	-22.3%	7,388.8	-1.6%
2018	2,802.0	-1.3%	171.6	-4.1%	2,973.7	-1.5%	3,608.6	0.1%	715.9	-0.9%	39.8	-5.1%	7,337.9	-0.7%
2019	2,773.6	-1.0%	164.0	-4.4%	2,937.6	-1.2%	3,619.5	0.3%	684.3	-4.4%	38.7	-2.6%	7,280.0	-0.8%
2020	2,730.6	-1.5%	157.5	-3.9%	2,888.2	-1.7%	3,603.1	-0.5%	662.9	-3.1%	37.8	-2.5%	7,191.9	-1.2%
2021	2,733.7	0.1%	151.5	-3.8%	2,885.2	-0.1%	3,610.1	0.2%	640.3	-3.4%	36.8	-2.6%	7,172.4	-0.3%
Compound Annual Growth Rates:														
2008 to 2018 Ten-Year				-2.3%		-0.4%		-0.1%		-4.0%		-4.7%		-0.7%
2013 to 2018 Five-Year		-1.4%		-2.5%		-1.5%		-0.1%		-4.6%		-7.8%		-1.2%
2018 to 2021 Three-Year		-0.8%		-4.1%		-1.0%		0.0%		-3.7%		-2.6%		-0.8%

YEAR *, **	RESIDENTIAL Non-Heating		Elec-Heating		RESIDENTIAL Total		COMMERCIAL		INDUSTRIAL		StreetLighting & Other		TOTAL	
	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth
Test Year 2017 **	2,880.6		180.8		3,061.4		3,618.7		728.6		40.3		7,449.0	
Rate Year 2019 *	2,773.6	-3.7%	164.0	-9.3%	2,937.6	-4.0%	3,619.5	0.0%	684.3	-6.1%	38.7	-3.9%	7,280.0	-2.3%
Data Year 2020 *	2,730.6	-5.2%	157.5	-12.9%	2,888.2	-5.7%	3,603.1	-0.4%	662.9	-9.0%	37.8	-6.3%	7,191.9	-3.5%
Data Year 2021 *	2,733.7	-5.1%	151.5	-16.2%	2,885.2	-5.8%	3,610.1	-0.2%	640.3	-12.1%	36.8	-8.7%	7,172.4	-3.7%

* fiscal year: September to August
** test year: July 2016 to June 2017

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Final Deliveries Forecast by Revenue Class, after Energy Efficiency
and Photovoltaic Reductions (with weather-adjusted historicals) by Rate Year

ANNUAL GWh (*and percent growth*) (Historicals & Projections: Weather-Normal) by Revenue Class
After Energy Efficiency and Solar Reductions

YEAR *	RESIDENTIAL Non-Heating		Elec-Heating		RESIDENTIAL Total		COMMERCIAL		INDUSTRIAL		StreetLighting & Other		TOTAL	
2008	2,856.9		218.1		3,075.0		3,633.9		1,077.8		64.1		7,851.5	
2009	2,819.6	-1.3%	198.2	-9.1%	3,017.8	-1.9%	3,657.2	0.6%	953.4	-11.5%	61.9	-3.4%	7,690.3	-2.1%
2010	2,874.5	1.9%	199.7	0.7%	3,074.2	1.9%	3,625.2	-0.9%	933.0	-2.1%	56.9	-8.1%	7,689.2	0.0%
2011	2,842.2	-1.1%	193.2	-3.3%	3,035.4	-1.3%	3,605.2	-0.6%	920.1	-1.4%	60.4	6.1%	7,621.0	-0.9%
2012	2,928.2	3.0%	192.3	-0.4%	3,120.5	2.8%	3,606.0	0.0%	894.9	-2.7%	59.5	-1.4%	7,681.0	0.8%
2013	2,985.5	2.0%	194.5	1.1%	3,180.0	1.9%	3,617.7	0.3%	906.0	1.2%	59.6	0.0%	7,763.3	1.1%
2014	2,904.9	-2.7%	192.8	-0.9%	3,097.7	-2.6%	3,555.6	-1.7%	896.9	-1.0%	58.4	-2.0%	7,608.5	-2.0%
2015	2,843.5	-2.1%	187.4	-2.8%	3,030.9	-2.2%	3,700.6	4.1%	785.3	-12.4%	59.1	1.2%	7,575.9	-0.4%
2016	2,871.5	1.0%	182.5	-2.6%	3,054.0	0.8%	3,594.0	-2.9%	746.3	-5.0%	53.9	-8.7%	7,448.2	-1.7%
2017	2,813.0	-2.0%	180.2	-1.3%	2,993.1	-2.0%	3,587.7	-0.2%	720.4	-3.5%	41.9	-22.3%	7,343.1	-1.4%
2018	2,802.0	-0.4%	171.6	-4.7%	2,973.7	-0.7%	3,608.6	0.6%	715.9	-0.6%	39.8	-5.1%	7,337.9	-0.1%
2019	2,773.6	-1.0%	164.0	-4.4%	2,937.6	-1.2%	3,619.5	0.3%	684.3	-4.4%	38.7	-2.6%	7,280.0	-0.8%
2020	2,730.6	-1.5%	157.5	-3.9%	2,888.2	-1.7%	3,603.1	-0.5%	662.9	-3.1%	37.8	-2.5%	7,191.9	-1.2%
2021	2,733.7	0.1%	151.5	-3.8%	2,885.2	-0.1%	3,610.1	0.2%	640.3	-3.4%	36.8	-2.6%	7,172.4	-0.3%
Compound Annual Growth Rates:														
2008 to 2018 Ten-Year		-0.2%		-2.4%		-0.3%		-0.1%		-4.0%		-4.7%		-0.7%
2013 to 2018 Five-Year		-1.3%		-2.5%		-1.3%		-0.1%		-4.6%		-7.8%		-1.1%
2018 to 2021 Three-Year		-0.8%		-4.1%		-1.0%		0.0%		-3.7%		-2.6%		-0.8%

YEAR *, **	RESIDENTIAL Non-Heating		Elec-Heating		RESIDENTIAL Total		COMMERCIAL		INDUSTRIAL		StreetLighting & Other		TOTAL	
	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth	GWh	Growth
Test Year 2017 **	2,799.4		179.2		2,978.6		3,572.0		723.5		40.3		7,314.4	
Rate Year 2019 *	2,773.6	-0.9%	164.0	-8.5%	2,937.6	-1.4%	3,619.5	1.3%	684.3	-5.4%	38.7	-3.9%	7,280.0	-0.5%
Data Year 1 (2020)	2,730.6	-2.5%	157.5	-12.1%	2,888.2	-3.0%	3,603.1	0.9%	662.9	-8.4%	37.8	-6.3%	7,191.9	-1.7%
Data Year 2 (2021)	2,733.7	-2.3%	151.5	-15.4%	2,885.2	-3.1%	3,610.1	1.1%	640.3	-11.5%	36.8	-8.7%	7,172.4	-1.9%

* year: September to August

** test year: July 2016 to June 2017

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Revenue Class to Rate Class Mappings

kWh Mapping

Revenue Class	A16_pct	A60_pct	C06_pct	C08_pct	G02_pct	G32_pct	G62_pct	B32_pct	B62_pct	T06_pct	T08_pct	E40_pct	X01_pct	V02_pct	S10_pct	Total
Residential (Electric Heat)	0.936	0.064	-	-	-	-	-	-	-	-	-	-	-	-	0.000	1.000
Residential (Non-Electric Heat)	0.921	0.077	0.001	0.000	0.000	-	-	-	-	-	-	-	-	-	0.000	1.000
Commercial	0.004	0.000	0.158	0.000	0.331	0.416	0.079	0.003	-	-	-	-	0.007	-	0.001	1.000
Industrial	0.000	-	0.027	-	0.132	0.636	0.194	0.006	-	-	-	-	-	-	0.005	1.000
Streetlighting	-	-	-	0.046	-	-	-	-	-	-	-	-	-	-	0.954	1.000

Customer Count Mapping

Revenue Class	A16_pct	A60_pct	C06_pct	C08_pct	G02_pct	G32_pct	G62_pct	B32_pct	B62_pct	T06_pct	T08_pct	E40_pct	X01_pct	V02_pct	S10_pct	Total
Residential (Electric Heat)	0.930	0.070	-	-	-	-	-	-	-	-	-	-	-	-	-	1.000
Residential (Non-Electric Heat)	0.915	0.083	0.001	0.000	0.000	-	-	-	-	-	-	-	-	-	-	1.000
Commercial	0.017	0.000	0.829	0.004	0.136	0.014	0.000	0.000	-	-	-	-	0.000	-	0.000	1.000
Industrial	0.001	-	0.550	-	0.297	0.148	0.003	0.001	-	-	-	-	-	-	0.002	1.000
Streetlighting	-	-	-	0.508	-	-	-	-	-	-	-	-	-	-	0.492	1.000

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Final Deliveries Forecast by Rate Class, after Energy Efficiency
and Photovoltaic Reductions (with actual historicals) by Rate Year

ANNUAL GWh (*and percent growth*) (Historicals: Actuals; Projections: Weather-Normal) by Rate Code
After Energy Efficiency and Solar Reductions

YEAR *	A16		A60		C06		C08		G02		G32		G62		B32		B62		X01		SL		Other		TOTAL	
2008	2,890.2		203.9		547.8		6.4		1,409.9		2,132.7		445.6		7.2		140.0		25.4		70.3		17.0		7,896.4	
2009	2,707.6	-6.3%	203.2	-0.4%	530.9	-3.1%	6.9	6.5%	1,829.0	29.7%	1,702.9	-20.2%	337.8	-24.2%	4.3	-40.1%	74.1	-47.1%	26.1	2.4%	66.7	-5.1%	7.8	-53.9%	7,497.2	-5.1%
2010	2,860.0	5.6%	256.1	26.1%	557.2	5.0%	(3.5)	-150.5%	1,338.1	-26.8%	2,071.7	21.7%	423.2	25.3%	6.9	61.6%	141.9	91.5%	24.3	-6.8%	70.5	5.6%	0.8	-90.0%	7,747.2	3.3%
2011	2,840.9	-0.7%	269.2	5.1%	561.9	0.8%	4.8	-237.9%	1,328.9	-0.7%	2,055.6	-0.8%	417.4	-1.4%	6.9	-0.7%	139.0	-2.0%	23.2	-4.2%	67.6	-4.1%	-	-100.0%	7,715.4	-0.4%
2012	2,802.4	-1.4%	285.9	6.2%	560.3	-0.3%	3.5	-25.9%	1,304.0	-1.9%	2,042.9	-0.6%	434.4	4.1%	8.2	19.7%	108.8	-21.8%	23.0	-1.0%	66.1	-2.1%	-	0.0%	7,639.5	-1.0%
2013	2,907.8	3.8%	302.2	5.7%	582.6	4.0%	3.5	0.1%	1,307.9	0.3%	2,043.2	0.0%	446.1	2.7%	6.2	-24.8%	106.3	-2.3%	22.6	-1.8%	68.0	2.8%	-	0.0%	7,796.4	2.1%
2014	2,785.9	-4.2%	289.0	-4.4%	581.5	-0.2%	3.6	0.8%	1,284.5	-1.8%	2,010.5	-1.6%	387.2	-13.2%	5.7	-7.8%	105.1	-1.2%	23.4	3.5%	66.3	-2.5%	-	0.0%	7,542.6	-3.3%
2015	2,776.0	-0.4%	308.3	6.7%	588.5	1.2%	3.6	1.3%	1,310.9	2.1%	2,013.5	0.1%	520.6	34.5%	12.5	119.4%	2.9	-97.3%	23.4	0.2%	66.1	-0.4%	-	0.0%	7,626.4	1.1%
2016	2,824.3	1.7%	267.7	-13.2%	582.8	-1.0%	3.7	2.0%	1,311.6	0.0%	1,987.5	-1.3%	435.5	-16.3%	13.6	8.8%	-	-100.0%	24.0	2.3%	61.5	-6.9%	-	0.0%	7,512.2	-1.5%
2017	2,806.8	-0.6%	220.8	-17.5%	594.3	2.0%	4.4	18.5%	1,289.3	-1.7%	1,956.8	-1.5%	429.7	-1.3%	14.0	2.5%	-	0.0%	23.8	-0.7%	48.9	-20.5%	-	0.0%	7,388.8	-1.6%
2018	2,756.6	-1.8%	226.2	2.4%	594.6	0.0%	3.5	-18.8%	1,291.5	0.2%	1,955.1	-0.1%	425.6	-1.0%	13.4	-4.1%	-	0.0%	23.9	0.4%	47.5	-2.8%	-	0.0%	7,337.9	-0.7%
2019	2,723.2	-1.2%	223.5	-1.2%	595.5	0.1%	3.5	-1.2%	1,290.9	0.0%	1,939.6	-0.8%	420.3	-1.2%	13.2	-1.2%	-	0.0%	24.0	0.3%	46.4	-2.4%	-	0.0%	7,280.0	-0.8%
2020	2,677.5	-1.7%	219.8	-1.7%	592.3	-0.5%	3.4	-1.5%	1,282.7	-0.6%	1,919.2	-1.1%	414.8	-1.3%	13.1	-1.3%	-	0.0%	23.9	-0.5%	45.3	-2.3%	-	0.0%	7,191.9	-1.2%
2021	2,674.8	-0.1%	219.6	-0.1%	592.8	0.1%	3.4	-1.2%	1,282.0	-0.1%	1,907.7	-0.6%	411.0	-0.9%	12.9	-0.9%	-	0.0%	23.9	0.2%	44.3	-2.3%	-	0.0%	7,172.4	-0.3%

Compound Annual Growth Rates:

2007 to 2017 Ten-Year		1.0%	0.8%	-5.8%	-0.9%	-0.9%	-0.5%	6.5%	-100.0%	-0.6%	-3.8%	#N/A	-0.7%	
2012 to 2017 Five-Year	-1.1%	-5.6%	0.4%	0.0%	-0.3%	-0.9%	-0.9%	16.7%	-100.0%	1.1%	-6.9%	#N/A	-1.2%	
2018 to 2021 Three-Year	-1.0%	-1.0%	-0.1%	-1.3%	-0.2%	-0.8%	-1.2%	-1.1%	0.0%	0.0%	-2.3%	#N/A	-0.8%	

* data year: September to August

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Final Deliveries Forecast by Rate Class, after Energy Efficiency
and Photovoltaic Reductions (with weather-adjusted historicals) by Rate Year

ANNUAL GWh (*and percent growth*) (Historicals & Projections: Weather-Normal) by Rate Code
After Energy Efficiency and Solar Reductions

YEAR *	A16		A60		C06		C08		G02		G32		G62		B32		B62		X01		SL		Other		TOTAL	
2008	2,866.1		202.1		545.3		6.4		1,403.5		2,124.7		443.9		7.1		139.6		25.3		70.3		17.0		7,851.5	
2009	2,815.5	-1.8%	211.9	4.8%	540.9	-0.8%	6.9	7.4%	1,855.1	32.2%	1,734.8	-18.4%	344.0	-22.5%	4.4	-38.5%	75.5	-45.9%	26.5	4.7%	66.9	-4.8%	8.0	-53.2%	7,690.3	-2.1%
2010	2,831.7	0.6%	253.6	19.7%	553.4	2.3%	(3.5)	-150.1%	1,329.3	-28.3%	2,060.2	18.8%	421.1	22.4%	6.9	56.6%	141.3	87.1%	24.2	-9.0%	70.4	5.3%	0.8	-90.1%	7,689.2	0.0%
2011	2,780.6	-1.8%	263.6	3.9%	557.9	0.8%	4.8	-237.6%	1,319.7	-0.7%	2,043.5	-0.8%	415.1	-1.4%	6.8	-0.4%	138.5	-2.0%	23.1	-4.4%	67.5	-4.2%	-	-100.0%	7,621.0	-0.9%
2012	2,840.1	2.1%	289.8	10.0%	560.5	0.5%	3.5	-25.7%	1,304.0	-1.2%	2,042.6	0.0%	434.4	4.7%	8.2	20.1%	108.5	-21.6%	23.0	-0.3%	66.2	-2.0%	-	0.0%	7,681.0	0.8%
2013	2,889.2	1.7%	300.4	3.6%	580.7	3.6%	3.5	0.0%	1,303.9	0.0%	2,037.8	-0.2%	444.9	2.4%	6.2	-24.8%	106.1	-2.2%	22.5	-2.2%	68.0	2.8%	-	0.0%	7,763.3	1.1%
2014	2,815.4	-2.6%	292.0	-2.8%	586.9	1.1%	3.6	1.3%	1,296.6	-0.6%	2,027.7	-0.5%	385.1	-13.5%	5.7	-7.0%	105.5	-0.6%	23.6	4.7%	66.4	-2.4%	-	0.0%	7,608.5	-2.0%
2015	2,736.7	-2.8%	303.9	4.1%	587.2	0.1%	3.6	0.8%	1,308.7	0.9%	2,010.7	-0.8%	520.3	35.1%	12.5	117.6%	2.9	-97.3%	23.4	-1.0%	66.0	-0.5%	-	0.0%	7,575.9	-0.4%
2016	2,797.1	2.2%	265.8	-12.5%	577.9	-1.6%	3.7	1.7%	1,300.4	-0.6%	1,972.4	-1.9%	432.2	-16.9%	13.5	7.7%	-	-100.0%	23.8	1.8%	61.4	-6.9%	-	0.0%	7,448.2	-1.7%
2017	2,783.2	-0.5%	219.0	-17.6%	591.5	2.3%	4.3	18.7%	1,283.0	-1.3%	1,947.8	-1.2%	427.8	-1.0%	13.9	3.2%	-	0.0%	23.7	-0.4%	48.9	-20.5%	-	0.0%	7,343.1	-1.4%
2018	2,756.6	-1.0%	226.2	3.3%	594.6	0.5%	3.5	-18.6%	1,291.5	0.7%	1,955.1	0.4%	425.6	-0.5%	13.4	-3.6%	-	0.0%	23.9	0.8%	47.5	-2.7%	-	0.0%	7,337.9	-0.1%
2019	2,723.2	-1.2%	223.5	-1.2%	595.5	0.1%	3.5	-1.2%	1,290.9	0.0%	1,939.6	-0.8%	420.3	-1.2%	13.2	-1.2%	-	0.0%	24.0	0.3%	46.4	-2.4%	-	0.0%	7,280.0	-0.8%
2020	2,677.5	-1.7%	219.8	-1.7%	592.3	-0.5%	3.4	-1.5%	1,282.7	-0.6%	1,919.2	-1.1%	414.8	-1.3%	13.1	-1.3%	-	0.0%	23.9	-0.5%	45.3	-2.3%	-	0.0%	7,191.9	-1.2%
2021	2,674.8	-0.1%	219.6	-0.1%	592.8	0.1%	3.4	-1.2%	1,282.0	-0.1%	1,907.7	-0.6%	411.0	-0.9%	12.9	-0.9%	-	0.0%	23.9	0.2%	44.3	-2.3%	-	0.0%	7,172.4	-0.3%

Compound Annual Growth Rates:

2008 to 2018 Ten-Year		1.1%		0.9%		-5.8%		-0.8%		-0.8%		-0.4%		6.5%		-100.0%		-0.6%		-3.8%		#N/A		-0.7%
2013 to 2018 Five-Year	-0.9%		-5.5%		0.5%		0.0%		-0.2%		-0.8%		-0.9%		16.7%		-100.0%		1.2%		-6.9%		#N/A		-1.1%
2018 to 2021 Three-Year	-1.0%		-1.0%		-0.1%		-1.3%		-0.2%		-0.8%		-1.2%		-1.1%		0.0%		0.0%		-2.3%		#N/A		-0.8%

* year: September to August

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Final Customer Count Forecast by Rate Class and Rate Year

ANNUAL CUSTOMER COUNTS, by Rate Code

YEAR *	A16		A60		C06		C08		G02		G32		G62		B32		B62		X01		SL		Other		TOTAL	
2008	392,941		32,240		47,241		951		8,908		1,137		14		3		2		1		458		217		484,114	
2009	392,934	0.0%	34,123	5.8%	47,402	0.3%	1,004	5.5%	8,876	-0.4%	1,142	0.5%	12	-15.2%	3	19.5%	2	2.5%	1	-0.8%	525	14.8%	93	-57.4%	486,116	0.4%
2010	387,703	-1.3%	39,081	14.5%	47,826	0.9%	974	-3.0%	8,794	-0.9%	1,113	-2.5%	13	2.5%	7	92.7%	2	-3.8%	1	-0.2%	519	-1.1%	-	-100.0%	486,032	0.0%
2011	385,968	-0.4%	40,530	3.7%	48,758	1.9%	852	-12.5%	8,772	-0.3%	1,107	-0.6%	12	-3.8%	5	-23.5%	2	0.3%	1	-0.1%	536	3.3%	-	#DIV/0!	486,543	0.1%
2012	386,306	0.1%	43,022	6.1%	49,298	1.1%	803	-5.7%	8,747	-0.3%	1,102	-0.5%	13	8.1%	5	10.1%	2	-21.1%	1	0.1%	565	5.3%	-	0.0%	489,863	0.7%
2013	389,360	0.8%	43,617	1.4%	49,688	0.8%	804	0.1%	8,683	-0.7%	1,110	0.7%	13	-1.8%	5	-15.7%	1	-37.5%	1	-0.1%	589	4.3%	-	0.0%	493,870	0.8%
2014	390,770	0.4%	43,149	-1.1%	49,879	0.4%	808	0.5%	8,578	-1.2%	1,098	-1.0%	13	-0.3%	4	-12.6%	1	9.1%	1	0.0%	596	1.1%	-	0.0%	494,897	0.2%
2015	388,324	-0.6%	46,635	8.1%	49,797	-0.2%	808	0.0%	8,745	1.9%	1,092	-0.6%	12	-4.7%	5	24.2%	0	-92.4%	1	-0.5%	594	-0.3%	-	0.0%	496,013	0.2%
2016	394,023	1.5%	40,945	-12.2%	50,446	1.3%	832	3.0%	8,576	-1.9%	1,071	-1.9%	12	-1.7%	5	-1.5%	-	-100.0%	1	-3.9%	584	-1.6%	-	0.0%	496,495	0.1%
2017	397,876	1.0%	34,856	-14.9%	50,489	0.1%	812	-2.4%	8,569	-0.1%	1,074	0.3%	13	6.4%	5	-2.3%	-	0.0%	1	3.4%	560	-4.1%	-	0.0%	494,256	-0.5%
2018	402,336	1.1%	36,283	4.1%	51,114	1.2%	822	1.2%	8,695	1.5%	1,096	2.0%	13	1.9%	5	3.0%	-	0.0%	1	1.3%	566	1.1%	-	0.0%	500,931	1.4%
2019	403,958	0.4%	36,431	0.4%	51,391	0.5%	826	0.4%	8,745	0.6%	1,104	0.7%	13	0.8%	5	0.7%	-	0.0%	1	0.5%	568	0.3%	-	0.0%	503,040	0.4%
2020	405,579	0.4%	36,579	0.4%	51,597	0.4%	826	0.1%	8,778	0.4%	1,107	0.3%	13	0.2%	5	0.3%	-	0.0%	1	0.4%	568	-0.1%	-	0.0%	505,053	0.4%
2021	407,198	0.4%	36,727	0.4%	51,699	0.2%	826	-0.1%	8,792	0.2%	1,107	0.0%	13	-0.1%	5	0.0%	-	0.0%	1	0.2%	567	-0.2%	-	0.0%	506,935	0.4%

Compound Annual Growth Rates:

2007 to 2017 Ten-Year		1.2%	0.8%	-1.4%	-0.2%	-0.4%	-1.1%	5.8%	-100.0%	-0.1%	2.2%	#N/A	0.3%
2012 to 2017 Five-Year	0.7%	-3.6%	0.6%	0.5%	0.0%	-0.2%	0.2%	1.5%	-100.0%	0.0%	-0.8%	#N/A	0.3%
2018 to 2021 Three-Year	0.4%	0.4%	0.4%	0.1%	0.4%	0.3%	0.3%	0.4%	0.0%	0.4%	0.0%	#N/A	0.4%

* year: September to August

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Regression Models Outputs

Model: NECO ELECTRIC RESIDENTIAL USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The AUTOREG Procedure

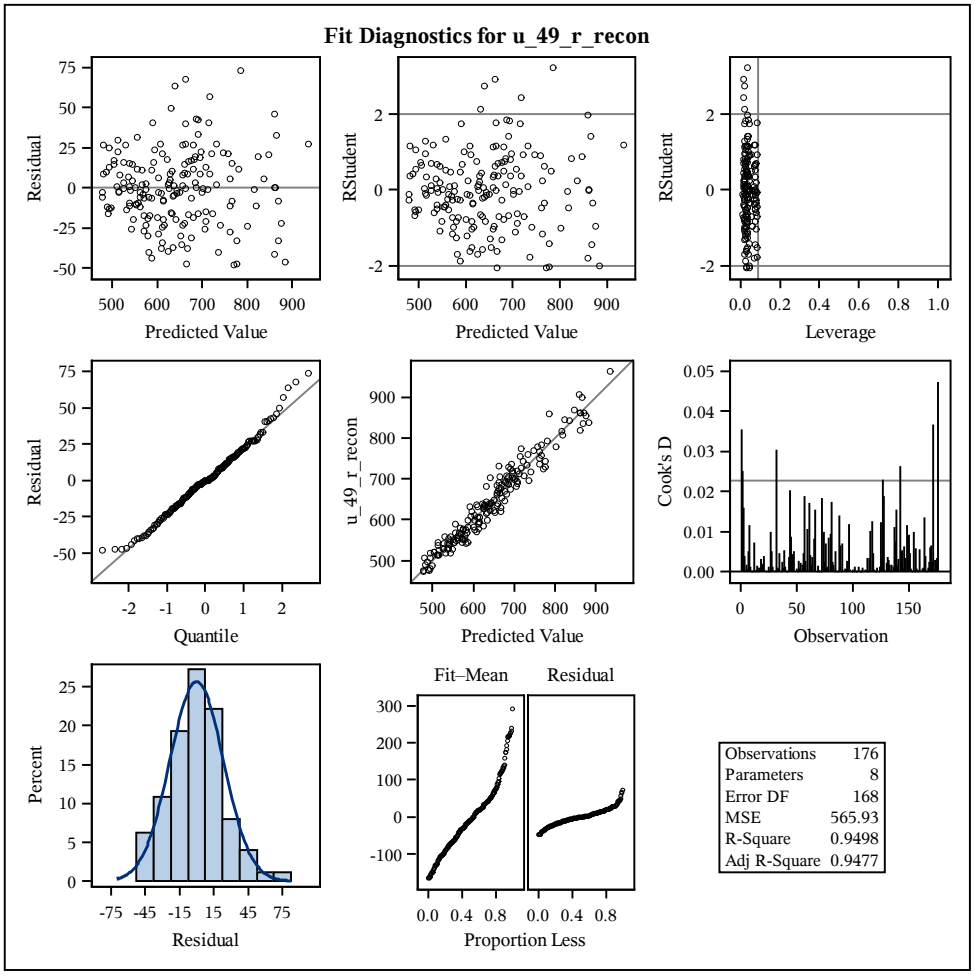
Estimates of Autoregressive Parameters			
Lag	**Coefficient**	**Standard Error**	**t Value**
1	-0.336411	0.072872	-4.62

Yule-Walker Estimates			
SSE	81277.2733	**DFE**	167
MSE	486.69026	**Root MSE**	22.06106
SBC	1625.90506	**AIC**	1597.37071
MAE	16.7515212	**AICC**	1598.45504
MAPE	2.57252481	**HQC**	1608.9441
Durbin-Watson	1.7344	**Regress R-Square**	0.9437
		Total R-Square	0.9571

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	-2261	157.2985	-14.37	<.0001	
IDX_HHolds	1	21.6628	1.5335	14.13	<.0001	
cdd_49	1	1.3150	0.0283	46.47	<.0001	RevMo Cooling Degree Days, NECo
hdd_49	1	0.2096	0.007571	27.69	<.0001	RevMo Heating Degree Days, NECo
Bdays	1	20.0031	1.6337	12.24	<.0001	Number of Billing Days
apr	1	-13.7087	5.5629	-2.46	0.0147	
oct	1	23.3042	6.2078	3.75	0.0002	
jan07	1	72.9774	20.9805	3.48	0.0006	

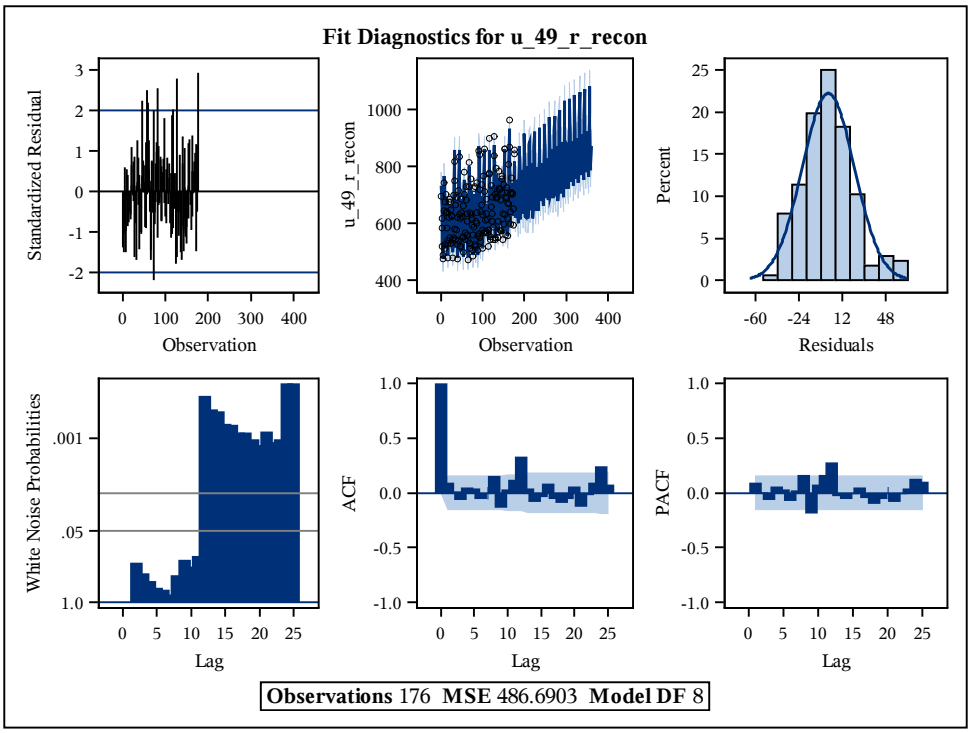
Model: NECO ELECTRIC RESIDENTIAL USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1



Model: NECO ELECTRIC RESIDENTIAL USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The AUTOREG Procedure



Model: NECO ELECTRIC REH USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The AUTOREG Procedure

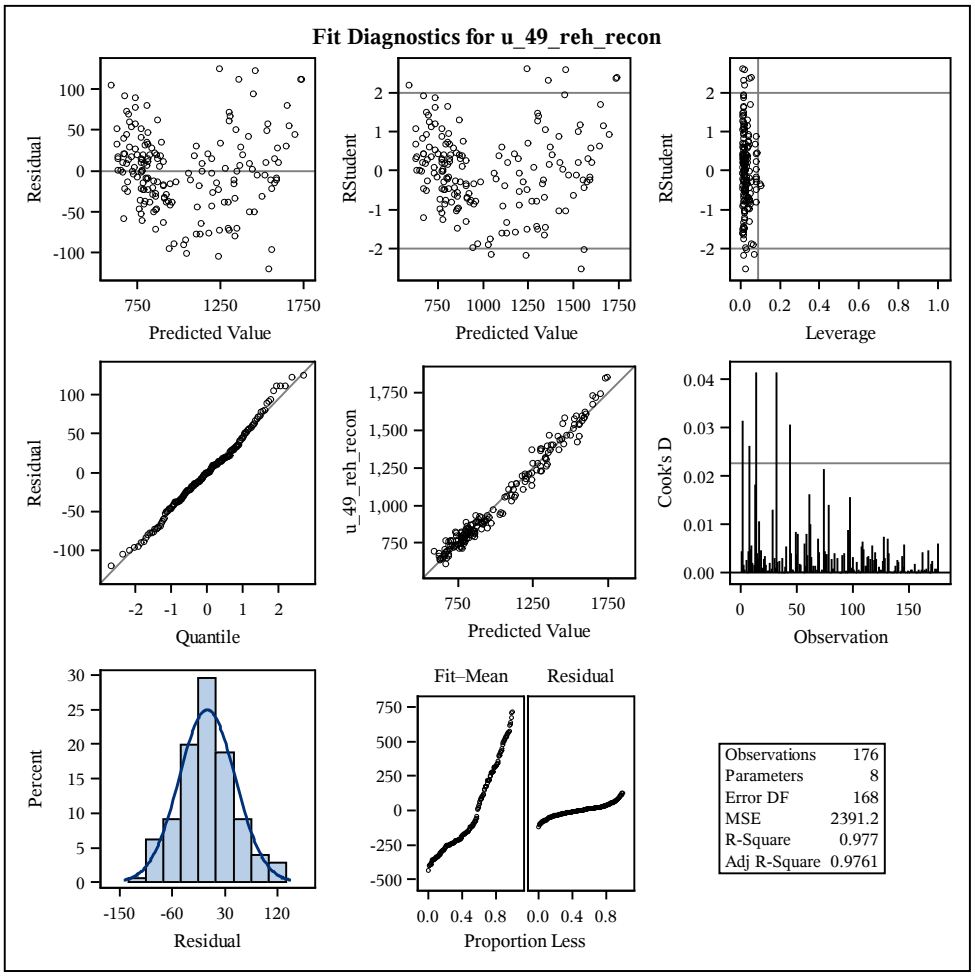
Estimates of Autoregressive Parameters			
Lag	**Coefficient**	**Standard Error**	**t Value**
1	-0.456005	0.068869	-6.62

Yule-Walker Estimates			
SSE	310599.231	**DFE**	167
MSE	1860	**Root MSE**	43.12628
SBC	1861.97019	**AIC**	1833.43583
MAE	32.3146366	**AICC**	1834.52017
MAPE	3.36655972	**HQC**	1845.00923
Durbin-Watson	1.9508	**Regress R-Square**	0.9658
		Total R-Square	0.9822

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	-4306	902.3479	-4.77	<.0001	
IDX_popln	1	47.7900	9.0168	5.30	<.0001	
cdd_49	1	1.5035	0.0535	28.09	<.0001	RevMo Cooling Degree Days, NECo
hdd_49	1	0.9694	0.0149	65.18	<.0001	RevMo Heating Degree Days, NECo
nov	1	-69.1965	11.1558	-6.20	<.0001	
nov08	1	-96.9625	43.7889	-2.21	0.0282	
dec08	1	-97.5230	42.4977	-2.29	0.0230	
apr17	1	137.8221	39.3187	3.51	0.0006	

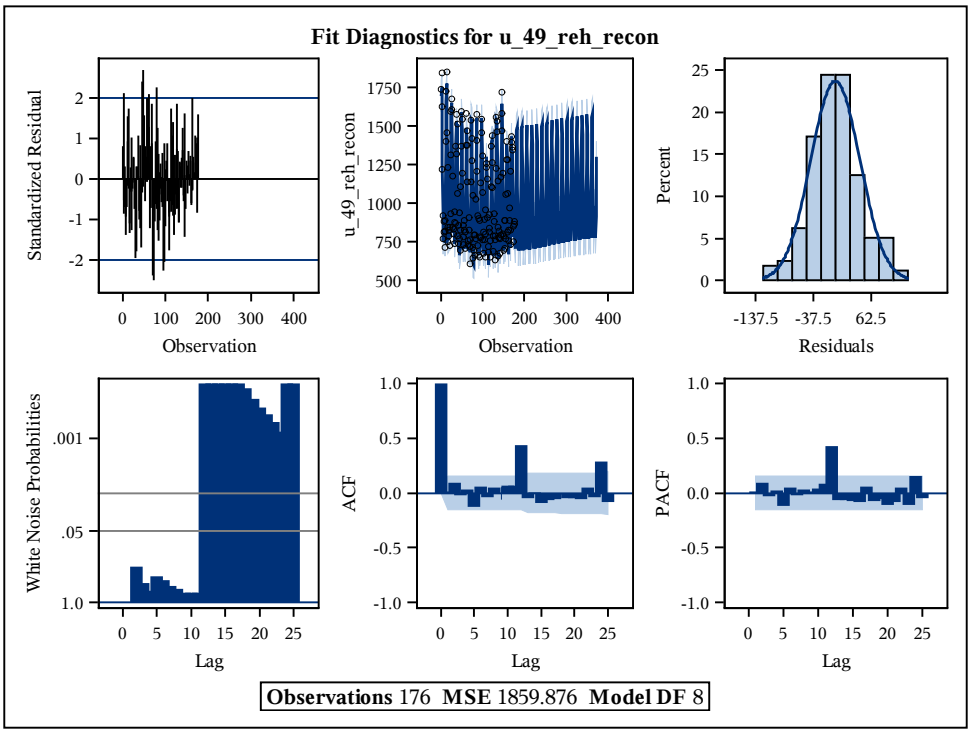
Model: NECO ELECTRIC REH USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1



Model: NECO ELECTRIC REH USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The AUTOREG Procedure



Model: NECO ELECTRIC COMMERCIAL USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1
Dependent Variable: u_49_c_recon

Number of Observations Read	372
Number of Observations Used	176
Number of Observations with Missing Values	196

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	11	38977738	3543431	125.24	<.0001
Error	164	4640040	28293		
Corrected Total	175	43617778			

Root MSE	168.20501	**R-Square**	0.8936
Dependent Mean	5710.94481	**Adj R-Sq**	0.8865
Coeff Var	2.94531		

Parameter Estimates							
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Variance Inflation**
Intercept	Intercept	1	-20519	2250.46117	-9.12	<.0001	0
IDX_HHolds		1	225.30591	23.09740	9.75	<.0001	8.79748
prerecession		1	-302.92345	77.18782	-3.92	0.0001	8.78698
cdd_49	RevMo Cooling Degree Days, NECo	1	5.03576	0.19688	25.58	<.0001	2.38114
hdd_49	RevMo Heating Degree Days, NECo	1	0.46695	0.04960	9.41	<.0001	2.50229
Bdays	Number of Billing Days	1	125.90411	13.21974	9.52	<.0001	1.08297
oct		1	293.84058	54.10537	5.43	<.0001	1.33332
apr08		1	604.83187	169.48960	3.57	0.0005	1.00956
jul08		1	-386.75018	170.97976	-2.26	0.0250	1.02739
sep08		1	523.97206	170.27475	3.08	0.0024	1.01894
aug14		1	-1145.83792	170.67553	-6.71	<.0001	1.02374
oct14		1	708.42857	175.88725	4.03	<.0001	1.08722

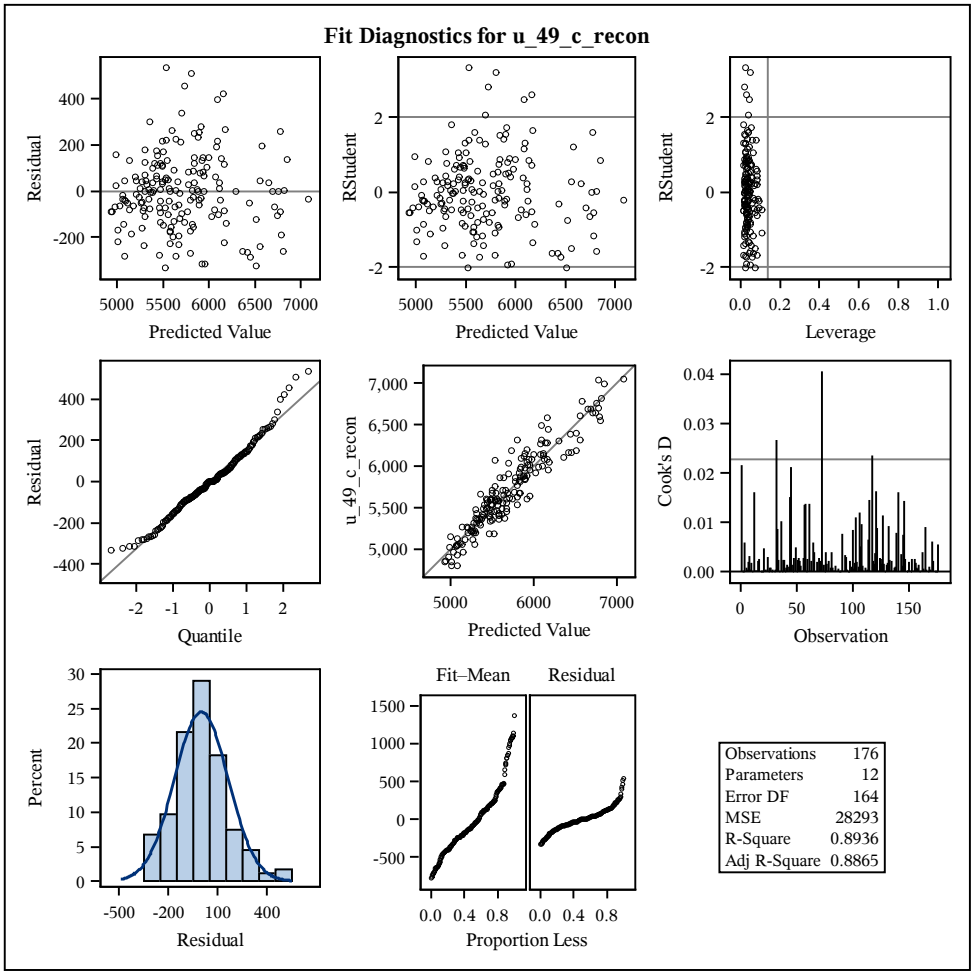
Model: NECO ELECTRIC COMMERCIAL USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1
Dependent Variable: u_49_c_recon

Durbin-Watson D	1.794
Number of Observations	176
1st Order Autocorrelation	0.091

Model: NECO ELECTRIC COMMERCIAL USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1



07:46 Wednesday, September 13, 2017 **1**

Model: NECO ELECTRIC INDUSTRIAL KWH, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1
Dependent Variable: k_49_i_recon

Number of Observations Read	372
Number of Observations Used	176
Number of Observations with Missing Values	196

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	10	22904	2290.43441	94.84	<.0001
Error	165	3984.98770	24.15144		
Corrected Total	175	26889			

Root MSE	4.91441	**R-Square**	0.8518
Dependent Mean	89.41590	**Adj R-Sq**	0.8428
Coeff Var	5.49613		

Parameter Estimates							
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Variance Inflation**
Intercept	Intercept	1	39.04886	4.38137	8.91	<.0001	0
IDX_empl_manuf		1	0.51908	0.02455	21.14	<.0001	1.31562
p_elec_gas_ratio_r	p_elec_gas_ratio_r	1	-13.55348	2.48345	-5.46	<.0001	1.97022
cdd_49	RevMo Cooling Degree Days, NECo	1	0.02632	0.00548	4.80	<.0001	2.16027
hdd_49	RevMo Heating Degree Days, NECo	1	0.00474	0.00150	3.17	0.0018	2.67002
feb03		1	-15.35218	5.05004	-3.04	0.0028	1.04996
feb14		1	17.25248	4.98953	3.46	0.0007	1.02495
mar08		1	-26.29136	4.94828	-5.31	<.0001	1.00807
apr08		1	23.74561	4.93831	4.81	<.0001	1.00401
apr09		1	-40.59639	4.95447	-8.19	<.0001	1.01059
may09		1	30.42664	4.96454	6.13	<.0001	1.01471

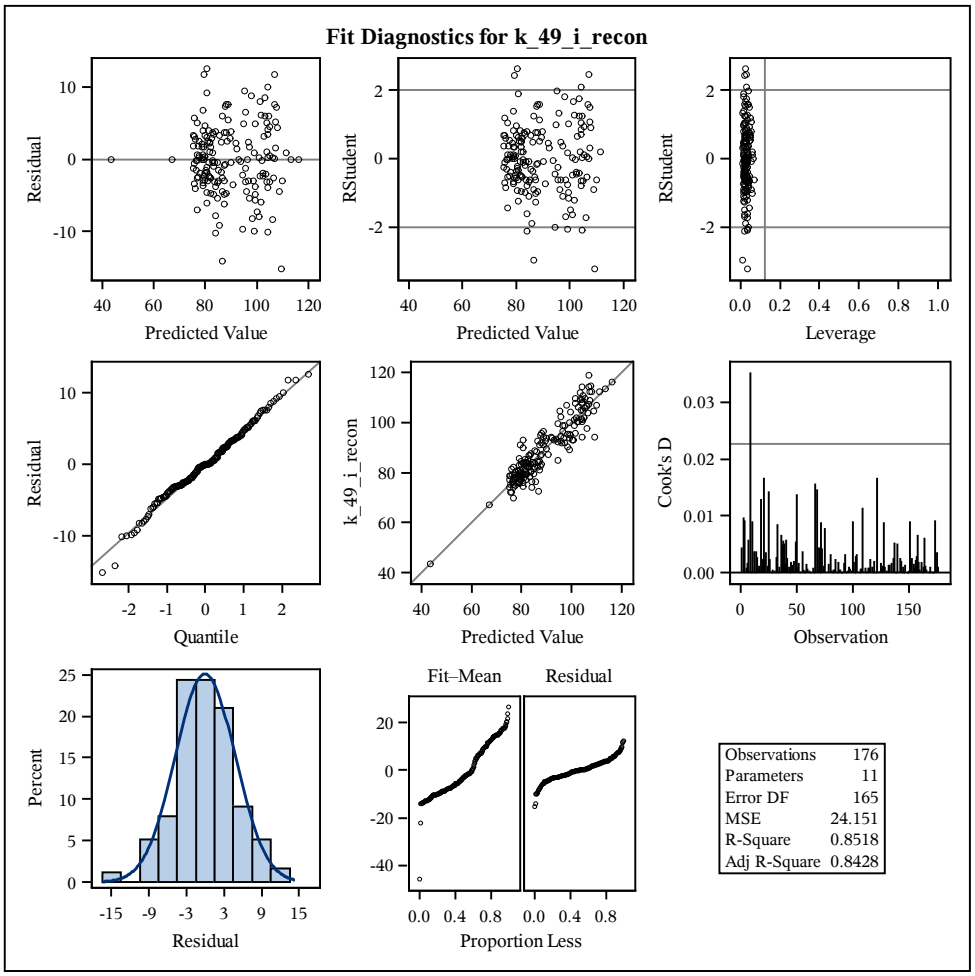
Model: NECO ELECTRIC INDUSTRIAL KWH, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1
Dependent Variable: k_49_i_recon

Durbin-Watson D	1.951
Number of Observations	176
1st Order Autocorrelation	0.021

Model: NECO ELECTRIC INDUSTRIAL KWH, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1



Model: NECO ELECTRIC SL KWH, Method (Est.Period: Jan2003 to aug17
Model Results Calendar Year

The AUTOREG Procedure

Dependent Variable	k_49_s_recon

Ordinary Least Squares Estimates			
SSE	126.557653	**DFE**	170
MSE	0.74446	**Root MSE**	0.86282
SBC	472.446926	**AIC**	453.424022
MAE	0.45814996	**AICC**	453.921063
MAPE	9.96221668	**HQC**	461.139617
Durbin-Watson	2.2098	**Regress R-Square**	0.6176
		Total R-Square	0.6176

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	172.7229	30.6739	5.63	<.0001	
time_trend	1	-0.0814	0.0154	-5.30	<.0001	
Providence_hlight	1	-0.0139	0.001005	-13.84	<.0001	Hlight1
aug09	1	-2.2465	0.8672	-2.59	0.0104	
sep09	1	2.4472	0.8654	2.83	0.0052	
jan10	1	-5.9366	0.8687	-6.83	<.0001	

Estimates of Autocorrelations			
Lag	**Covariance**	**Correlation**	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
0	0.7191	1.000000	| |********************|
1	-0.0773	-0.107449	| ** | |

Preliminary MSE	0.7108

Model: NECO ELECTRIC SL KWH, Method (Est.Period: Jan2003 to aug17
Model Results Calendar Year

The AUTOREG Procedure

Estimates of Autoregressive Parameters			
Lag	**Coefficient**	**Standard Error**	**t Value**
1	0.107449	0.076478	1.40

Model: NECO ELECTRIC SL KWH, Method (Est.Period: Jan2003 to aug17
Model Results Calendar Year

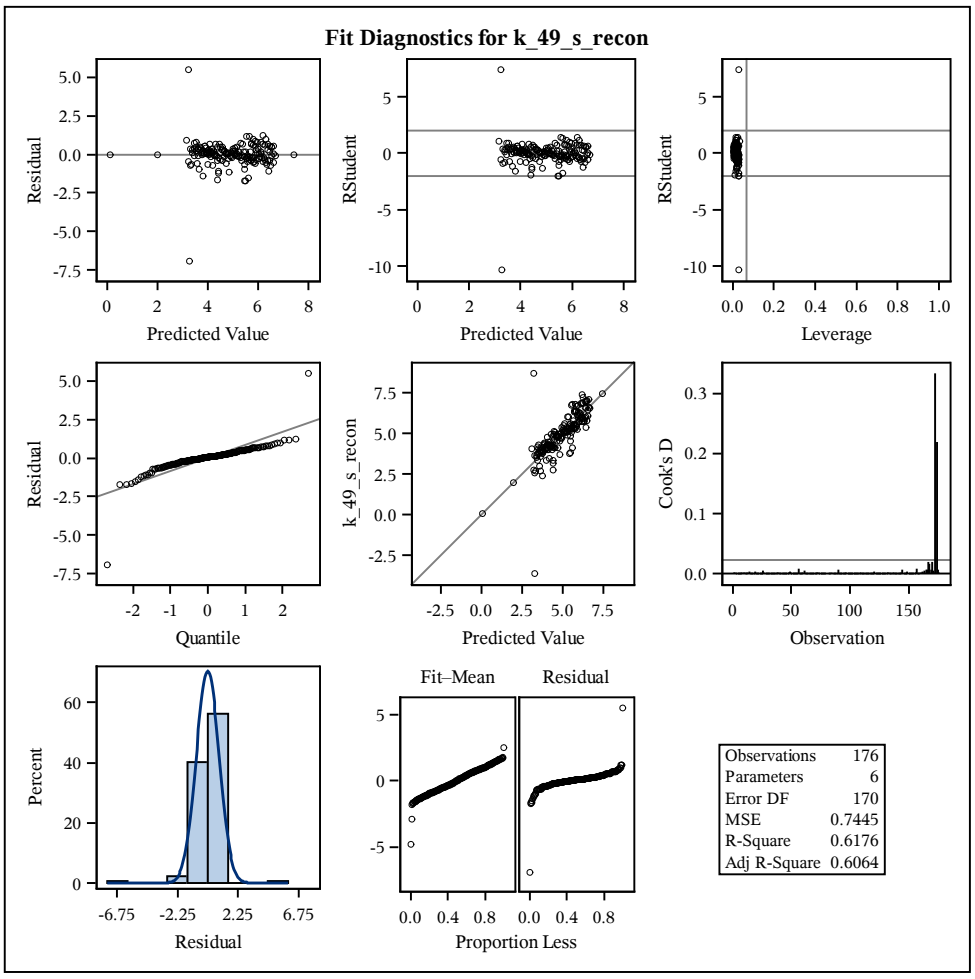
The AUTOREG Procedure

Yule-Walker Estimates			
SSE	125.084192	**DFE**	169
MSE	0.74014	**Root MSE**	0.86032
SBC	475.567901	**AIC**	453.374513
MAE	0.46812326	**AICC**	454.04118
MAPE	10.4333418	**HQC**	462.376041
Durbin-Watson	1.9865	**Regress R-Square**	0.6518
		Total R-Square	0.6221

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	172.1718	27.6632	6.22	<.0001	
time_trend	1	-0.0812	0.0139	-5.86	<.0001	
Providence_hlight	1	-0.0140	0.000920	-15.18	<.0001	Hlight1
aug09	1	-2.2186	0.8649	-2.57	0.0112	
sep09	1	2.4613	0.8628	2.85	0.0049	
jan10	1	-5.9013	0.8627	-6.84	<.0001	

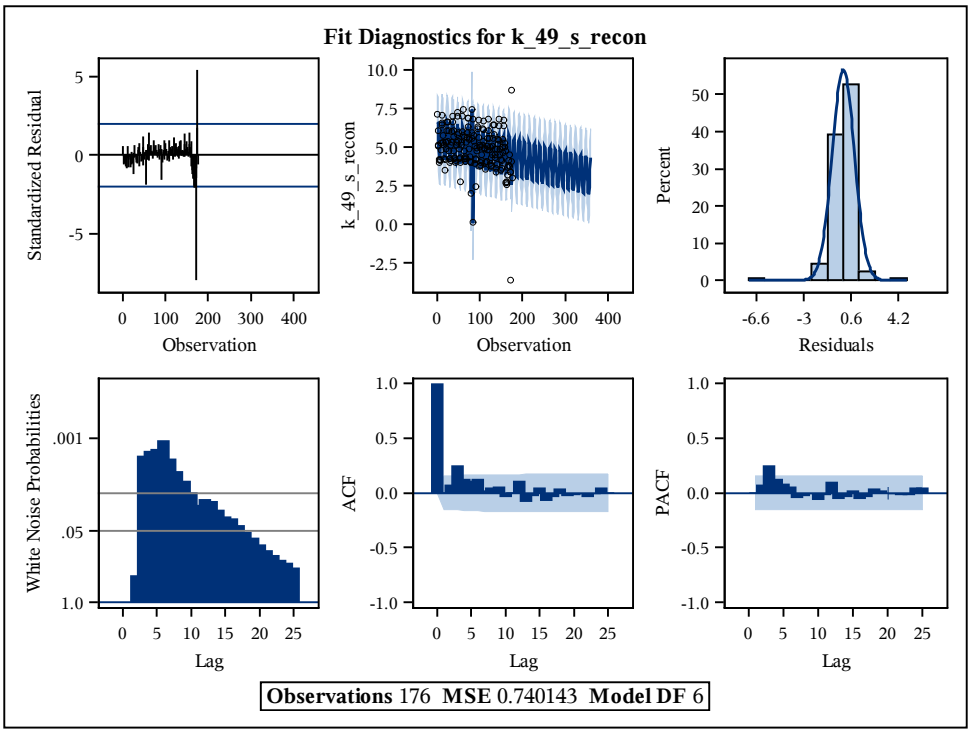
Model: NECO ELECTRIC SL KWH, Method (Est.Period: Jan2003 to aug17
Model Results Calendar Year

The REG Procedure
Model: MODEL1



Model: NECO ELECTRIC SL KWH, Method (Est.Period: Jan2003 to aug17
Model Results Calendar Year

The AUTOREG Procedure



15:10 Wednesday, September 13, 2017 **1**

Model: NECO ELECTRIC RESIDENTIAL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1
Dependent Variable: C_49_R Residential Customers

Number of Observations Read	372
Number of Observations Used	176
Number of Observations with Missing Values	196

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	11	6934273827	630388530	73.41	<.0001
Error	164	1408347307	8587484		
Corrected Total	175	8342621134			

Root MSE	2930.44085	**R-Square**	0.8312
Dependent Mean	427060	**Adj R-Sq**	0.8199
Coeff Var	0.68619		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variance Inflation
Intercept	Intercept	1	-3101977	249767	-12.42	<.0001	0
time_trend		1	1767.32096	124.93651	14.15	<.0001	5.73447
cust_step		1	2704.82935	948.75000	2.85	0.0049	4.60248
cust_step1		1	-2219.05978	919.75706	-2.41	0.0169	1.74631
jan08		1	-11374	2955.78968	-3.85	0.0002	1.01159
dec10		1	-16083	2965.03917	-5.42	<.0001	1.01794
mar11		1	-16357	3060.92875	-5.34	<.0001	1.08484
dec16		1	-18005	3017.43954	-5.97	<.0001	1.05423
mar17		1	-19884	3119.87635	-6.37	<.0001	1.12703
apr17		1	-17884	3017.92835	-5.93	<.0001	1.05457
feb		1	1713.08054	797.71600	2.15	0.0332	1.01680
mar		1	2147.52301	850.17197	2.53	0.0125	1.15492

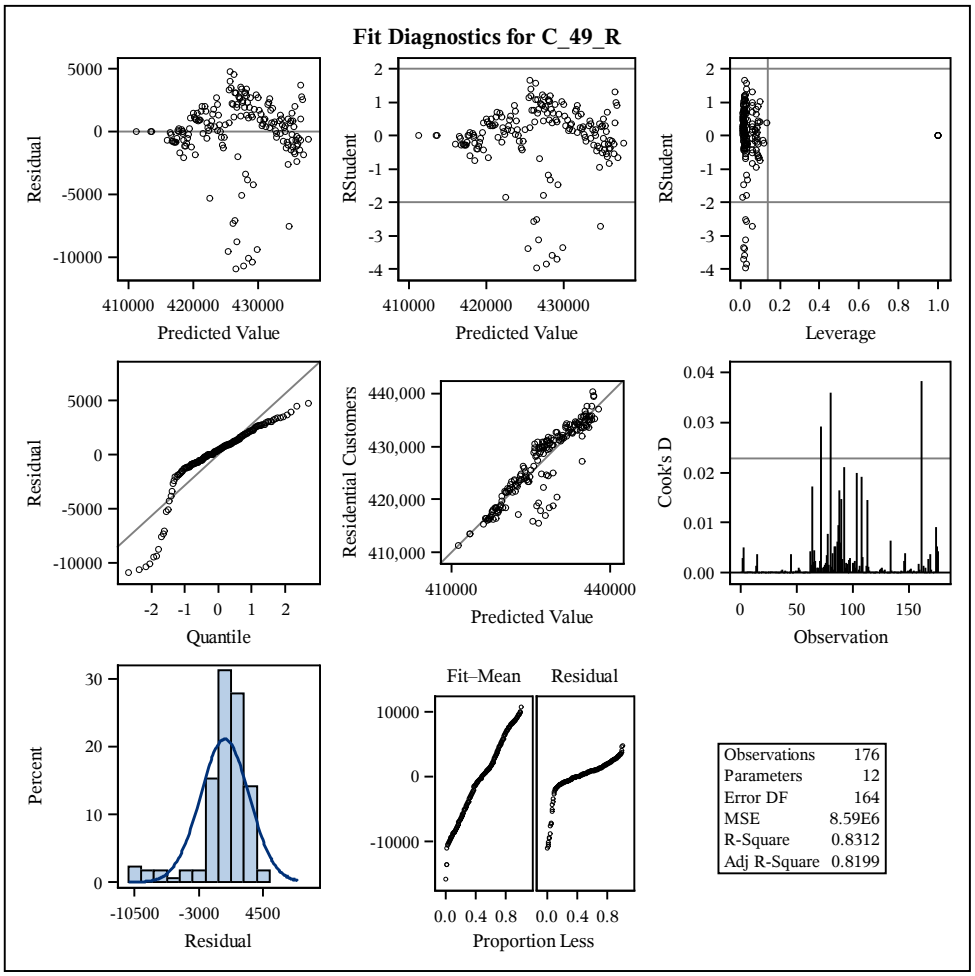
Model: NECO ELECTRIC RESIDENTIAL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1
Dependent Variable: C_49_R Residential Customers

Durbin-Watson D	2.227
Number of Observations	176
1st Order Autocorrelation	-0.116

Model: NECO ELECTRIC RESIDENTIAL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1



Model: NECO ELECTRIC REH CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The AUTOREG Procedure

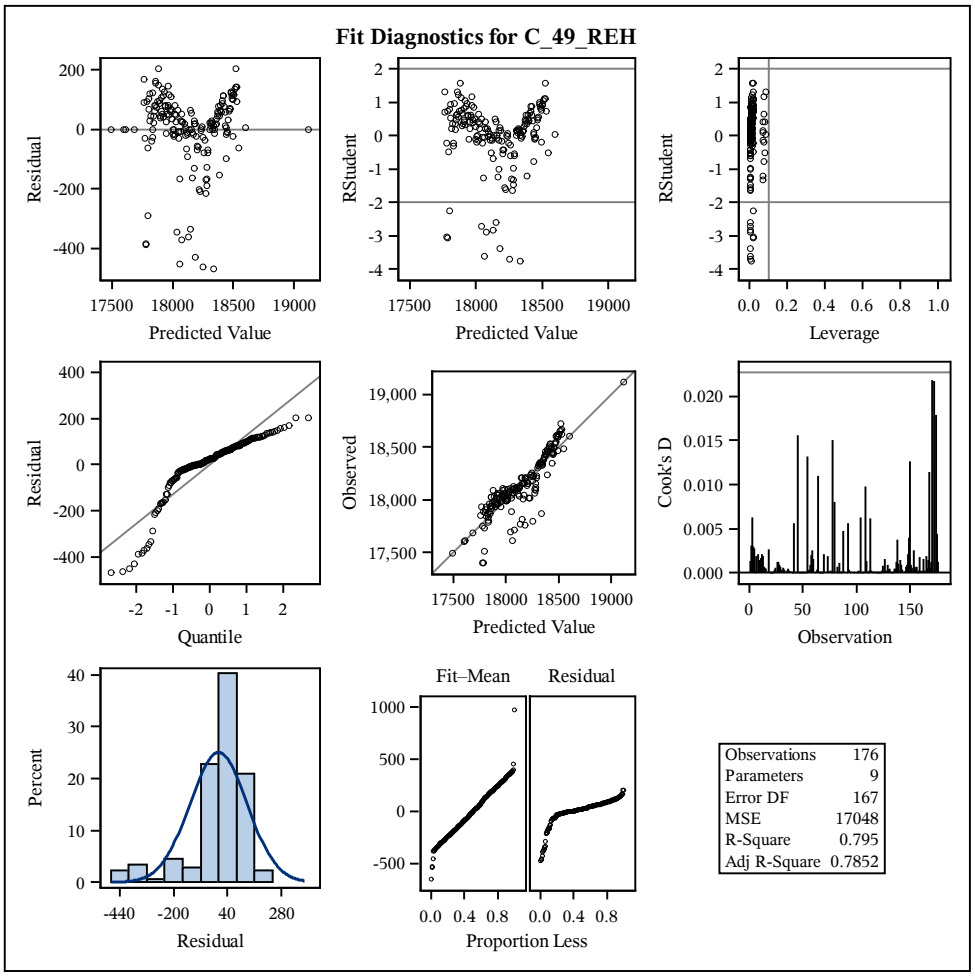
Estimates of Autoregressive Parameters			
Lag	**Coefficient**	**Standard Error**	**t Value**
1	-0.320146	0.073530	-4.35

Yule-Walker Estimates			
SSE	2531831.64	**DFE**	166
MSE	15252	**Root MSE**	123.49898
SBC	2236.29798	**AIC**	2204.59314
MAE	75.5704426	**AICC**	2205.92648
MAPE	0.41948128	**HQC**	2217.45247
Durbin-Watson	2.0346	**Regress R-Square**	0.7325
		Total R-Square	0.8177

Parameter Estimates					
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**
Intercept	1	122835	6410	19.16	<.0001
time_trend	1	-52.4390	3.2109	-16.33	<.0001
jun	1	70.7507	31.9789	2.21	0.0283
jan08	1	-519.0495	117.8056	-4.41	<.0001
nov08	1	977.2111	123.2236	7.93	<.0001
dec08	1	-524.0189	123.2217	-4.25	<.0001
jun10	1	-396.0275	121.7466	-3.25	0.0014
dec10	1	-596.2080	117.7678	-5.06	<.0001
mar11	1	-504.9427	117.7707	-4.29	<.0001

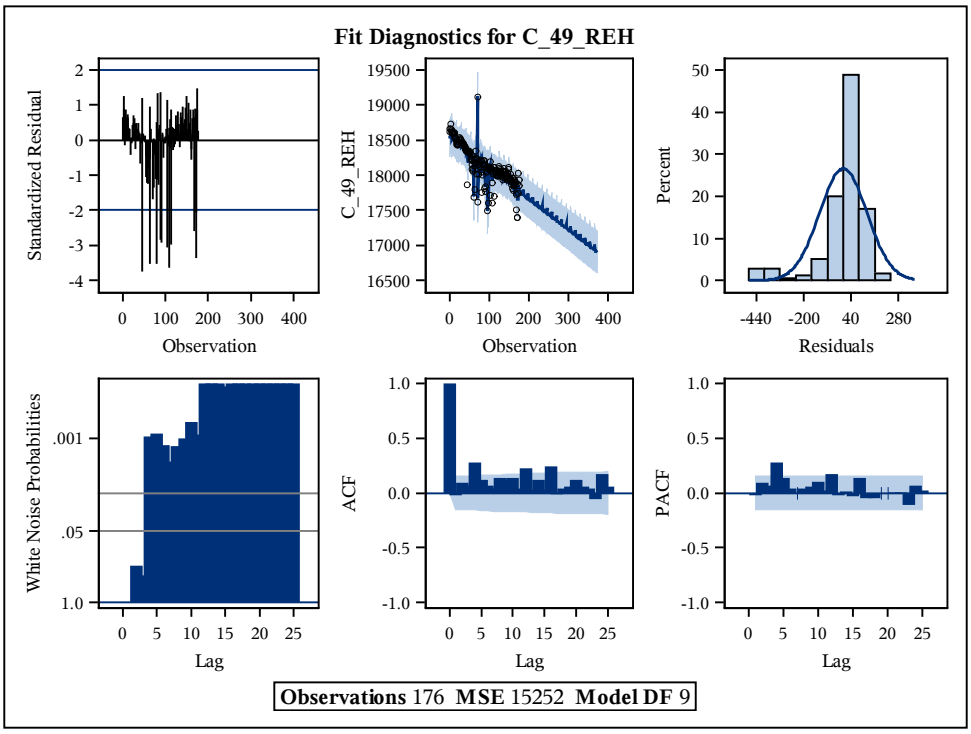
Model: NECO ELECTRIC REH CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1



Model: NECO ELECTRIC REH CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The AUTOREG Procedure



15:10 Wednesday, September 13, 2017 **1**

Model: NECO ELECTRIC COMMERCIAL USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1
Dependent Variable: u_49_c_recon

Number of Observations Read	372
Number of Observations Used	176
Number of Observations with Missing Values	196

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	11	38977738	3543431	125.24	<.0001
Error	164	4640040	28293		
Corrected Total	175	43617778			

Root MSE	168.20501	**R-Square**	0.8936
Dependent Mean	5710.94481	**Adj R-Sq**	0.8865
Coeff Var	2.94531		

Parameter Estimates							
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Variance Inflation**
Intercept	Intercept	1	-20519	2250.46117	-9.12	<.0001	0
IDX_HHolds		1	225.30591	23.09740	9.75	<.0001	8.79748
prerecession		1	-302.92345	77.18782	-3.92	0.0001	8.78698
cdd_49	RevMo Cooling Degree Days, NECo	1	5.03576	0.19688	25.58	<.0001	2.38114
hdd_49	RevMo Heating Degree Days, NECo	1	0.46695	0.04960	9.41	<.0001	2.50229
Bdays	Number of Billing Days	1	125.90411	13.21974	9.52	<.0001	1.08297
oct		1	293.84058	54.10537	5.43	<.0001	1.33332
apr08		1	604.83187	169.48960	3.57	0.0005	1.00956
jul08		1	-386.75018	170.97976	-2.26	0.0250	1.02739
sep08		1	523.97206	170.27475	3.08	0.0024	1.01894
aug14		1	-1145.83792	170.67553	-6.71	<.0001	1.02374
oct14		1	708.42857	175.88725	4.03	<.0001	1.08722

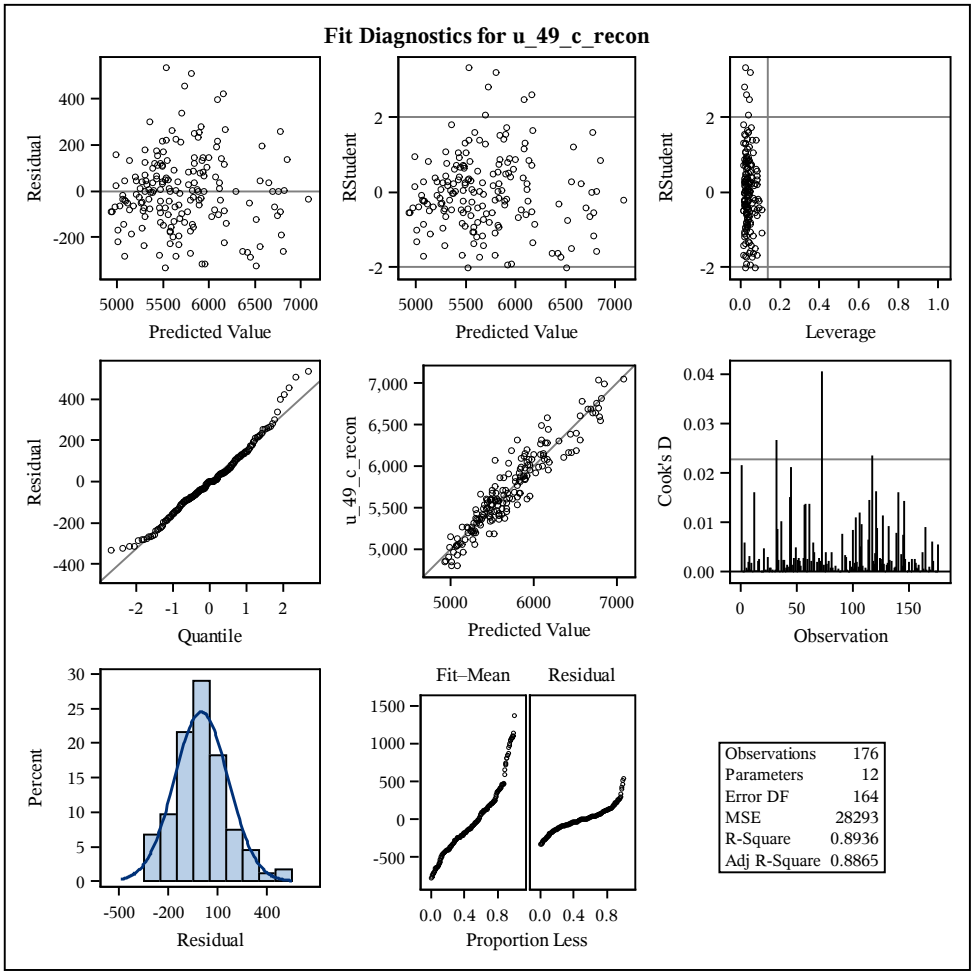
Model: NECO ELECTRIC COMMERCIAL USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1
Dependent Variable: u_49_c_recon

Durbin-Watson D	1.794
Number of Observations	176
1st Order Autocorrelation	0.091

Model: NECO ELECTRIC COMMERCIAL USE per CUST, recon Method (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1



Model: NECO ELECTRIC INDUSTRIAL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The AUTOREG Procedure

Yule-Walker Estimates			
SSE	130150.545	**DFE**	170
MSE	765.59144	**Root MSE**	27.66932
SBC	1693.83845	**AIC**	1674.81555
MAE	19.4332102	**AICC**	1675.31259
MAPE	0.9785119	**HQC**	1682.53114
Durbin-Watson	2.0510	**Regress R-Square**	0.8058
		Total R-Square	0.9789

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Variable Label**
Intercept	1	801.4626	93.5209	8.57	<.0001	
IDX_empl_manuf	1	12.5662	0.8054	15.60	<.0001	
prerecession	1	-119.7401	26.1499	-4.58	<.0001	
p_elec_gas_ratio_i	1	-112.2272	22.7173	-4.94	<.0001	p_elec_gas_ratio_i
nov08	1	68.1543	22.6120	3.01	0.0030	

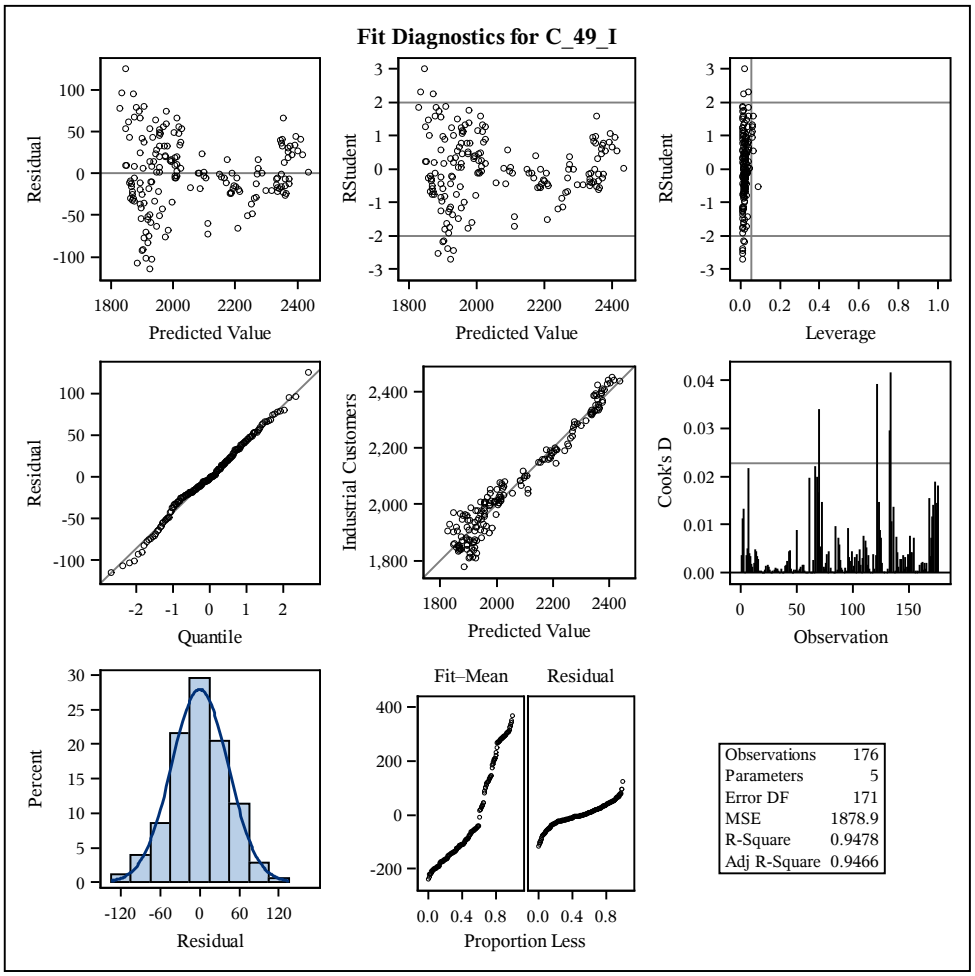
Model: NECO ELECTRIC INDUSTRIAL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The AUTOREG Procedure

Estimates of Autoregressive Parameters			
Lag	**Coefficient**	**Standard Error**	**t Value**
1	-0.709404	0.054056	-13.12

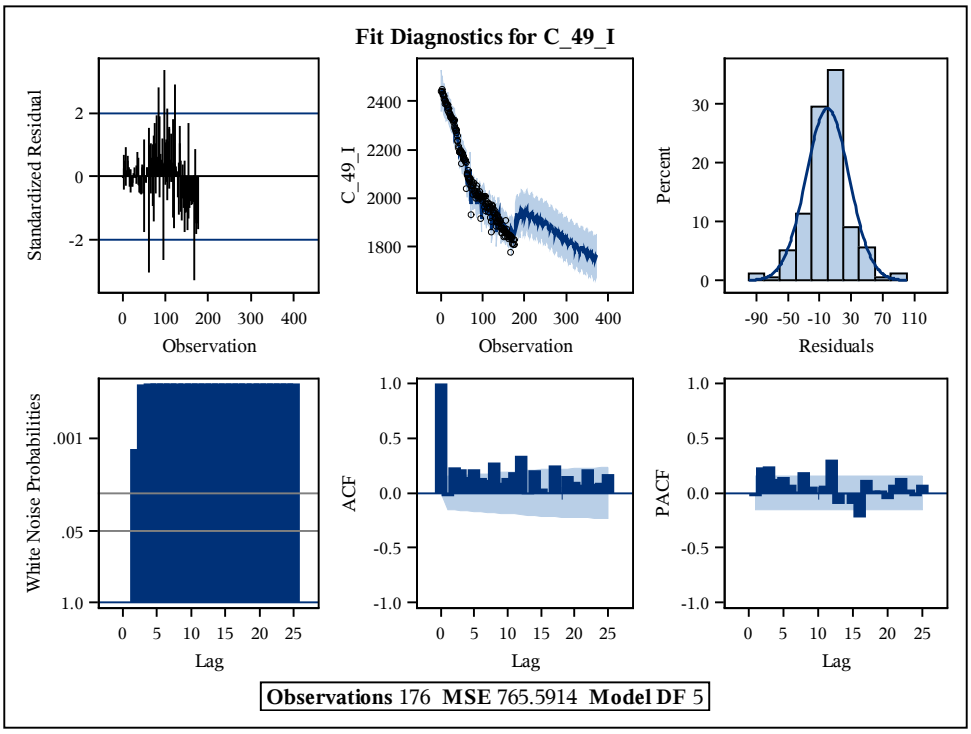
Model: NECO ELECTRIC INDUSTRIAL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1



Model: NECO ELECTRIC INDUSTRIAL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The AUTOREG Procedure



07:46 Wednesday, September 13, 2017 **18**

Model: NECO ELECTRIC SL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The AUTOREG Procedure

Dependent Variable	C_49_S
	Streetlilghtiing

Ordinary Least Squares Estimates			
SSE	138367.608	**DFE**	173
MSE	799.81276	**Root MSE**	28.28096
SBC	1688.40242	**AIC**	1678.89097
MAE	19.1429759	**AICC**	1679.0305
MAPE	1.6398023	**HQC**	1682.74877
Durbin-Watson	0.2136	**Regress R-Square**	0.5570
		Total R-Square	0.5570

Parameter Estimates					
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**
Intercept	1	36364	7645	4.76	<.0001
time_trend_ln	1	-4634	1006	-4.61	<.0001
jan08	1	-402.7019	28.3854	-14.19	<.0001

Estimates of Autocorrelations			
Lag	**Covariance**	**Correlation**	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
0	786.2	1.000000	|**********|**********|
1	701.0	0.891698	|**********|********** |

Preliminary MSE	161.1

Estimates of Autoregressive Parameters			
Lag	**Coefficient**	**Standard Error**	**t Value**
1	-0.891698	0.034513	-25.84

Model: NECO ELECTRIC SL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

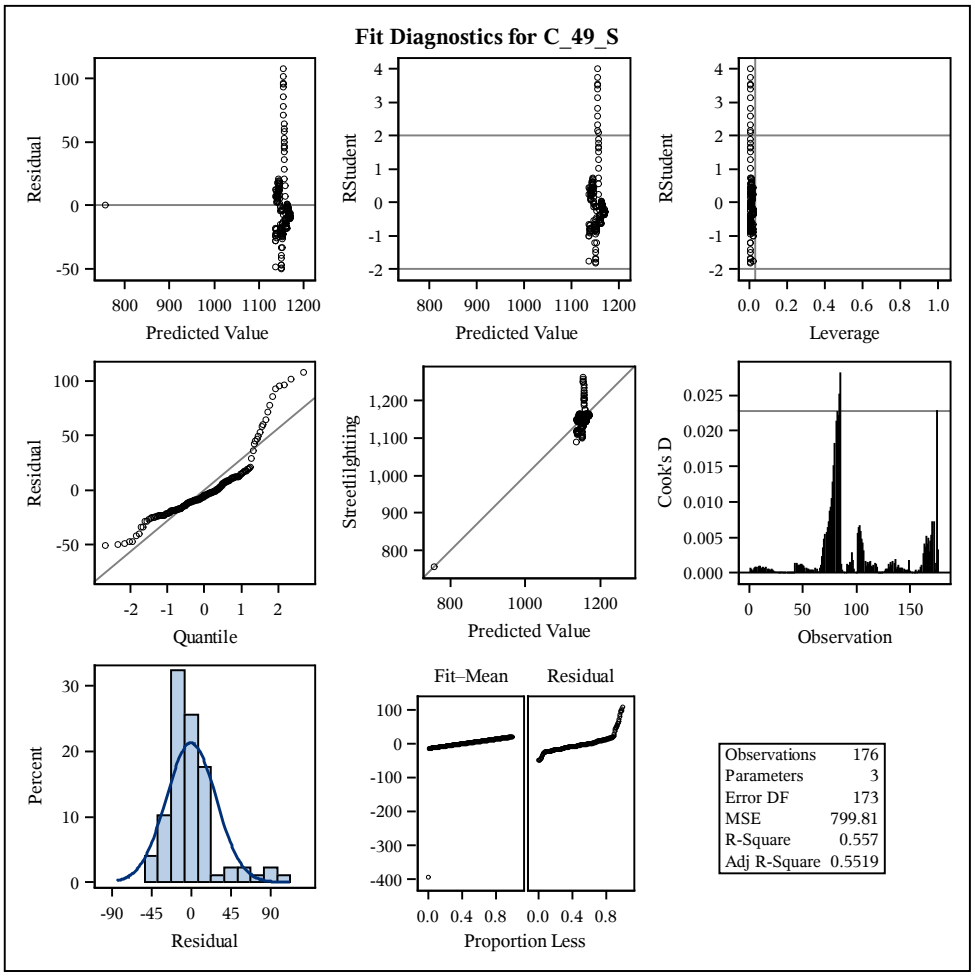
The AUTOREG Procedure

Yule-Walker Estimates			
SSE	27707.6444	**DFE**	172
MSE	161.09096	**Root MSE**	12.69216
SBC	1412.11407	**AIC**	1399.43214
MAE	5.50010072	**AICC**	1399.66606
MAPE	0.47831389	**HQC**	1404.57587
Durbin-Watson	2.0616	**Regress R-Square**	0.9078
		Total R-Square	0.9113

Parameter Estimates					
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**
Intercept	1	38723	27689	1.40	0.1638
time_trend_ln	1	-4944	3644	-1.36	0.1766
jan08	1	-389.5806	9.4732	-41.12	<.0001

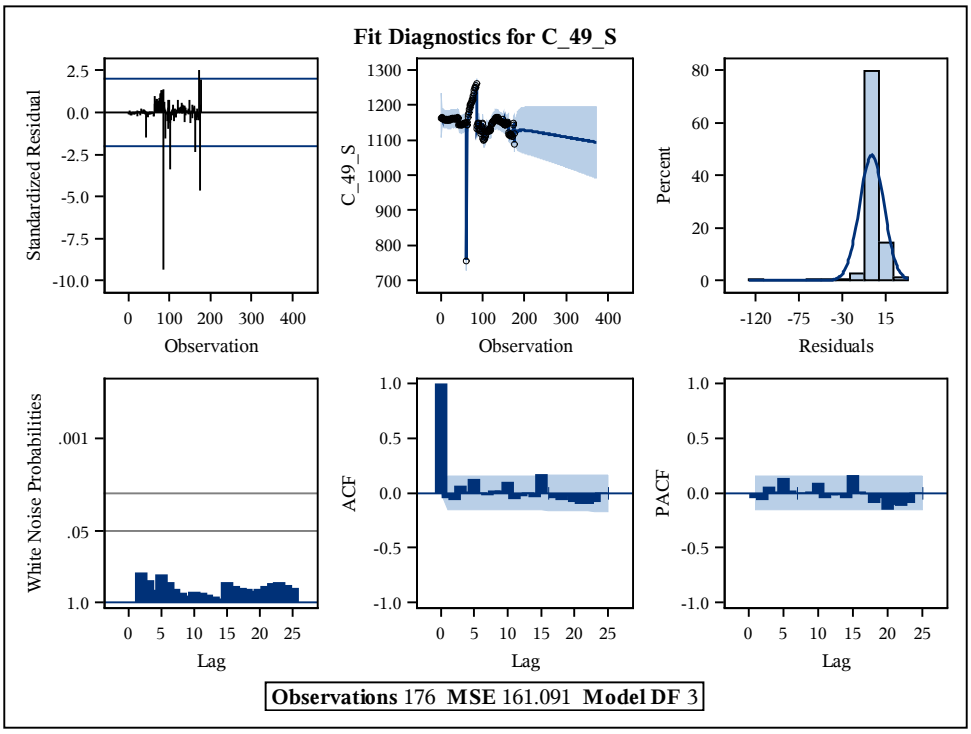
Model: NECO ELECTRIC SL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The REG Procedure
Model: MODEL1



Model: NECO ELECTRIC SL CUSTOMER COUNT (Est.Period: Jan2003 to aug17

The AUTOREG Procedure



PRE-FILED DIRECT TESTIMONY

OF

THEODORE E. POE, JR.

Dated: November 27, 2017

SUMMARY

Theodore E. Poe, Jr. is a Principal Analyst of Gas Load Forecasting and Analysis for National Grid responsible for preparing forecasts of the resource requirements for National Grid's gas distribution companies, including the Company. Mr. Poe testifies regarding the Company's historical and forecast customer count and customer demand data used to support the revenue requirement and rate design for Narragansett Gas presented in this filing. Mr. Poe's testimony demonstrates the thorough process the Company undertakes to develop the gas sales forecast used in the allocated cost of service study and rate design process to determine rates that will produce the revenue for each rate class as determined in the revenue allocation process.

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I. Introduction

Q. Please state your name and business address.

A. My name is Theodore E. Poe, Jr. My business address is 40 Sylvan Road, Waltham, Massachusetts 02451.

Q. By whom are you employed and in what capacity?

A. I am a Principal Analyst of Gas Load Forecasting and Analysis for National Grid USA Service Company, Inc. (the Service Company), a subsidiary of National Grid USA (National Grid). In this position, I am responsible for preparing forecasts of the resource requirements for the New England local gas distribution companies that operate as The Narragansett Electric Company (the Company), Boston Gas Company, and Colonial Gas Company, each d/b/a National Grid. In addition to the New England portfolios, I prepare forecasts of the resource requirements for The Brooklyn Union Gas Company d/b/a National Grid NY (formerly d/b/a KeySpan Energy Delivery New York), KeySpan Gas East Corporation d/b/a National Grid (formerly d/b/a KeySpan Energy Delivery Long Island), and Niagara Mohawk Power Corporation, all of which are located in New York.

Q. Please summarize your educational background and professional experience.

A. I graduated from the Massachusetts Institute of Technology in 1978 with a Bachelor of Science degree in Geology. From 1981 to 1989, I worked as a Research Associate with Jensen Associates, Inc. of Boston where I was responsible for developing a variety of computer-forecasting models to analyze natural gas supply and demand for interstate

pipeline and local gas distribution companies. I joined Boston Gas Company in 1989, where I was responsible for modeling and forecasting customers' natural gas resource requirements and managing the resource-planning process. In 1998-1999, I assumed the same responsibilities for Essex Gas Company and Colonial Gas Company. In 2000, I added the responsibility of modeling and forecasting the natural gas resource requirements of The Brooklyn Union Gas Company and KeySpan Gas East Corporation. In 2008, I added the responsibility of modeling and forecasting the natural-gas resource requirements for the Company and Niagara Mohawk Power Corporation.

Q. Are you a member of any professional organizations?

A. Yes. I am a member of the Northeast Gas Association, the New England-Canada Business Council, and the American Meteorological Society.

Q. Have you previously testified before the Rhode Island Public Utilities Commission (the PUC) or any other regulatory commissions?

A. Yes. I testified before the PUC in the Company's 2017 and 2016 Gas Cost Recovery filings, Docket Nos. 4719 and 4647, respectively, supporting the gas sales forecast for the Company's gas distribution operations in those proceedings. I also have testified in a number of proceedings before the Department of Public Utilities in Massachusetts and the Public Utilities Commission in New Hampshire.

Q. Would you please explain the naming conventions that you will be using in your testimony and associated schedules to identify the various entities involved in this proceeding?

A. Certainly. This proceeding is a ratemaking proceeding for the electric and gas distribution operations of The Narragansett Electric Company, which constitute the regulated operations that National Grid conducts in Rhode Island. In this case, we will refer to the regulated entity as the "Company," where the reference is to both electric and gas distribution operations on a collective basis. Where there is a need to refer to the "stand-alone" or individual electric or gas operations of The Narragansett Electric Company, we will use the terms "Narragansett Electric" or "Narragansett Gas," respectively, as appropriate. Where we refer to "National Grid USA", we will use the term "National Grid"; where we refer to "National Grid plc," we will use that specific term.

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide historical and forecast customer count and customer demand data that are used to prepare the normalized revenues for the test year in this proceeding, the twelve-month period ending June 30, 2017 (the Test Year); and the forecasted revenues for the rate year, the twelve-month period ending August 31, 2019 (the Rate Year). The data is also used to design rates. Thus, the data presented in my testimony and schedules includes historical data for the Test Year and forecast data

for the Rate Year and the two subsequent twelve-month periods ending August 31, 2020 (Data Year 1) and August 31, 2021 (Data Year 2) (Data Year 1 and Data Year 2 are collectively referred to as the Data Years).

Overall, my testimony demonstrates the thorough process that Narragansett Gas undertakes to develop its gas sales forecast to ensure that the rates it requests will neither fall short and endanger Narragansett Gas' ability to provide safe and reliable gas service, nor be excessive and unfair to customers.

Q. How is your testimony organized?

A. My testimony is organized into six sections. The first section is a general introduction. The second section explains the purpose of my testimony. The third section explains the development of Narragansett Gas' underlying retail demand forecast. The fourth section describes how the forecasted customer counts and volumes were adjusted to reflect an update to Narragansett Gas' normal degree days. The fifth section is a summary of the forecast. The sixth section is the conclusion.

Q. Are you sponsoring any schedules as part of your testimony?

A. Yes. I am sponsoring the following schedules, which were prepared or compiled under my direction and supervision:

Schedule TEP-1 Normal Heating Degree Days

Schedule TEP-2 Summary of Gas Deliveries

Schedule TEP-3	The Narragansett Electric Company Calendar Year Actual Gas Deliveries by Rate Class in Dth (2012 - 2016)
Schedule TEP-4	The Narragansett Electric Company Calendar Year Normalized Gas Deliveries by Rate Class in Dth (2012 - 2016)
Schedule TEP-5	The Narragansett Electric Company Rate Year Forecasted Gas Deliveries by Rate Class in Dth (2018/19 – 2020/21)
Schedule TEP-6	The Narragansett Electric Company Calendar Year End Meter Count by Rate Class (2012 – 2016)
Schedule TEP-7	The Narragansett Electric Company Calendar Year Actual Use-Per-Customer by Rate Class in Dth/meter (2012 – 2016)
Schedule TEP-8	The Narragansett Electric Company Calendar Year Normalized Use-Per-Customer by Rate Class in Dth/meter (2012 – 2016)
Schedule TEP-9	The Narragansett Electric Company Rate Year Forecasted Meter Count by Rate Class (2018/19 – 2020/21)
Schedule TEP-10	The Narragansett Electric Company Rate Year Normalized Use-Per-Customer by Rate Class in Dth/meter (2018/19 – 2020/21)
Schedule TEP-11	The Narragansett Electric Company Economic and Price (2017 $/Dth) Input Data

In addition, my testimony includes an appendix (Appendix TEP) at the end of my schedules, which sets forth the technical details of Narragansett Gas' retail demand forecast models.

III. Development of the Rate-Year Gas Deliveries

Q. How did Narragansett Gas develop its forecast of delivery quantities?

A. Narragansett Gas developed its forecast using its demand forecast methodology, which involves forecasting meter counts and use-per-customer by rate class and multiplying the results of those two forecasts to derive the modeled volume forecast. Narragansett Gas conducts this process annually, starting in April of every year, to incorporate the most recent heating season's data into the forecast. Narragansett Gas then evaluated the potential impact that Narragansett Gas-sponsored energy efficiency programs would have on this forecast of delivery quantities and, based on Narragansett Gas' analysis, applied an additional reduction to its Commercial and Industrial sector. Narragansett Gas generated this volume forecast using Narragansett Gas' normal heating degree days approved in its 2012 Rate Case,[1] as well as in Narragansett Gas' 2017 Gas Cost Recovery filing (Docket No. 4719).

Q. How did Narragansett Gas derive the customer count forecasts?

A. Narragansett Gas derived meter count forecast models as two components: One component captures the annual changes in meter counts; the other captures the monthly or seasonal variation of meter counts over the course of a year. Narragansett Gas models the annual changes using regression analysis, with meter counts as a function of either economic variables or time trends. Narragansett Gas obtained the economic and

[1] RIPUC Docket No. 4323, The Narragansett Electric Company d/b/a National Grid Application for Approval of Change in Electric Base Distribution Rates and Gas Delivery Service Rates.

demographic data used as the independent variables in these equations from Moody's Analytics, Inc. (Moody's) at https://www.economy.com (hereinafter, economy.com), issued March 2017, and energy price data from the U.S. Department of Energy, Energy Information Administration. The specific independent variables used in the various rate class models are selected based on the statistical results of the analysis and the statistical "goodness-of-fit" of the equations to the data. Narragansett Gas models the monthly variation by fitting logistic functions, which are curves that can quantify the seasonal decline in meter counts that occurs during the non-heating season (April through September) and the subsequent increase during the heating season (October through March). Narragansett Gas then reconciles the monthly results of the logistic models to the results of the annual regression models to establish a monthly pattern over the course of the forecast period. Narragansett Gas developed individual models for each firm sales and transportation rate class.

Q. How did Narragansett Gas derive the use-per-customer forecasts?

A. Narragansett Gas obtained the historical monthly use-per-customer values by dividing the total billed therms for each month by the number of billed customers for the month. This data series is then modeled as a function of independent variables, such as degree days, economic and demographic metrics, natural gas and oil prices, and time trends. The specific independent variables used in the models vary by rate class depending on the statistical results of the analysis and the statistical goodness-of-fit of the equations to the data. Narragansett Gas models the use-per-customer dependent variable as two

components. The first component captures the annual trend in the baseload, or non-heating load, portion of the use-per-customer for each rate class. The second component captures the trend in the heating load portion of use-per-customer as it relates to heating degree days.[2] The monthly fluctuations in use-per-customer are captured by determining monthly coefficients on heating degree days further adjusted by monthly "alpha factors," which capture the non-linear relationship between consumption and degree days. Narragansett Gas models the monthly "alpha factors" as the ratio of the fitted values of the regression equations to the actual values to correct for the linear nature of the regression equations. Narragansett Gas obtained the economic and demographic data used as the independent variables in these equations from Moody's at economy.com, issued March 2017, energy price data from U.S. Department of Energy, Energy Information Administration, and the weather data from the National Oceanic and Atmospheric Administration National Weather Service. I describe the use-per-customer models for each rate class and the data used to derive them in more detail below.

Q. How did Narragansett Gas prepare the volume delivery forecast?

A. Narragansett Gas prepared the volume delivery forecast by multiplying the meter count forecast for each rate class by the corresponding use-per-customer forecast for each corresponding rate class.

[2] Heating degree days are the number of degrees that a day's average temperature is below 65 degrees Fahrenheit and customers begin to use heating equipment to heat their buildings.

Q. How did Narragansett Gas adjust the initial forecast for additional efficiency gains resulting from the energy efficiency programs sponsored by Narragansett Gas?

A. As Narragansett Gas' historical volume data reflects the impact of its historical energy efficiency programs on the market, Narragansett Gas will adjust its forecast for its future energy efficiency programs when those programs lead to demand reductions greater than its historical reductions. Through this process, Narragansett Gas ensures that it does not double count the impact of its energy efficiency programs on its volume forecast.

In preparing its annual forecast, Narragansett Gas compares the trailing three-year average of its actual energy efficiency savings to the goals of Narragansett Gas-sponsored programs for the forecast period to determine if any incremental impact of the energy efficiency programs must be accounted for in its forecast. The energy efficiency programs that Narragansett Gas analyzed for this forecast were Narragansett Gas submitted to the PUC in Docket No. 4654 dated October 17, 2016, the most recent data available at the time the forecast was prepared. Narragansett Gas subtracted an incremental 53,814 dekatherms (Dth) annually from its Commercial and Industrial rate classes to account for savings from the programs not contained in the historical data used to derive the statistical models, because such savings are exogenous to the modeling process. Narragansett Gas determined that no incremental reduction was necessary for the Residential rate classes.

Q. Is the forecast presented in this proceeding the same one that the PUC approved in Narragansett Gas' 2017 Gas Cost Recovery filing?

A. Yes.

Q. Please summarize the March 2017 Moody's economic forecast for Rhode Island, which drives the economic delivery forecast.

A. The Moody's economic forecast of gross domestic product provides the measure of the value of all goods and services produced in the region, including an overall description of the Rhode Island economic outlook. This forecast indicates 1.5 percent annual growth from 2016 through 2021 following 1.2 percent annual growth from 2012 through 2016. Similarly, Moody's forecast for non-farm employment indicates 0.8 percent annual growth from 2016 through 2021 following 1.3 percent annual growth from 2012 through 2016. The forecasts for these and the other economic variables used in Narragansett Gas' forecast are presented in Schedule TEP-11.

1. Residential Heating

Q. How were the Residential Heating meter counts and dekatherms modeled?

A. The specific models for the Residential Heating class are presented in Appendix TEP to my testimony. There is a model for the Residential Heating rate class and a separate model for the Residential Heating Low-Income rate class. Narragansett Gas modeled annual meter counts for the Residential Heating class as a function of time trends. Narragansett Gas used logistic functions that capture the seasonal decline in meter counts

that occurs during the non-heating season and the subsequent increase during the heating season. Then, Narragansett Gas reconciled the annual and monthly meter count models were then reconciled to produce the forecast of monthly meter counts through 2021. Narragansett Gas modeled the use-per-customer for the Residential Heating class as two components. The first component captures base load, or non-heating load, per customer; and the second component captures the heating load per customer. After accounting for heating degree days, no economic variable could provide any additional improvements to the equations. Narragansett Gas modeled monthly heating load use-per-customer as a function of heating degree days. Then, to capture the non-linear nature of the relationship between monthly use-per-customer and heating degree days, Narragansett Gas calculated "alpha factors" that are modeled as the ratio of the fitted values of the regression equations to the actual values to correct for the linear nature of the regressions. The results of the meter count forecasts and the use-per-customer forecasts were then multiplied together to derive the volume delivery forecast presented in Schedule TEP-5.

2. Residential Non-Heating

Q. How were the Residential Non-Heating meter counts and dekatherms modeled?

A. The specific models for the Residential Non-Heating class are presented in Appendix TEP to my testimony. There is a separate model for the Residential Non-Heating class and one for Residential Non-Heating Low-Income. Narragansett Gas modeled annual meter counts for the Residential Heating class as a function of time trends. Narragansett Gas used logistic functions that capture the seasonal decline in meter counts that occurs

during the non-heating season and the subsequent increase during the heating season. Narragansett Gas then reconciled the annual and monthly meter count models to produce the forecast of monthly meter counts through 2021. Unlike the Residential Heating class, Narragansett Gas modeled the use-per-customer for the Residential Non-Heating class as only one component—the base load component. Narragansett Gas developed base load use-per-customer models for the Residential Non-Heating class on annual data as a constant, as it found no economic variable that correlated to the trend in the data. Then, Narragansett Gas allocated the forecasted annual use-per-customer to monthly use-per-customer using the relationship between monthly consumption and monthly heating degree days. The results of the meter count forecasts and the use-per-customer forecasts were then multiplied together to derive the volume delivery forecast presented in Schedule TEP-5.

3. Commercial and Industrial Heating

Q. How were the Commercial and Industrial Heating meter counts and dekatherms modeled?

A. The specific models for the Commercial and Industrial Heating class are presented in Appendix TEP to my testimony. Narragansett Gas uses separate models for the Commercial and Industrial Heating class (Company Rate Codes 404-416, 433-436, 439, 440, 443, and 444). Narragansett Gas models the meter counts as a function of natural gas price or time trends. Similar to the Residential Heating class, Narragansett Gas models the use-per-customer for the Commercial and Industrial Heating class as two

components. The first component captures base load, or non-heating load, per customer; and the second component captures the heating load per customer. Narragansett Gas developed the base load use-per-customer models for the Commercial and Industrial Heating class on annual data as a function of employment, time trends, and the gas-to-oil price ratio. The heating load component of the model captures the long term trend in use-per-customer and the seasonal fluctuation of gas demand for the Commercial and Industrial Heating class. Narragansett Gas modeled the annual trend in heating loads as a function of employment, natural gas and oil prices, and time trends. Except for time trends, Narragansett Gas did not use the same variables for the base load and heating load models for a specific class. Narragansett Gas modeled monthly heating load use-per-customer as a function of heating degree days. Then, to capture the non-linear nature of the relationship between monthly use-per-customer and heating degree days, Narragansett Gas calculated "alpha factors" that it modeled as the ratio of the fitted values of the regression equations to the actual values to correct for the linear nature of regressions. The results of the meter count forecasts and the use-per-customer forecasts were then multiplied together to derive the volume delivery forecast presented in Schedule TEP-5.

4. Commercial and Industrial Non-Heating

Q. How were the Commercial and Industrial Non-Heating meter counts and dekatherms modeled?

A. The specific models for the Commercial and Industrial Non-Heating class are presented in Appendix TEP to my testimony. Narragansett Gas uses separate models for the Commercial and Industrial Non-Heating classes (Company Rate Codes 417-428, 437, 438, 441, and 442). Narragansett Gas modeled meter counts as a function of time trends. Narragansett Gas modeled use-per-customer for the Commercial and Industrial Non-Heating classes as a single component, applying a function of Gross Domestic Product, natural gas and oil prices, and time trends. Then, Narragansett Gas applied the relationship between monthly consumption and heating degree days for the Commercial and Industrial class to allocate the forecasted annual use-per-customer to monthly use-per-customer. The results of the meter count forecasts and the use-per-customer forecasts were then multiplied together to derive the volume delivery forecast presented in Schedule TEP-5.

IV. <u>Revision to the Retail Volume Forecast to Reflect Updated Normal Degree Days</u>

Q. What adjustment did Narragansett Gas make to the forecast you described in Section III?

A. Narragansett Gas adjusted the forecast to update Narragansett Gas' definition of normal heating degree days. Narragansett Gas based the forecast described in Section III on a ten-year normal heating degree days ending December 2011. For this filing, Narragansett

Gas has updated the ten-year period for normal heating degree days to the period from April 1, 2007 through March 31, 2017. As Narragansett Gas has revised its ten-year time period for its normal heating degree days, Narragansett Gas had to adjust its forecast to reflect the new normal heating degree days.

Q. What are the historical normal heating degree days proposed for weather normalization in this docket?

A. The historical normal heating degree days used for purposes of weather normalization are 5,422 (5,452 including the extra day in a leap year). This normal is based on National Oceanic and Atmospheric Administration National Weather Service reported heating degree days at T.F. Green Airport in Warwick, Rhode Island. A breakdown by month with the ten-year average for each day is shown in Schedule TEP-1, Page 1. The historic daily heating degree days for each calendar month are presented on Pages 2 through 13 of Schedule TEP-1. The heating degree days based on the revenue month are listed as billing degree days.

Q. How does this normal heating degree days compare with what had been previously used?

A. Narragansett Gas' new normal heating degree day series is 36 degree days, or 0.7 percent, warmer than the one Narragansett Gas used previously. The previous normal heating degree day series, determined in the 2012 Rate Case, was 5,458 heating degree

days (5,490 including the extra day in a leap year). The previous standard was based on the ten-year average ending December 31, 2011.

Q. How were the actual quantities of gas used by customers normalized for the updated normal weather?

A. The first step in the normalization process was to calculate the use-per-customer for each rate class and to establish a base-load usage or non-weather sensitive level of usage by rate class. Narragansett Gas calculated the base-load usage based on the following components: (1) the total use-per-customer for the months of June through September; and (2) the minimum of the July through September use-per-customer for all other months. The July through September billing period is generally the warmest period of the year and any gas consumption during that period is considered to be for non-heating purposes only. Narragansett Gas then multiplied this base-load factor by the number of customers to calculate the monthly base-load usage. Consumption over and above the base-load level in months other than July through September is considered weather sensitive and subject to variation with changes in heating degree days. For normalization of the historic usage and re-normalization of the forecast usage, Narragansett Gas normalized the weather-sensitive component by applying the ratio of the new normal billing degree days to actual (historical) or old normal (forecast) billing degree days. In this calculation, the use of billing degree days is appropriate because billing degree days are heating degree days lagged to align with the lag that occurs in Narragansett Gas' billing volumes.

For example, if the actual weather-sensitive consumption in the May billing period was 2,000 therms and the actual weather was 100 billing degree days, but normal weather would have been 110 billing degree days, then the normalized weather sensitive consumption is calculated to be 2,200 therms (2,000 actual therms divided by 100 actual degree days, multiplied by 110 normal degree days, to equal 2,200 normal therms). The sum of the base-load plus the normalized weather-sensitive load equals total weather normalized consumption.

The actual Test-Year delivery quantities to firm sales and transportation customers were 37,830,833 Dth, with actual heating degree days of 5,204, and the weather normalized delivery quantities were 39,672,309 Dth using normal heating degree days of 5,422. The actual and weather-adjusted Test-Year volumes are shown on Schedule TEP-2.

Q. How did you adjust the normalized Test-Year volumes to make them consistent with the forecast volumes?

A. Narragansett Gas derived the forecast volumes from the econometric/statistical models it developed in its forecast methodology, which I explain in more detail later in my testimony. Narragansett Gas prepared separate models for customer counts and use-per-customer for each rate class. Most of the use-per-customer models have degree days as an explanatory, or independent, variable with an estimated coefficient that explains the variation in use-per-customer due to a change in degree days. Over the forecast period,

the normal volumes are determined by the relationship between dekatherms and heating degree days that is defined by the estimated coefficient from the model. To make the historical normal dekatherms described above consistent with the forecasted normal dekatherms, Narragansett Gas normalized its historical volumes by applying the updated definition of normal degree days (through March 31, 2017) using the process I described.

Q. Please describe, in broad terms, the nature of the adjustments reflected in the Rate Year gas deliveries.

A. The adjustments reflected in the Rate Year gas deliveries fall into the following two categories: (1) adjustments for impacts of weather and (2) adjustments for the forecasts of such deliveries. Adjustments for the impacts of weather recognize the correlation between temperature and gas consumption. In cold weather, customers use more gas; when the weather is warm, customers use less. The weatherization adjustment compensates for the difference in temperatures during the Test Year compared to a historic normal defined as the ten-year period from April 1, 2007 through March 31, 2017. Adjustments for net growth would acknowledge the change in number of customers and changes in customer usage that are expected to occur between the Test Year and the end of the Rate Year (September 1, 2018 through August 31, 2019), which is the first year that the new rates will be in effect. Growth adjustments are derived from Narragansett Gas' econometric forecast.

V. Summary of the Forecast

Q. Please provide an overview of Narragansett Gas' historical deliveries, culminating with the Test Year ending June 30, 2017.

A. Between 2012 and 2016, normalized annual deliveries to customers across all rate classes grew through 2015 to 38,847,756 Dth, as shown in Schedule TEP-4; the normalized deliveries declined slightly in 2016. In the Test Year, the comparative normalized delivery volume was 38,793,194 Dth, as set forth in Schedule TEP-2. Over the forecast period including the Rate Year and the Data Years, Narragansett Gas projects that deliveries will increase by an average of 484,201 Dth per year, which is an average rate of 1.2 percent, as shown in Schedule TEP-5.

Q. Please provide an overview of Narragansett Gas' historical volumes and meter count, culminating with the Test Year ending June 30, 2017.

A. As shown in Schedule TEP-4, Narragansett Gas' normalized volumes increased from 34,376,753 Dth to 38,422,156 Dth between 2012 and 2016, which is an average growth rate of 2.8 percent per year.

As shown in Schedule TEP-6, the total meter count for all rate classes has grown from 253,602 at the end of calendar year 2012 to 265,118 at the end of calendar year 2016, which is an average growth rate of 1.1 percent per annum. The comparable meter count for June 2017 was 266,030.

Q. Please describe the annual forecasted deliveries and the year-end customer count forecast.

A. Schedule TEP-5 sets forth the annual deliveries by rate class for the Rate Year and the Data Years. Schedule TEP-9 lists the Rate Year year-end meter counts. Narragansett Gas projects the forecasted natural gas deliveries will increase by an average of 484,201 Dth, or 1.2 percent, per year.

Between the Rate Year and the Data Years, Narragansett Gas projects meter counts to increase by 2,114, or 0.8 percent per year, as shown in Schedule TEP-9.

VI. Conclusion

Q. Does this conclude your testimony?

A. Yes.

Schedules of
Theodore E. Poe, Jr

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Appendix TEP	Class Model

Schedule TEP-1

Schedule TEP-1

Normal Heating Degree Days

Daily Average Degree Days Based on 10 Years Ending March 2017

Day	January	February	March	April	May	June	July	August	September	October	November	December	Total
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
1	33	31	28	20	11	2	0	0	0	6	16	24	171
2	37	33	34	20	10	2	0	0	0	6	19	22	183
3	40	35	35	20	11	3	0	0	0	6	17	25	192
4	35	35	33	21	10	5	0	0	0	7	17	25	188
5	34	36	32	22	10	4	0	0	0	8	16	26	188
6	34	36	30	21	9	3	0	0	2	7	17	28	187
7	36	33	24	20	6	2	0	0	0	7	20	29	177
8	35	36	22	20	7	1	0	0	1	5	19	31	177
9	36	38	26	18	8	2	0	0	1	7	16	26	178
10	32	37	26	15	7	2	0	1	2	9	18	28	177
11	28	39	24	15	7	2	0	0	1	10	19	29	174
12	30	37	25	17	8	1	0	0	1	11	18	29	177
13	33	38	28	16	8	3	0	0	1	10	18	30	185
14	37	35	27	13	7	2	0	0	1	9	16	28	175
15	36	35	27	16	5	2	0	0	4	10	15	29	179
16	35	35	27	16	6	1	0	0	5	10	19	33	187
17	33	34	25	14	7	1	0	0	5	9	21	33	182
18	33	30	23	13	10	0	0	0	4	12	24	33	182
19	31	32	25	13	7	0	0	0	5	11	23	32	179
20	36	34	24	14	4	0	0	0	2	9	24	32	179
21	40	32	24	10	4	0	0	0	1	9	26	26	172
22	39	29	25	12	6	1	0	0	3	12	22	28	177
23	38	31	27	13	3	1	0	0	4	15	26	27	185
24	37	29	26	10	3	0	0	0	4	13	25	27	174
25	36	30	24	12	3	0	0	0	3	12	23	30	173
26	34	34	27	12	3	0	0	0	2	13	21	27	173
27	36	31	25	14	2	0	0	0	2	13	23	25	171
28	36	31	23	11	4	1	0	0	2	14	26	29	177
29	35		23	14	2	0	0	1	3	16	23	33	150
30	34		22	12	1	0	0	0	6	16	23	34	148
31	34		21		2		0	0		14		34	105
Total	1083	946	812	464	191	41	0	2	65	316	610	892	5422
Total Leap Year	1083	976	812	464	191	41	0	2	65	316	610	892	5452
Dkt 4323	1099	936	796	453	227	44	1	1	52	339	579	931	5458
Difference	-16	10	16	11	-36	-3	-1	1	13	-23	31	-39	-36

Historic Daily Degree Days
January

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1		30	50	33	21	18	40	40	33	30	31	33
2		46	35	43	26	32	45	54	33	32	26	37
3		53	38	41	37	47	41	59	33	31	22	40
4		35	33	39	34	40	32	44	19	47	27	35
5		26	32	39	37	33	33	24	39	44	36	34
6		24	34	38	39	23	30	33	49	33	39	34
7		20	29	35	34	18	33	55	53	32	47	36
8		12	35	41	36	32	30	47	42	26	50	35
9		16	43	46	38	33	23	43	45	22	51	36
10		23	39	45	39	27	29	29	47	16	24	32
11		18	40	36	35	27	26	13	34	38	17	28
12		26	42	41	39	26	22	28	34	33	12	30
13		27	35	37	44	32	14	18	45	42	33	33
14		35	49	35	49	42	19	23	41	37	36	37
15		34	54	28	35	51	28	26	38	26	37	36
16		38	54	28	41	33	31	27	40	26	30	35
17		30	47	27	45	20	32	28	37	35	26	33
18		27	39	32	29	39	38	32	21	44	28	33
19		33	36	30	31	36	21	31	29	42	25	31
20		45	41	31	37	42	29	33	35	38	25	36
21		44	44	33	43	46	40	52	34	39	23	40
22		29	40	34	50	36	50	55	35	36	23	39
23		36	29	36	54	21	54	52	31	40	26	38
24		39	48	21	52	21	51	48	32	35	26	37
25		39	47	17	42	29	46	38	38	34	25	36
26		35	43	29	37	27	47	40	43	20	23	34
27		37	40	32	39	22	40	39	49	31	27	36
28		31	32	41	38	26	35	48	50	30	30	36
29		23	38	52	37	27	29	48	37	30	33	35
30		29	37	46	40	32	7	41	42	26	37	34
31		34	41	41	44	22	28	28	47	18	38	34
Total		974	1244	1107	1202	960	1023	1176	1185	1013	933	1083

Historic Daily Degree Days
February

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1		24	30	37	42	17	40	27	41	18	31	31
2		27	27	37	41	31	39	22	47	25	34	33
3		27	40	36	46	31	38	37	47	11	38	35
4		26	48	37	39	32	40	36	31	21	36	35
5		20	52	36	27	35	39	38	49	39	28	36
6		25	44	46	30	25	36	43	46	34	31	36
7		32	22	39	30	30	37	42	37	29	28	33
8		35	28	38	43	32	39	39	41	44	22	36
9		30	33	32	39	30	46	39	46	39	47	38
10		40	27	33	47	25	39	45	39	35	42	37
11		45	18	33	43	36	25	48	49	49	41	39
12		38	22	36	35	41	29	41	45	45	34	37
13		31	35	35	27	32	30	31	57	62	37	38
14		34	31	30	26	28	31	33	42	59	37	35
15		35	33	30	42	26	27	36	57	35	29	35
16		45	35	32	29	24	36	41	51	21	36	35
17		21	36	32	23	26	45	44	47	30	33	34
18		20	28	27	19	27	38	38	42	37	21	30
19		36	31	28	42	30	25	29	52	27	16	32
20		42	37	27	35	32	37	27	57	16	28	34
21		42	32	30	44	26	36	26	35	19	26	32
22		40	31	27	38	16	31	23	37	28	21	29
23		41	39	26	35	24	29	23	55	27	11	31
24		38	37	24	27	27	31	38	47	11	10	29
25		33	31	25	30	30	28	42	38	22	16	30
26		30	25	31	32	33	25	45	48	37	30	34
27		38	15	31	36	21	25	46	45	29	22	31
28		49	31	28	24	26	24	48	47	17	17	31
29												
30												
31												
Total		944	898	903	971	793	945	1027	1275	866	802	946

Historic Daily Degree Days
March

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1		31	40	23	31	35	26	32	35	20	10	28
2		36	45	26	36	29	28	34	41	35	31	34
3		22	47	30	41	22	30	47	33	35	39	35
4		23	41	29	30	30	29	39	29	36	48	33
5		26	30	28	14	36	26	42	47	33	40	32
6		31	22	20	13	29	29	43	48	31	32	30
7		26	11	17	33	13	33	31	35	20	18	24
8		26	16	16	30	12	30	22	33	19	16	22
9		35	31	23	28	28	28	30	28	2	22	26
10		36	25	22	20	30	26	26	23	7	41	26
11		29	22	22	22	20	20	17	19	18	48	24
12		31	34	22	22	10	17	24	33	14	45	25
13		30	36	19	23	15	24	47	31	14	37	28
14		23	25	21	31	19	36	28	25	23	35	27
15		29	23	25	28	24	30	23	28	19	41	27
16		29	28	21	24	22	31	37	25	16	35	27
17		32	27	13	15	20	34	40	26	16	31	25
18		27	18	10	7	13	33	34	39	24	28	23
19		28	26	11	27	9	31	26	37	28	29	25
20		28	32	6	26	6	31	22	36	31	21	24
21		33	29	15	28	1	32	29	29	28	19	24
22		30	28	19	26	0	29	21	39	19	39	25
23		33	37	20	31	5	27	34	37	14	33	27
24		31	26	17	31	16	25	39	33	22	21	26
25		28	26	13	31	19	26	33	23	14	27	24
26		22	22	32	33	28	25	37	16	27	26	27
27		21	19	31	31	24	20	27	27	23	23	25
28		33	18	20	27	17	21	16	35	20	24	23
29		37	21	15	26	22	16	21	29	23	23	23
30		30	23	17	22	21	19	26	25	17	22	22
31		16	23	17	29	28	16	27	25	3	28	21
Total		892	851	620	816	603	828	954	969	651	932	812

Historic Daily Degree Days
April

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1	20	12	23	15	26	22	23	23	28	8		20
2	22	28	16	14	20	21	29	20	11	23		20
3	25	22	12	11	19	15	28	20	13	34		20
4	27	23	19	2	15	15	22	23	23	38		21
5	29	22	17	5	22	21	19	22	24	35		22
6	30	26	18	7	21	20	26	18	19	20		21
7	29	27	24	0	25	19	17	17	25	16		20
8	28	26	25	7	24	17	12	14	24	24		20
9	24	14	18	18	22	15	5	18	25	25		18
10	24	6	15	13	14	16	13	14	15	21		15
11	22	15	27	7	8	17	18	9	19	9		15
12	26	6	28	12	14	20	26	9	14	19		17
13	21	20	18	17	18	12	16	6	9	20		16
14	19	19	19	8	14	5	19	2	7	20		13
15	19	19	20	14	25	1	20	16	13	16		16
16	23	11	19	21	16	2	9	27	15	17		16
17	24	9	6	22	13	0	13	28	9	11		14
18	23	6	9	17	13	12	10	22	5	9		13
19	18	9	18	10	20	11	4	13	15	11		13
20	12	11	16	9	17	7	17	21	12	16		14
21	3	10	11	8	19	6	21	15	8	3		10
22	9	9	16	11	19	14	20	9	13	4		12
23	0	0	15	10	14	14	21	17	23	12		13
24	4	2	8	8	3	16	9	13	23	14		10
25	16	9	5	14	8	15	11	15	15	12		12
26	14	12	0	13	1	11	15	19	12	24		12
27	14	16	4	21	1	21	15	18	14	16		14
28	10	10	0	18	4	14	12	16	8	16		11
29	12	17	14	11	3	16	12	22	15	17		14
30	5	19	9	0	12	14	12	16	15	16		12
465	552	435	449	343	450	409	494	502	471	526		464

Historic Daily Degree Days
May

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1	6	13	5	3	14	17	10	9	18	19		11
2	10	17	8	0	8	15	9	8	14	13		10
3	6	18	12	0	7	15	13	6	13	17		11
4	8	14	12	0	12	11	15	9	0	18		10
5	9	9	16	0	14	12	13	9	1	18		10
6	18	3	10	1	7	11	10	9	6	15		9
7	13	2	5	4	7	8	4	9	0	12		6
8	2	2	4	10	8	8	3	8	8	12		7
9	0	16	4	18	7	7	4	7	4	8		8
10	0	13	10	15	13	11	0	0	0	6		7
11	3	13	11	15	11	7	4	0	0	3		7
12	8	15	12	18	12	0	9	0	0	5		8
13	8	9	9	8	10	0	14	13	6	3		8
14	3	8	7	6	13	2	15	5	6	3		7
15	0	7	6	2	9	4	8	0	3	15		5
16	5	13	3	2	16	5	0	3	5	11		6
17	16	0	11	5	14	5	7	2	0	5		7
18	21	8	17	13	6	7	5	5	7	7		10
19	13	12	8	9	6	0	5	5	5	8		7
20	6	12	0	0	5	2	0	6	10	2		4
21	8	7	0	1	7	3	1	5	7	5		4
22	7	12	0	3	12	2	0	9	5	6		6
23	4	2	6	0	4	0	0	7	8	0		3
24	0	2	0	0	0	4	9	8	0	7		3
25	0	1	1	0	1	0	18	7	0	0		3
26	0	0	12	0	0	0	13	0	0	0		3
27	0	1	12	2	0	0	4	5	0	0		2
28	0	8	12	1	0	0	3	16	0	0		4
29	0	0	4	0	0	0	0	11	0	0		2
30	0	0	0	0	0	0	0	8	0	0		1
31	2	1	5	0	0	0	0	7	8	0		2
Total	176	238	222	136	223	156	196	196	134	218		191

Historic Daily Degree Days
June

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1	0	0	4	0	0	3	0	1	16	0		2
2	0	0	1	0	4	3	0	0	15	1		2
3	3	0	4	0	4	6	0	1	10	0		3
4	2	5	5	0	7	14	2	2	8	0		5
5	0	6	9	0	3	11	3	5	3	0		4
6	7	6	2	0	0	7	3	0	2	0		3
7	1	0	0	0	0	6	7	0	3	0		2
8	0	0	1	3	0	0	0	0	0	4		1
9	5	0	9	7	0	0	0	0	0	3		2
10	0	0	5	5	0	0	2	0	0	3		2
11	0	0	2	4	8	2	0	1	0	1		2
12	0	0	0	0	8	1	1	0	0	1		1
13	9	0	1	1	6	3	8	0	0	0		3
14	7	0	4	0	6	2	0	0	0	0		2
15	2	5	5	0	0	0	0	0	5	0		2
16	0	1	6	0	0	3	0	0	0	0		1
17	0	0	4	0	0	5	0	0	2	0		1
18	0	0	1	0	0	3	0	0	0	0		0
19	0	0	0	0	0	0	0	0	0	0		0
20	0	0	0	0	0	0	0	0	0	0		0
21	0	0	2	0	0	0	0	0	0	0		0
22	2	0	3	0	0	0	0	0	0	0		1
23	1	0	1	0	3	0	0	0	0	0		1
24	0	0	1	0	3	0	0	0	0	0		0
25	0	0	0	0	0	0	0	0	0	0		0
26	0	0	0	0	0	0	0	0	0	0		0
27	0	0	0	0	0	0	0	0	1	0		0
28	0	0	0	0	0	0	0	0	6	0		1
29	0	0	0	0	0	0	0	0	0	0		0
30	0	0	0	0	0	0	0	0	0	0		0
Total	39	23	70	20	52	69	26	10	71	13		41

Historic Daily Degree Days
July

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1	0	0	1	0	0	0	0	0	0	0		0
2	0	0	0	0	0	0	0	0	0	0		0
3	0	0	0	0	0	0	0	0	0	0		0
4	0	0	0	0	0	0	0	0	0	0		0
5	0	0	0	0	0	0	0	0	0	0		0
6	0	0	0	0	0	0	0	0	0	0		0
7	0	0	2	0	0	0	0	0	0	0		0
8	0	0	1	0	0	0	0	0	0	1		0
9	0	0	3	0	0	0	0	0	0	1		0
10	0	0	0	0	0	0	0	0	0	0		0
11	0	0	0	0	0	0	0	0	0	0		0
12	0	0	0	0	0	0	0	0	0	0		0
13	0	0	0	0	0	0	0	0	0	0		0
14	0	0	0	0	0	0	0	0	0	0		0
15	0	0	0	0	0	0	0	0	0	0		0
16	0	0	0	0	0	0	0	0	0	0		0
17	0	0	0	0	0	0	0	0	0	0		0
18	0	0	0	0	0	0	0	0	0	0		0
19	0	0	0	0	0	0	0	0	0	0		0
20	0	0	0	0	0	1	0	0	0	0		0
21	0	0	0	0	0	0	0	0	0	0		0
22	0	0	0	0	0	0	0	0	0	0		0
23	0	0	0	0	0	0	0	0	0	0		0
24	0	0	0	0	0	0	0	0	0	0		0
25	0	0	0	0	0	0	3	0	0	0		0
26	0	0	0	0	0	0	0	0	0	0		0
27	0	0	0	0	0	0	0	0	0	0		0
28	0	0	0	0	0	0	0	0	0	0		0
29	0	0	0	0	0	0	0	0	0	0		0
30	0	0	0	0	0	0	0	0	0	0		0
31	0	0	0	0	0	0	0	0	0	0		0
Total	0	0	7	0	0	1	3	0	0	2		0

Historic Daily Degree Days
August

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1	0	0	0	0	0	0	0	0	0	0		0
2	0	0	0	0	0	0	0	2	0	0		0
3	0	0	0	0	0	0	0	0	0	0		0
4	0	0	0	0	0	0	0	0	0	0		0
5	0	0	0	0	0	0	0	0	0	0		0
6	0	0	0	0	0	0	0	0	0	0		0
7	0	0	0	0	0	0	0	0	0	0		0
8	0	0	0	0	0	0	0	0	0	0		0
9	0	0	0	0	0	0	0	0	0	0		0
10	7	0	0	0	0	0	0	0	0	0		1
11	0	0	0	0	0	0	0	0	0	0		0
12	0	0	0	0	0	0	0	0	0	0		0
13	0	0	0	0	0	0	0	0	0	0		0
14	0	0	0	0	0	0	0	0	0	0		0
15	0	0	0	0	0	0	1	0	0	0		0
16	0	0	0	0	0	0	0	0	0	0		0
17	0	0	0	0	0	0	0	0	0	0		0
18	1	0	0	0	0	1	0	0	0	0		0
19	0	0	0	0	0	0	0	0	0	0		0
20	0	0	0	0	0	0	0	0	0	0		0
21	2	0	0	0	0	0	0	0	0	0		0
22	0	0	0	0	0	0	0	0	0	0		0
23	0	0	0	2	0	0	0	0	0	0		0
24	0	0	0	1	0	0	0	0	0	0		0
25	0	0	0	0	0	0	0	0	0	0		0
26	0	0	0	0	0	0	0	0	0	0		0
27	0	0	0	0	0	0	0	0	0	0		0
28	0	0	1	0	0	0	0	0	0	0		0
29	0	0	5	0	0	0	1	0	0	0		1
30	0	0	0	0	0	0	0	0	0	0		0
31	0	0	1	0	0	0	0	0	0	0		0
Total	10	0	7	3	0	1	2	2	0	0		2

Historic Daily Degree Days
September

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1	0	0	2	0	0	0	0	0	0	0		0
2	0	0	0	0	0	0	0	0	0	0		0
3	0	0	0	0	0	0	0	0	0	0		0
4	0	0	0	0	0	0	0	0	0	0		0
5	0	0	0	1	0	0	3	0	0	0		0
6	0	0	5	0	5	0	6	0	0	0		2
7	0	0	0	0	4	0	0	0	0	0		0
8	0	0	0	0	2	0	3	0	0	0		1
9	0	0	4	1	0	2	3	0	0	0		1
10	0	4	5	2	1	5	0	0	0	0		2
11	0	4	1	3	0	5	0	0	0	0		1
12	1	0	0	4	0	0	0	2	0	0		1
13	1	0	0	3	0	0	0	4	0	0		1
14	0	0	0	0	0	0	5	7	0	0		1
15	7	0	0	5	6	4	4	6	0	4		4
16	9	4	0	0	10	5	10	4	0	4		5
17	9	2	6	4	8	1	12	4	0	0		5
18	7	8	3	4	8	0	5	2	0	0		4
19	3	11	9	0	5	4	1	12	0	0		5
20	0	8	0	4	1	8	1	0	0	0		2
21	0	0	0	0	0	6	0	0	3	0		1
22	0	10	0	0	0	0	7	7	3	0		3
23	0	10	0	0	0	7	11	5	2	0		4
24	0	9	0	0	0	10	8	3	1	7		4
25	0	4	0	0	0	1	5	5	5	10		3
26	0	0	0	1	0	0	6	2	10	2		2
27	0	0	0	0	0	3	8	0	5	1		2
28	0	0	1	0	0	6	6	0	0	7		2
29	2	0	4	0	0	9	6	1	2	7		3
30	6	2	15	0	0	11	7	7	1	7		6
Total	45	76	55	32	50	87	117	71	32	49		65

Historic Daily Degree Days
October

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1	9	2	14	3	1	4	0	7	12	8		6
2	0	10	6	8	5	3	0	11	15	6		6
3	0	13	3	9	6	2	1	9	12	2		6
4	0	13	4	7	6	2	5	9	12	9		7
5	0	15	9	5	11	0	2	13	11	10		8
6	0	15	5	10	13	6	5	5	7	7		7
7	5	13	6	8	10	15	0	0	3	7		7
8	1	4	10	4	0	12	8	7	6	1		5
9	6	1	3	12	0	11	10	9	4	15		7
10	6	6	13	8	0	11	6	9	13	15		9
11	5	8	14	3	5	15	6	19	9	13		10
12	15	7	16	11	6	22	8	13	4	9		11
13	14	7	19	13	3	16	15	1	2	7		10
14	14	5	22	10	3	1	12	0	9	17		9
15	9	6	25	14	7	2	8	0	11	15		10
16	13	5	23	14	5	17	7	1	14	1		10
17	2	16	18	10	9	15	1	1	21	0		9
18	0	20	25	15	7	8	10	5	28	0		12
19	0	22	22	15	6	0	8	21	18	0		11
20	4	20	10	13	7	6	14	13	5	2		9
21	1	15	8	17	12	10	11	7	4	0		9
22	0	23	5	22	15	9	11	12	4	16		12
23	0	26	17	14	19	8	20	11	21	11		15
24	9	16	1	14	12	14	20	16	15	17		13
25	16	4	13	0	14	12	24	6	12	22		12
26	7	12	16	0	16	9	15	13	21	25		13
27	3	11	14	0	26	7	21	13	18	18		13
28	19	22	15	4	24	10	18	3	3	19		14
29	21	27	18	17	29	3	23	7	5	9		16
30	14	27	14	12	28	8	18	14	18	11		16
31	6	12	3	21	22	16	2	16	16	22		14
Total	199	403	391	313	327	274	309	271	353	314		316

Historic Daily Degree Days
November

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1	11	19	16	20	21	15	5	23	11	16		16
2	17	29	18	26	21	18	11	26	14	6		19
3	19	19	16	21	15	21	27	15	7	7		17
4	17	12	20	10	24	22	30	7	10	19		17
5	13	5	23	15	27	30	22	9	0	15		16
6	22	10	26	20	19	28	8	17	2	21		17
7	25	7	19	24	12	30	19	25	13	24		20
8	27	8	14	18	12	26	26	21	19	17		19
9	24	17	5	15	9	20	21	20	17	13		16
10	30	22	8	20	10	18	20	19	14	15		18
11	30	23	18	20	23	11	18	9	17	21		19
12	19	24	16	16	18	3	34	16	12	23		18
13	20	13	11	16	8	22	32	23	15	15		18
14	9	7	9	16	6	26	21	29	25	13		16
15	16	3	8	13	6	27	18	33	15	11		15
16	26	22	16	11	11	25	19	25	18	16		19
17	27	27	23	13	26	26	7	15	29	17		21
18	27	34	24	20	27	26	13	35	17	13		24
19	30	38	10	27	13	25	29	29	8	16		23
20	25	36	14	23	9	23	33	28	17	28		24
21	17	38	17	25	26	20	22	37	23	31		26
22	16	40	18	11	20	22	17	21	23	30		22
23	35	36	17	14	28	18	31	15	33	28		26
24	33	21	17	27	26	28	42	5	31	22		25
25	23	29	16	24	15	30	32	14	24	19		23
26	10	27	17	26	17	28	18	29	17	23		21
27	21	28	20	30	10	31	22	29	9	27		23
28	23	27	20	29	10	32	36	36	21	26		26
29	22	31	15	28	7	28	38	23	28	10		23
30	29	24	22	17	21	32	33	9	30	14		23
Total	663	676	493	595	497	711	704	642	519	556		610

Historic Daily Degree Days
December

Day	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10 Year Average
1	41	18	27	18	26	30	26	15	22	19		24
2	35	27	10	28	23	14	27	23	13	21		22
3	33	27	11	30	28	20	25	25	23	27		25
4	37	22	19	32	19	11	25	30	23	31		25
5	37	34	29	36	11	26	13	25	25	28		26
6	40	32	34	36	8	33	23	25	23	25		28
7	33	41	30	35	19	21	33	36	19	26		29
8	30	44	30	40	29	18	34	31	26	29		31
9	31	13	24	46	19	20	30	21	19	38		26
10	34	17	32	38	31	9	37	27	16	42		28
11	23	22	40	29	34	27	39	33	14	33		29
12	30	29	38	14	30	30	44	31	12	29		29
13	39	40	22	29	27	31	41	29	15	28		30
14	32	20	24	44	23	26	39	29	8	32		28
15	40	12	24	44	13	30	37	29	15	48		29
16	33	31	37	40	25	27	45	23	22	44		33
17	43	40	48	37	34	23	43	21	13	25		33
18	39	33	42	36	43	19	36	27	25	27		33
19	30	41	40	33	22	25	27	33	31	42		32
20	33	44	41	36	28	24	20	31	28	34		32
21	37	40	39	30	11	23	8	29	12	32		26
22	29	46	43	31	18	30	16	23	11	28		28
23	19	37	41	32	29	32	27	21	7	26		27
24	27	18	33	36	40	31	37	11	6	27		27
25	32	32	29	36	27	35	42	21	10	32		30
26	30	28	21	38	31	27	35	25	17	18		27
27	28	14	26	44	16	30	34	19	17	22		25
28	22	17	33	35	33	35	27	23	33	33		29
29	25	29	49	35	35	34	25	32	33	28		33
30	28	33	38	33	26	40	39	41	30	32		34
31	31	51	35	27	26	32	43	39	25	26		34
Total	1001	932	989	1058	784	813	977	828	593	932		892

Schedule TEP-2

Schedule TEP-2

Summary of Gas Deliveries

The Narragansett Electric Company d/b/a National Grid
Summary of Gas Deliveries (Dth)

Line Number	Description	Actual Retail Volume (Jul 2016 - Jun 2017) (Dth)	Weather Adjustment (Dth)	Normal Retail Volume (Jul 2016 - Jun 2017) (Dth)	Growth Adjustment (Dth)	Normal Retail Volume (Sep 2018 - Aug 2019) (Dth)
1	Residential Non-Heating	382,339	5,812	388,151	(20,793)	367,357
2	Residential Non-Heating Low Income	11,034	210	11,244	(1,067)	10,177
3	Residential Heating	17,058,837	511,788	17,570,626	179,055	17,749,681
4	Residential Heating Low Income	1,499,283	39,498	1,538,781	(112,633)	1,426,148
5	Small C&I	2,221,913	76,100	2,298,013	(9,297)	2,288,717
6	Small Transport	108,974	3,407	112,380	62,079	174,459
7	Medium C&I	3,129,566	77,861	3,207,426	(49,484)	3,157,942
8	Med Transport FT-2	1,736,164	43,270	1,779,434	55,112	1,834,546
9	Med Transport FT-1	614,041	12,679	626,720	(94,523)	532,197
10	Large Low Load	618,599	19,256	637,855	(40,799)	597,057
11	Large Low Load- Transport FT-2	1,181,817	37,338	1,219,155	4,449	1,223,604
12	Large Low Load- Transport FT-1	837,766	22,866	860,632	(44,577)	816,055
13	Large High Load	236,842	1,287	238,129	33,110	271,239
14	Large High Load- Transport FT-2	454,003	4,811	458,814	64,066	522,880
15	Large High Load- Transport FT-1	415,069	3,524	418,593	97,565	516,158
16	XL Low Load	61,928	1,857	63,786	(20,905)	42,881
17	XL Low Load-Transport FT-2	41,709	1,056	42,765	15,338	58,103
18	XL Low Load-Transport FT-1	1,137,906	26,532	1,164,438	(42,288)	1,122,150
19	XL High Load	76,522	(1,152)	75,371	749	76,120
20	XL High Load-Transport FT-2	515,881	3,346	519,227	25,112	544,339
21	XL High Load-Transport FT-1	5,777,747	16,042	5,793,789	546,861	6,340,650
22	**Total**	**38,117,942**	**907,387**	**39,025,329**	**647,131**	**39,672,460**
23	Residential Non-Heating	393,373	6,021	399,395	-21,860	377,535
24	Residential Heating	18,558,121	551,286	19,109,407	66,422	19,175,829
25	C&I Heating	11,690,382	322,222	12,012,604	-164,895	11,847,710
26	C&I Non-Heating	7,476,065	27,857	7,503,923	767,464	8,271,386
27	**Total**	**38,117,942**	**907,387**	**39,025,329**	**647,131**	**39,672,460**

Schedule TEP-3

The Narragansett Electric Company

Calendar Year Actual Gas Deliveries by Rate Class in Dth (2012 - 2016)

Calendar Year Actual Gas Deliveries by Rate Class in Dth (2012 - 2016)

Line Number	Description	2012	2013	2014	2015	2016
1	Residential Non-Heating	603,846	757,445	874,761	666,398	502,874
2	Residential Non-Heating Low Income	20,025	29,853	39,521	27,021	18,318
3	Residential Heating	13,748,267	16,264,298	17,696,118	17,872,036	15,847,946
4	Residential Heating Low Income	1,418,162	1,593,844	1,760,838	1,803,478	1,420,826
5	Small C&I	1,951,978	2,291,879	2,622,844	2,593,606	2,094,745
6	Small Transport	952	17,575	38,349	67,756	85,099
7	Medium C&I	2,687,088	3,124,184	3,395,650	3,504,244	2,989,171
8	Med Transport FT-2	1,342,962	1,438,701	1,683,277	1,672,549	1,603,862
9	Med Transport FT-1	663,187	713,790	712,054	680,979	638,087
10	Large Low Load	593,113	628,169	765,193	767,637	618,606
11	Large Low Load- Transport FT-2	809,531	1,060,807	1,169,593	1,144,734	1,098,072
12	Large Low Load- Transport FT-1	959,855	1,036,417	1,114,958	1,024,537	871,959
13	Large High Load	251,442	292,368	288,420	229,995	216,937
14	Large High Load- Transport FT-2	239,864	356,082	423,632	462,202	413,637
15	Large High Load- Transport FT-1	449,457	495,853	482,620	479,228	445,451
16	XL Low Load	102,416	112,556	100,192	90,073	65,047
17	XL Low Load-Transport FT-2	36,100	40,003	72,301	64,141	64,131
18	XL Low Load-Transport FT-1	932,348	1,103,500	1,112,420	1,143,435	1,149,870
19	XL High Load	260,530	289,149	422,186	331,800	83,992
20	XL High Load-Transport FT-2	136,996	158,867	174,774	315,305	486,273
21	XL High Load-Transport FT-1	4,888,000	5,005,832	5,189,295	5,820,981	5,776,902
22	**Total**	**32,096,120**	**36,811,171**	**40,138,998**	**40,762,137**	**36,491,802**
23	Residential Non-Heating	623,871	787,298	914,282	693,419	521,192
24	Residential Heating	15,166,430	17,858,142	19,456,956	19,675,515	17,268,772
25	C&I Heating	10,079,531	11,567,581	12,786,832	12,753,692	11,278,647
26	C&I Non-Heating	6,226,289	6,598,150	6,980,928	7,639,511	7,423,192
27	**Total**	**32,096,120**	**36,811,171**	**40,138,998**	**40,762,137**	**36,491,802**
28	Annual Change		4,715,050	3,327,827	623,140	-4,270,335
29	Average Annual Change					**1,098,920**
30	Annual Percentage Change		14.7%	9.0%	1.6%	-10.5%
31	Average Annual Percentage Change					**3.3%**

Schedule TEP-4

The Narragansett Electric Company

Calendar Year Normalized Gas Deliveries by Rate Class in Dth (2012 - 2016)

Calendar Year Normalized Gas Deliveries by Rate Class in Dth (2012 - 2016)

Line Number	Description	2012	2013	2014	2015	2016
1	Residential Non-Heating	636,812	744,076	832,773	636,552	527,958
2	Residential Non-Heating Low Income	21,594	29,258	37,220	25,674	19,240
3	Residential Heating	14,953,778	15,885,520	16,796,435	16,874,494	16,884,388
4	Residential Heating Low Income	1,537,541	1,562,782	1,674,616	1,709,862	1,503,811
5	Small C&I	2,146,624	2,251,917	2,487,652	2,375,723	2,247,584
6	Small Transport	1,030	17,227	36,668	63,905	91,063
7	Medium C&I	2,898,835	3,067,545	3,239,320	3,311,506	3,158,504
8	Med Transport FT-2	1,457,116	1,406,064	1,603,256	1,597,541	1,691,496
9	Med Transport FT-1	693,358	698,925	688,733	659,678	668,818
10	Large Low Load	650,076	612,584	720,625	717,536	665,307
11	Large Low Load- Transport FT-2	885,829	1,032,067	1,103,330	1,083,379	1,175,527
12	Large Low Load- Transport FT-1	1,028,426	1,004,812	1,067,137	974,803	929,674
13	Large High Load	260,750	288,807	285,771	224,815	220,099
14	Large High Load- Transport FT-2	249,583	350,625	413,980	451,524	423,651
15	Large High Load- Transport FT-1	458,061	490,365	475,398	472,097	454,565
16	XL Low Load	109,884	109,108	92,992	85,016	70,060
17	XL Low Load-Transport FT-2	40,537	38,447	68,259	61,303	67,952
18	XL Low Load-Transport FT-1	1,001,223	1,063,311	1,061,649	1,102,795	1,219,220
19	XL High Load	267,986	285,065	416,367	326,101	85,312
20	XL High Load-Transport FT-2	141,838	155,800	168,625	320,416	492,451
21	XL High Load-Transport FT-1	4,935,871	4,986,077	5,134,226	5,783,125	5,825,475
22	**Total**	**34,376,753**	**36,080,382**	**38,405,033**	**38,857,845**	**38,422,156**
23	Residential Non-Heating	658,406	773,334	869,993	662,225	547,198
24	Residential Heating	16,491,319	17,448,302	18,471,052	18,584,355	18,388,199
25	C&I Heating	10,912,937	11,302,007	12,169,622	12,033,186	11,985,206
26	C&I Non-Heating	6,314,089	6,556,739	6,894,367	7,578,079	7,501,553
27	**Total**	**34,376,753**	**36,080,382**	**38,405,033**	**38,857,845**	**38,422,156**
28	Annual Change		1,703,629	2,324,651	452,812	-435,690
29	Average Annual Change					**1,011,351**
30	Annual Percentage Change		5.0%	6.4%	1.2%	-1.1%
31	Average Annual Percentage Change					**2.8%**

Schedule TEP-5

Schedule TEP-5

The Narragansett Electric Company

Rate Year Forecasted Gas Deliveries by Rate Class in Dth (2018/19 – 2020/21)

Rate Year Forecasted Gas Deliveries by Rate Class in Dth (2018/19 - 2020/21)

Line Number	Description	Sep 2018 - Aug 2019	Sep 2019 - Aug 2020	Sep 2020 - Aug 2021
1	Residential Non-Heating	367,357	353,566	339,198
2	Residential Non-Heating Low Income	10,177	8,728	8,160
3	Residential Heating	17,749,681	17,958,196	18,396,455
4	Residential Heating Low Income	1,426,148	1,376,447	1,331,252
5	Small C&I	2,288,717	2,273,756	2,255,780
6	Small Transport	174,459	191,404	201,093
7	Medium C&I	3,157,942	3,217,002	3,240,044
8	Med Transport FT-2	1,834,546	1,922,869	2,012,436
9	Med Transport FT-1	532,197	515,257	496,567
10	Large Low Load	597,057	592,334	576,306
11	Large Low Load- Transport FT-2	1,223,604	1,246,388	1,268,675
12	Large Low Load- Transport FT-1	816,055	799,613	784,795
13	Large High Load	271,239	266,097	257,585
14	Large High Load- Transport FT-2	522,880	544,570	570,177
15	Large High Load- Transport FT-1	516,158	669,644	719,750
16	XL Low Load	42,881	42,287	42,103
17	XL Low Load-Transport FT-2	58,103	57,904	57,791
18	XL Low Load-Transport FT-1	1,122,150	1,119,486	1,133,019
19	XL High Load	76,120	75,542	75,755
20	XL High Load-Transport FT-2	544,339	546,917	547,844
21	XL High Load-Transport FT-1	6,340,650	6,348,231	6,325,935
22	**Total**	**39,672,460**	**40,126,237**	**40,640,719**
23	Residential Non-Heating	377,535	362,293	347,358
24	Residential Heating	19,175,829	19,334,643	19,727,706
25	C&I Heating	11,847,710	11,978,300	12,068,608
26	C&I Non-Heating	8,271,386	8,451,001	8,497,046
27	**Total**	**39,672,460**	**40,126,237**	**40,640,719**
28	Annual Change		453,777	514,481
29	Average Annual Change			**484,129**
30	Annual Percentage Change		1.1%	1.3%
31	Average Annual Percentage Change			**1.2%**

Schedule TEP-6

Schedule TEP-6

The Narragansett Electric Company

Calendar Year End Meter Count by Rate Class (2012 – 2016)

Calendar Year End Meter Count by Rate Class (2012 - 2016)

Line Number	Description	2012	2013	2014	2015	2016
1	Residential Non-Heating	25,840	25,645	23,065	21,969	19,231
2	Residential Non-Heating Low Income	391	474	404	418	238
3	Residential Heating	184,723	188,038	192,010	195,059	202,873
4	Residential Heating Low Income	18,853	18,801	19,721	20,070	18,017
5	Small C&I	18,360	18,530	18,487	18,497	18,416
6	Small Transport	32	141	184	351	518
7	Medium C&I	3,028	3,086	3,247	3,212	3,246
8	Med Transport FT-2	1,201	1,280	1,229	1,297	1,427
9	Med Transport FT-1	418	410	389	387	377
10	Large Low Load	125	132	135	133	117
11	Large Low Load- Transport FT-2	176	184	187	191	213
12	Large Low Load- Transport FT-1	151	151	148	136	130
13	Large High Load	57	53	41	39	48
14	Large High Load- Transport FT-2	56	61	68	65	77
15	Large High Load- Transport FT-1	70	63	63	61	62
16	XL Low Load	8	7	7	6	4
17	XL Low Load-Transport FT-2	1	5	4	4	3
18	XL Low Load-Transport FT-1	28	26	28	28	28
19	XL High Load	7	6	11	6	3
20	XL High Load-Transport FT-2	8	6	6	13	15
21	XL High Load-Transport FT-1	69	66	70	71	75
22	**Total**	**253,602**	**257,165**	**259,504**	**262,013**	**265,118**
23	Residential Non-Heating	26,231	26,119	23,469	22,387	19,469
24	Residential Heating	203,576	206,839	211,731	215,129	220,890
25	C&I Heating	23,528	23,952	24,045	24,242	24,479
26	C&I Non-Heating	267	255	259	255	280
27	**Total**	**253,602**	**257,165**	**259,504**	**262,013**	**265,118**
28	Annual Change		3,563	2,339	2,509	3,105
29	Average Annual Change					**2,879**
30	Annual Percentage Change		1.4%	0.9%	1.0%	1.2%
31	Average Annual Percentage Change					**1.1%**

Schedule TEP-7

Schedule TEP-7

The Narragansett Electric Company

Calendar Year Actual Use-Per-Customer by Rate Class in Dth/meter (2012 – 2016)

The Narragansett Electric Company d/b/a National Grid
Calendar Year Actual Use Per Customer by Rate Class in Dth/meter (2012 - 2016)

Line Number	Description	2012	2013	2014	2015	2016
1	Residential Non-Heating	23	30	38	30	26
2	Residential Non-Heating Low Income	51	63	98	65	77
3	Residential Heating	74	86	92	92	78
4	Residential Heating Low Income	75	85	89	90	79
5	Small C&I	106	124	142	140	114
6	Small Transport	30	125	208	193	164
7	Medium C&I	887	1,012	1,046	1,091	921
8	Med Transport FT-2	1,118	1,124	1,370	1,290	1,124
9	Med Transport FT-1	1,587	1,741	1,830	1,760	1,693
10	Large Low Load	4,745	4,759	5,668	5,772	5,287
11	Large Low Load- Transport FT-2	4,600	5,765	6,255	5,993	5,155
12	Large Low Load- Transport FT-1	6,357	6,864	7,533	7,533	6,707
13	Large High Load	4,411	5,516	7,035	5,897	4,520
14	Large High Load- Transport FT-2	4,283	5,837	6,230	7,111	5,372
15	Large High Load- Transport FT-1	6,421	7,871	7,661	7,856	7,185
16	XL Low Load	12,802	16,079	14,313	15,012	16,262
17	XL Low Load-Transport FT-2	36,100	8,001	18,075	16,035	21,377
18	XL Low Load-Transport FT-1	33,298	42,442	39,729	40,837	41,067
19	XL High Load	37,219	48,191	38,381	55,300	27,997
20	XL High Load-Transport FT-2	17,125	26,478	29,129	24,254	32,418
21	XL High Load-Transport FT-1	70,841	75,846	74,133	81,986	77,025
22	**Total**	**127**	**143**	**155**	**156**	**138**
23	Residential Non-Heating	24	30	39	31	27
24	Residential Heating	75	86	92	91	78
25	C&I Heating	428	483	532	526	461
26	C&I Non-Heating	23,319	25,875	26,953	29,959	26,511
27	**Total**	**127**	**143**	**155**	**156**	**138**
28	Annual Change		17	12	1	-18
29	Average Annual Change					**3**
30	Annual Percentage Change		13.1%	8.1%	0.6%	-11.5%
31	Average Annual Percentage Change					**2.1%**

NOTE: These values are calculated from Sch. TEP-3 (Volume) divided by Sch. TEP-6 (end of CY meter count)

Schedule TEP-8

The Narragansett Electric Company

Calendar Year Normalized Use-Per-Customer by Rate Class in Dth/meter (2012 – 2016)

The Narragansett Electric Company d/b/a National Grid
Calendar Year Normalized Use Per Customer by Rate Class in Dth/meter (2012 - 2016)

Line Number	Description	2012	2013	2014	2015	2016
1	Residential Non-Heating	25	29	36	29	27
2	Residential Non-Heating Low Income	55	62	92	61	81
3	Residential Heating	81	84	87	87	83
4	Residential Heating Low Income	82	83	85	85	83
5	Small C&I	117	122	135	128	122
6	Small Transport	32	122	199	182	176
7	Medium C&I	957	994	998	1,031	973
8	Med Transport FT-2	1,213	1,098	1,305	1,232	1,185
9	Med Transport FT-1	1,659	1,705	1,771	1,705	1,774
10	Large Low Load	5,201	4,641	5,338	5,395	5,686
11	Large Low Load- Transport FT-2	5,033	5,609	5,900	5,672	5,519
12	Large Low Load- Transport FT-1	6,811	6,654	7,210	7,168	7,151
13	Large High Load	4,575	5,449	6,970	5,764	4,585
14	Large High Load- Transport FT-2	4,457	5,748	6,088	6,947	5,502
15	Large High Load- Transport FT-1	6,544	7,784	7,546	7,739	7,332
16	XL Low Load	13,736	15,587	13,285	14,169	17,515
17	XL Low Load-Transport FT-2	40,537	7,689	17,065	15,326	22,651
18	XL Low Load-Transport FT-1	35,758	40,897	37,916	39,386	43,544
19	XL High Load	38,284	47,511	37,852	54,350	28,437
20	XL High Load-Transport FT-2	17,730	25,967	28,104	24,647	32,830
21	XL High Load-Transport FT-1	71,534	75,547	73,346	81,452	77,673
22	**Total**	**136**	**140**	**148**	**148**	**145**
23	Residential Non-Heating	25	30	37	30	28
24	Residential Heating	81	84	87	86	83
25	C&I Heating	464	472	506	496	490
26	C&I Non-Heating	23,648	25,713	26,619	29,718	26,791
27	**Total**	**136**	**140**	**148**	**148**	**145**
28	Annual Change		5	8	0	-3
29	Average Annual Change					**2**
30	Annual Percentage Change		3.5%	5.5%	0.2%	-2.3%
31	Average Annual Percentage Change					**1.7%**

NOTE: These values are calculated from Sch. TEP-4 (Volume) divided by Sch. TEP-6 (end of CY meter count)

Schedule TEP-9

The Narragansett Electric Company

Rate Year Forecasted Meter Count by Rate Class (2018/19 – 2020/21)

Rate Year Forecasted Meter Count (End-of-Year) by Rate Class (2018/19 - 2020/21)

Line Number	Description	Sep 2018 - Aug 2019	Sep 2019 - Aug 2020	Sep 2020 - Aug 2021
1	Residential Non-Heating	16,493	15,837	15,176
2	Residential Non-Heating Low Income	193	163	163
3	Residential Heating	210,331	213,565	216,720
4	Residential Heating Low Income	16,852	16,344	15,815
5	Small C&I	18,381	18,318	18,268
6	Small Transport	736	791	824
7	Medium C&I	3,375	3,427	3,472
8	Med Transport FT-2	1,556	1,633	1,714
9	Med Transport FT-1	322	312	303
10	Large Low Load	117	115	114
11	Large Low Load- Transport FT-2	219	224	229
12	Large Low Load- Transport FT-1	121	118	117
13	Large High Load	57	56	54
14	Large High Load- Transport FT-2	88	92	97
15	Large High Load- Transport FT-1	62	64	64
16	XL Low Load	4	4	4
17	XL Low Load-Transport FT-2	3	3	3
18	XL Low Load-Transport FT-1	27	27	28
19	XL High Load	3	3	3
20	XL High Load-Transport FT-2	16	16	16
21	XL High Load-Transport FT-1	74	74	74
22	**Total**	**269,030**	**271,186**	**273,258**
23	Residential Non-Heating	16,686	16,000	15,339
24	Residential Heating	227,183	229,909	232,535
25	C&I Heating	24,861	24,972	25,076
26	C&I Non-Heating	300	305	308
27	**Total**	**269,030**	**271,186**	**273,258**
28	Annual Change		2,156	2,072
29	Average Annual Change			**2,114**
30	Annual Percentage Change		0.8%	0.8%
31	Average Annual Percentage Change			**0.8%**

Schedule TEP-10

Schedule TEP-10

The Narragansett Electric Company

Rate Year Normalized Use-Per-Customer by Rate Class in Dth/meter (2018/19 – 2020/21)

Rate Year Normalized Use Per Customer by Rate Class in Dth/meter (2018/19 - 2020/21)

Line Number	Description	Sep 2018 - Aug 2019	Sep 2019 - Aug 2020	Sep 2020 - Aug 2021
1	Residential Non-Heating	22	22	22
2	Residential Non-Heating Low Income	53	54	50
3	Residential Heating	84	84	85
4	Residential Heating Low Income	85	84	84
5	Small C&I	125	124	123
6	Small Transport	237	242	244
7	Medium C&I	936	939	933
8	Med Transport FT-2	1,179	1,178	1,174
9	Med Transport FT-1	1,653	1,651	1,639
10	Large Low Load	5,103	5,151	5,055
11	Large Low Load- Transport FT-2	5,587	5,564	5,540
12	Large Low Load- Transport FT-1	6,744	6,776	6,708
13	Large High Load	4,759	4,752	4,770
14	Large High Load- Transport FT-2	5,942	5,919	5,878
15	Large High Load- Transport FT-1	8,325	10,463	11,246
16	XL Low Load	10,720	10,572	10,526
17	XL Low Load-Transport FT-2	19,368	19,301	19,264
18	XL Low Load-Transport FT-1	41,561	41,462	40,465
19	XL High Load	25,373	25,181	25,252
20	XL High Load-Transport FT-2	34,021	34,182	34,240
21	XL High Load-Transport FT-1	85,684	85,787	85,486
22	**Total**	**147**	**148**	**149**
23	Residential Non-Heating	23	23	23
24	Residential Heating	84	84	85
25	C&I Heating	477	480	481
26	C&I Non-Heating	27,571	27,708	27,588
27	**Total**	**147**	**148**	**149**
28	Annual Change		1	1
29	Average Annual Change			**1**
30	Annual Percentage Change		0.3%	0.5%
31	Average Annual Percentage Change			**0.4%**

NOTE: These values are calculated from Sch. TEP-5 (Volume) divided by Sch. TEP-9 (end of RY meter count)

Schedule TEP-11

Schedule TEP-11

The Narragansett Electric Company

Economic and Price (2017 $/Dth) Input Data

Line Number	Year	Mnemonic / Description	FE23A Employment: Construction, (Ths.)	FEMFA Employment: Manufacturing, (Ths.)	FETA Employment: Total Nonfarm Payroll, (Ths.)	FGDP$A Gross Product: Total, (Mil. Chained 2009 $)	FHHOLDA Number of Households: Total, (Ths.)
1	2000		18.16	71.24	476.91	43,266.00	409.32
2	2001		19.00	67.80	478.51	44,212.00	412.35
3	2002		19.42	62.31	479.43	45,754.00	416.22
4	2003		20.76	58.72	484.28	47,670.00	418.66
5	2004		20.97	56.93	488.48	49,526.00	420.25
6	2005		21.77	54.95	491.12	49,923.00	417.95
7	2006		22.83	52.75	492.98	50,931.00	416.26
8	2007		22.15	50.75	492.02	49,755.00	414.78
9	2008		20.42	47.94	481.06	48,381.00	414.54
10	2009		17.19	41.74	459.35	47,854.00	414.46
11	2010		15.97	40.32	458.00	48,792.00	414.50
12	2011		15.72	40.11	460.54	48,650.00	415.54
13	2012		16.08	39.64	465.57	49,016.00	417.07
14	2013		16.14	40.03	471.62	49,943.00	417.59
15	2014		16.43	40.92	477.73	50,544.00	416.60
16	2015		15.64	41.86	483.41	50,632.13	417.34
17	2016		16.67	41.99	490.10	51,481.42	419.96
18	2017		18.29	41.80	496.81	52,695.02	422.49
19	2018		19.17	41.61	502.83	53,499.41	424.28
20	2019		19.59	41.29	507.25	54,221.57	425.71
21	2020		19.70	40.67	508.92	54,792.12	426.86
22	2021		19.79	39.99	510.39	55,561.19	427.54
	Annual Growth Rates						
23	2001		4.6%	-4.8%	0.3%	2.2%	0.7%
24	2002		2.2%	-8.1%	0.2%	3.5%	0.9%
25	2003		6.9%	-5.8%	1.0%	4.2%	0.6%
26	2004		1.0%	-3.0%	0.9%	3.9%	0.4%
27	2005		3.8%	-3.5%	0.5%	0.8%	-0.5%
28	2006		4.9%	-4.0%	0.4%	2.0%	-0.4%
29	2007		-3.0%	-3.8%	-0.2%	-2.3%	-0.4%
30	2008		-7.8%	-5.5%	-2.2%	-2.8%	-0.1%
31	2009		-15.8%	-12.9%	-4.5%	-1.1%	0.0%
32	2010		-7.1%	-3.4%	-0.3%	2.0%	0.0%
33	2011		-1.6%	-0.5%	0.6%	-0.3%	0.2%
34	2012		2.3%	-1.2%	1.1%	0.8%	0.4%
35	2013		0.4%	1.0%	1.3%	1.9%	0.1%
36	2014		1.8%	2.2%	1.3%	1.2%	-0.2%
37	2015		-4.8%	2.3%	1.2%	0.2%	0.2%
38	2016		6.6%	0.3%	1.4%	1.7%	0.6%
39	2017		9.8%	-0.5%	1.4%	2.4%	0.6%
40	2018		4.8%	-0.5%	1.2%	1.5%	0.4%
41	2019		2.2%	-0.8%	0.9%	1.3%	0.3%
42	2020		0.6%	-1.5%	0.3%	1.1%	0.3%
43	2021		0.4%	-1.7%	0.3%	1.4%	0.2%
	Compound Annual Growth Rates						
44	2012-2016		0.9%	1.5%	1.3%	1.2%	0.2%
45	2016-2021		3.5%	-1.0%	0.8%	1.5%	0.4%

Line Number	Year	Mnemonic / Description	FPOPA Total Population, (Ths.)	FRTFSA Total Retail Sales, (Mil $2009)	FYPA Income: Total Personal, (Mil. $2009)	FYPCPIA Income: Per Capita, ($2009)	NONMFG Non-Manufacturing Empl
1	2000		1,050.27	13,422.68	39,541.53	210,955.19	405.67
2	2001		1,057.14	13,676.61	40,452.62	212,855.02	410.71
3	2002		1,066.00	14,397.70	41,579.41	216,591.82	417.12
4	2003		1,071.34	14,916.39	42,646.97	223,062.13	425.56
5	2004		1,074.58	15,099.03	43,404.34	227,732.91	431.55
6	2005		1,067.92	15,142.28	42,938.70	227,897.12	436.17
7	2006		1,063.10	15,104.65	43,885.59	234,012.19	440.23
8	2007		1,057.31	14,838.86	44,521.46	239,696.22	441.27
9	2008		1,055.00	13,652.91	44,051.76	236,218.82	433.12
10	2009		1,053.65	12,771.56	43,285.22	228,571.00	417.61
11	2010		1,053.22	13,065.63	44,280.20	234,696.04	417.67
12	2011		1,051.86	13,364.73	44,450.47	237,389.76	420.43
13	2012		1,052.39	13,448.26	45,333.45	245,386.09	425.92
14	2013		1,052.86	13,463.43	44,768.38	241,025.10	431.59
15	2014		1,054.91	13,748.07	46,252.16	247,974.07	436.80
16	2015		1,055.21	13,943.60	48,103.48	258,444.43	441.55
17	2016		1,057.12	14,428.04	48,971.44	263,129.11	448.11
18	2017		1,058.70	14,787.51	49,360.10	265,277.62	455.01
19	2018		1,060.43	14,944.25	49,710.37	266,930.48	461.21
20	2019		1,062.14	14,981.94	49,917.07	267,727.90	465.96
21	2020		1,063.90	15,023.26	50,036.94	268,093.76	468.25
22	2021		1,065.57	15,117.35	50,383.19	269,997.01	470.40
	Annual Growth Rates						
23	2001		0.7%	1.9%	2.3%	0.9%	1.2%
24	2002		0.8%	5.3%	2.8%	1.8%	1.6%
25	2003		0.5%	3.6%	2.6%	3.0%	2.0%
26	2004		0.3%	1.2%	1.8%	2.1%	1.4%
27	2005		-0.6%	0.3%	-1.1%	0.1%	1.1%
28	2006		-0.5%	-0.2%	2.2%	2.7%	0.9%
29	2007		-0.5%	-1.8%	1.4%	2.4%	0.2%
30	2008		-0.2%	-8.0%	-1.1%	-1.5%	-1.8%
31	2009		-0.1%	-6.5%	-1.7%	-3.2%	-3.6%
32	2010		0.0%	2.3%	2.3%	2.7%	0.0%
33	2011		-0.1%	2.3%	0.4%	1.1%	0.7%
34	2012		0.1%	0.6%	2.0%	3.4%	1.3%
35	2013		0.0%	0.1%	-1.2%	-1.8%	1.3%
36	2014		0.2%	2.1%	3.3%	2.9%	1.2%
37	2015		0.0%	1.4%	4.0%	4.2%	1.1%
38	2016		0.2%	3.5%	1.8%	1.8%	1.5%
39	2017		0.1%	2.5%	0.8%	0.8%	1.5%
40	2018		0.2%	1.1%	0.7%	0.6%	1.4%
41	2019		0.2%	0.3%	0.4%	0.3%	1.0%
42	2020		0.2%	0.3%	0.2%	0.1%	0.5%
43	2021		0.2%	0.6%	0.7%	0.7%	0.5%
	Compound Annual Growth Rates						
44	2012-2016		0.1%	1.8%	1.9%	1.8%	1.3%
45	2016-2021		0.2%	0.9%	0.6%	0.5%	1.0%

Line Number	Year	Mnemonic Description	FHSTKA Housing Stock: Total, (Ths. of units)	FHSTKMFA Housing Stock: Multi-family, (Ths. of units)
1	2000		440.67	181.44
2	2001		443.25	181.29
3	2002		445.85	180.96
4	2003		448.66	180.95
5	2004		451.04	180.70
6	2005		453.70	180.48
7	2006		456.47	180.25
8	2007		458.78	180.11
9	2008		460.61	179.95
10	2009		461.90	179.76
11	2010		463.51	179.65
12	2011		462.99	179.09
13	2012		462.21	178.51
14	2013		461.41	177.81
15	2014		460.64	177.12
16	2015		459.90	176.44
17	2016		459.36	175.80
18	2017		459.30	175.23
19	2018		459.71	174.72
20	2019		460.23	174.23
21	2020		460.80	173.79
22	2021		461.42	173.39
	Annual Growth Rates			
23	2001		0.6%	-0.1%
24	2002		0.6%	-0.2%
25	2003		0.6%	0.0%
26	2004		0.5%	-0.1%
27	2005		0.6%	-0.1%
28	2006		0.6%	-0.1%
29	2007		0.5%	-0.1%
30	2008		0.4%	-0.1%
31	2009		0.3%	-0.1%
32	2010		0.3%	-0.1%
33	2011		-0.1%	-0.3%
34	2012		-0.2%	-0.3%
35	2013		-0.2%	-0.4%
36	2014		-0.2%	-0.4%
37	2015		-0.2%	-0.4%
38	2016		-0.1%	-0.4%
39	2017		0.0%	-0.3%
40	2018		0.1%	-0.3%
41	2019		0.1%	-0.3%
42	2020		0.1%	-0.3%
43	2021		0.1%	-0.2%
	Compound Annual Growth Rates			
44	2012-2016		-0.2%	-0.4%
45	2016-2021		0.1%	-0.3%

Line Number	Year	Mnemonic Description	NGPRCR Natural Gas Residential Price	NGPRCC Price of Natural Gas Sold to Commercial Consumers	NGPRCI Natural Gas Industrial Price	OILPRCR No 2 Distillate Residential Price by All Sellers	OILPRCC No 2 Distillate Commercial Price by All Sellers
1	2000		13.57	11.94	10.82	12.67	11.16
2	2001		16.50	14.57	9.29	12.38	9.91
3	2002		15.74	13.49	6.42	10.97	8.62
4	2003		15.40	13.61	10.64	13.08	10.94
5	2004		16.87	15.20	12.24	13.86	11.71
6	2005		18.22	16.57	13.75	17.68	16.17
7	2006		20.90	19.11	15.88	20.79	18.52
8	2007		19.34	17.47	14.59	21.68	19.50
9	2008		18.90	17.68	14.74	27.14	25.68
10	2009		19.10	17.09	14.16	19.15	16.97
11	2010		18.73	16.35	13.34	23.39	20.42
12	2011		16.74	14.60	11.65	28.97	25.95
13	2012		15.20	13.21	10.17	30.84	27.59
14	2013		15.52	13.18	9.34	30.30	27.04
15	2014		15.47	13.60	10.33	29.19	25.96
16	2015		14.58	12.51	9.41	20.38	18.12
17	2016		13.86	11.54	8.92	16.18	14.51
18	2017		14.31	12.73	10.14	19.73	17.65
19	2018		14.11	12.84	10.28	20.18	18.03
20	2019		14.54	13.70	11.11	22.62	20.26
21	2020		14.87	14.07	11.55	23.77	21.19
22	2021		15.08	14.25	11.72	24.78	22.00
	Annual Growth Rates						
23	2001		21.6%	22.1%	-14.2%	-2.3%	-11.2%
24	2002		-4.6%	-7.4%	-30.9%	-11.4%	-13.0%
25	2003		-2.1%	0.9%	65.7%	19.3%	26.9%
26	2004		9.5%	11.7%	15.0%	6.0%	7.1%
27	2005		8.0%	9.0%	12.4%	27.5%	38.1%
28	2006		14.7%	15.3%	15.5%	17.6%	14.5%
29	2007		-7.5%	-8.6%	-8.1%	4.3%	5.3%
30	2008		-2.3%	1.3%	1.1%	25.2%	31.7%
31	2009		1.1%	-3.3%	-4.0%	-29.5%	-33.9%
32	2010		-1.9%	-4.4%	-5.8%	22.1%	20.3%
33	2011		-10.7%	-10.7%	-12.7%	23.9%	27.1%
34	2012		-9.2%	-9.5%	-12.7%	6.5%	6.3%
35	2013		2.1%	-0.2%	-8.2%	-1.8%	-2.0%
36	2014		-0.3%	3.2%	10.6%	-3.6%	-4.0%
37	2015		-5.8%	-8.0%	-8.9%	-30.2%	-30.2%
38	2016		-4.9%	-7.8%	-5.3%	-20.6%	-19.9%
39	2017		3.3%	10.4%	13.8%	22.0%	21.7%
40	2018		-1.4%	0.8%	1.4%	2.3%	2.1%
41	2019		3.0%	6.7%	8.0%	12.1%	12.4%
42	2020		2.3%	2.7%	4.0%	5.1%	4.6%
43	2021		1.4%	1.3%	1.5%	4.2%	3.8%
	Compound Annual Growth Rates						
44	2012-2016		-2.3%	-3.3%	-3.2%	-14.9%	-14.8%
45	2016-2021		1.7%	4.3%	5.6%	8.9%	8.7%

Line Number	Year	Mnemonic Description	OILPRCI No 2 Distillate Industrial Price by All Sellers	NGPRCCI Commercial and Industrial Natural Gas Price	OILPRCCI Commercial and Industrial No 2 Distillate Oil Price	GORR Natural Gas and Oil Ratio for Residential sector	GORC Natural Gas and Oil Ratio for Commercial sector
1	2000		10.45	11.38	10.80	1.07	1.07
2	2001		9.39	11.93	9.65	1.33	1.47
3	2002		8.43	9.96	8.53	1.43	1.57
4	2003		10.14	12.12	10.54	1.18	1.24
5	2004		11.98	13.72	11.85	1.22	1.30
6	2005		16.71	15.16	16.44	1.03	1.02
7	2006		19.35	17.49	18.94	1.01	1.03
8	2007		20.04	16.03	19.77	0.89	0.90
9	2008		26.64	16.21	26.16	0.70	0.69
10	2009		16.42	15.63	16.70	1.00	1.01
11	2010		20.19	14.84	20.30	0.80	0.80
12	2011		25.81	13.12	25.88	0.58	0.56
13	2012		27.31	11.69	27.45	0.49	0.48
14	2013		26.62	11.26	26.83	0.51	0.49
15	2014		25.24	11.96	25.60	0.53	0.52
16	2015		17.57	10.96	17.85	0.72	0.69
17	2016		14.44	10.23	14.47	0.86	0.80
18	2017		17.49	11.44	17.57	0.73	0.72
19	2018		17.78	11.56	17.91	0.70	0.71
20	2019		20.06	12.41	20.16	0.64	0.68
21	2020		20.96	12.81	21.07	0.63	0.66
22	2021		21.77	12.99	21.89	0.61	0.65
	Annual Growth Rates						
23	2001		-10.2%	4.8%	-10.7%	24.5%	37.5%
24	2002		-10.1%	-16.5%	-11.6%	7.6%	6.4%
25	2003		20.3%	21.7%	23.6%	-17.9%	-20.5%
26	2004		18.1%	13.2%	12.4%	3.4%	4.3%
27	2005		39.5%	10.5%	38.8%	-15.3%	-21.1%
28	2006		15.8%	15.4%	15.2%	-2.4%	0.7%
29	2007		3.5%	-8.4%	4.4%	-11.3%	-13.2%
30	2008		33.0%	1.2%	32.3%	-22.0%	-23.1%
31	2009		-38.4%	-3.6%	-36.2%	43.2%	46.3%
32	2010		22.9%	-5.0%	21.6%	-19.7%	-20.5%
33	2011		27.8%	-11.6%	27.5%	-27.9%	-29.8%
34	2012		5.8%	-10.9%	6.0%	-14.7%	-14.9%
35	2013		-2.5%	-3.7%	-2.2%	3.9%	1.8%
36	2014		-5.2%	6.3%	-4.6%	3.5%	7.5%
37	2015		-30.4%	-8.4%	-30.3%	35.0%	31.9%
38	2016		-17.8%	-6.7%	-18.9%	19.8%	15.2%
39	2017		21.1%	11.9%	21.4%	-15.3%	-9.3%
40	2018		1.7%	1.1%	1.9%	-3.6%	-1.3%
41	2019		12.8%	7.3%	12.6%	-8.1%	-5.0%
42	2020		4.5%	3.3%	4.5%	-2.7%	-1.8%
43	2021		3.9%	1.4%	3.9%	-2.7%	-2.5%
	Compound Annual Growth Rates						
44	2012-2016		-14.7%	-3.3%	-14.8%	14.8%	13.5%
45	2016-2021		8.6%	4.9%	8.6%	-6.6%	-4.0%

Line Number	Year	Mnemonic Description	GORI Natural Gas and Oil Ratio for Industrial sector	GORCI Natural Gas and Oil Ratio for Commercial and Industrial
1	2000		1.04	1.05
2	2001		0.99	1.24
3	2002		0.76	1.17
4	2003		1.05	1.15
5	2004		1.02	1.16
6	2005		0.82	0.92
7	2006		0.82	0.92
8	2007		0.73	0.81
9	2008		0.55	0.62
10	2009		0.86	0.94
11	2010		0.66	0.73
12	2011		0.45	0.51
13	2012		0.37	0.43
14	2013		0.35	0.42
15	2014		0.41	0.47
16	2015		0.54	0.61
17	2016		0.62	0.71
18	2017		0.58	0.65
19	2018		0.58	0.65
20	2019		0.55	0.62
21	2020		0.55	0.61
22	2021		0.54	0.59
	Annual Growth Rates			
23	2001		-4.4%	17.4%
24	2002		-23.1%	-5.6%
25	2003		37.7%	-1.5%
26	2004		-2.6%	0.7%
27	2005		-19.4%	-20.4%
28	2006		-0.3%	0.2%
29	2007		-11.2%	-12.2%
30	2008		-24.0%	-23.6%
31	2009		55.8%	51.0%
32	2010		-23.4%	-21.9%
33	2011		-31.7%	-30.7%
34	2012		-17.4%	-16.0%
35	2013		-5.8%	-1.5%
36	2014		16.6%	11.4%
37	2015		30.9%	31.5%
38	2016		15.3%	15.0%
39	2017		-6.0%	-7.9%
40	2018		-0.3%	-0.8%
41	2019		-4.2%	-4.7%
42	2020		-0.5%	-1.2%
43	2021		-2.3%	-2.4%
	Compound Annual Growth Rates			
44	2012-2016		13.5%	13.5%
45	2016-2021		-2.7%	-3.4%

APPENDIX-TEP

Appendix TEP

Class Models

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 400
Residential Heating

Model Type = Meter Count
-
Model Type = logisp
Model Eqn = b1 + b2*log(x1 + b3)
Variable = time
Coeffs = {-1837967.818,300609.801,796.504}
R2 = 0.957898
RV = 5.22412e+06

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	182,373	Mar-2017	205,163	2012	186,188
Oct-2012	181,100	Apr-2017	204,681	2013	187,654
Nov-2012	183,110	May-2017	204,404	2014	193,085
Dec-2012	184,723	Jun-2017	203,856	2015	201,272
Jan-2013	186,704	Jul-2017	204,324	2016	203,690
Feb-2013	187,888	Aug-2017	203,605	2017	207,083
Mar-2013	188,597	Sep-2017	203,085	2018	210,391
Apr-2013	188,798	Oct-2017	203,155	2019	213,609
May-2013	188,294	Nov-2017	203,690	2020	216,750
Jun-2013	187,240	Dec-2017	204,817	2021	219,827
Jul-2013	185,117	Jan-2018	206,489		
Aug-2013	184,458	Feb-2018	208,020		
Sep-2013	184,257	Mar-2018	208,994		
Oct-2013	185,011	Apr-2018	209,343		
Nov-2013	186,188	May-2018	209,069		
Dec-2013	188,038	Jun-2018	208,519		
Jan-2014	189,841	Jul-2018	207,733		
Feb-2014	190,937	Aug-2018	207,009		
Mar-2014	191,226	Sep-2018	206,486		
Apr-2014	190,194	Oct-2018	206,552		
May-2014	188,270	Nov-2018	207,083		
Jun-2014	187,320	Dec-2018	208,202		
Jul-2014	185,863	Jan-2019	209,861		
Aug-2014	185,482	Feb-2019	211,383		
Sep-2014	185,743	Mar-2019	212,349		
Oct-2014	186,270	Apr-2019	212,695		
Nov-2014	187,654	May-2019	212,417		
Dec-2014	192,010	Jun-2019	211,859		
Jan-2015	194,106	Jul-2019	211,065		
Feb-2015	195,189	Aug-2019	210,331		
Mar-2015	195,750	Sep-2019	209,800		
Apr-2015	193,885	Oct-2019	209,863		
May-2015	192,624	Nov-2019	210,391		
Jun-2015	191,841	Dec-2019	211,501		
Jul-2015	191,635	Jan-2020	213,150		
Aug-2015	191,350	Feb-2020	214,661		
Sep-2015	191,643	Mar-2020	215,619		
Oct-2015	192,099	Apr-2020	215,961		
Nov-2015	193,085	May-2020	215,679		
Dec-2015	195,059	Jun-2020	215,113		
Jan-2016	196,844	Jul-2020	214,307		
Feb-2016	197,882	Aug-2020	213,565		
Mar-2016	200,147	Sep-2020	213,026		
Apr-2016	201,337	Oct-2020	213,086		
May-2016	199,818	Nov-2020	213,609		
Jun-2016	198,891	Dec-2020	214,713		
Jul-2016	199,963	Jan-2021	216,350		
Aug-2016	199,871	Feb-2021	217,853		
Sep-2016	199,934	Mar-2021	218,805		
Oct-2016	199,651	Apr-2021	219,143		
Nov-2016	201,272	May-2021	218,856		
Dec-2016	202,873	Jun-2021	218,285		
Jan-2017	204,578	Jul-2021	217,470		
Feb-2017	205,459	Aug-2021	216,720		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 401
Residential Non-Heating

Model Type = Meter Count
-
Model Type = linear
Model Eqn = 1 + x1
Variable =
Coeffs = {22775.0872,-45.1205}
R2 = 0.943776
RV = 92321.7

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	25,784	Mar-2017	19,216	2012	25,586
Oct-2012	25,563	Apr-2017	19,197	2013	25,169
Nov-2012	25,782	May-2017	19,150	2014	21,899
Dec-2012	25,840	Jun-2017	19,102	2015	19,161
Jan-2013	25,907	Jul-2017	17,817	2016	17,689
Feb-2013	25,889	Aug-2017	17,790	2017	17,042
Mar-2013	25,915	Sep-2017	17,747	2018	16,391
Apr-2013	25,925	Oct-2017	17,730	2019	15,733
May-2013	25,874	Nov-2017	17,689	2020	15,073
Jun-2013	25,806	Dec-2017	17,641	2021	14,409
Jul-2013	25,674	Jan-2018	17,569		
Aug-2013	25,562	Feb-2018	17,472		
Sep-2013	25,507	Mar-2018	17,398		
Oct-2013	25,547	Apr-2018	17,302		
Nov-2013	25,586	May-2018	17,253		
Dec-2013	25,645	Jun-2018	17,206		
Jan-2014	25,735	Jul-2018	17,170		
Feb-2014	25,765	Aug-2018	17,144		
Mar-2014	25,709	Sep-2018	17,100		
Apr-2014	25,645	Oct-2018	17,083		
May-2014	25,528	Nov-2018	17,042		
Jun-2014	25,441	Dec-2018	16,994		
Jul-2014	25,323	Jan-2019	16,921		
Aug-2014	25,289	Feb-2019	16,825		
Sep-2014	25,287	Mar-2019	16,750		
Oct-2014	25,328	Apr-2019	16,654		
Nov-2014	25,169	May-2019	16,604		
Dec-2014	23,065	Jun-2019	16,556		
Jan-2015	23,108	Jul-2019	16,519		
Feb-2015	23,136	Aug-2019	16,493		
Mar-2015	23,137	Sep-2019	16,450		
Apr-2015	22,989	Oct-2019	16,433		
May-2015	22,919	Nov-2019	16,391		
Jun-2015	22,488	Dec-2019	16,343		
Jul-2015	21,945	Jan-2020	16,268		
Aug-2015	21,886	Feb-2020	16,171		
Sep-2015	21,869	Mar-2020	16,096		
Oct-2015	21,868	Apr-2020	16,000		
Nov-2015	21,899	May-2020	15,950		
Dec-2015	21,969	Jun-2020	15,901		
Jan-2016	22,038	Jul-2020	15,864		
Feb-2016	22,078	Aug-2020	15,837		
Mar-2016	21,849	Sep-2020	15,793		
Apr-2016	21,935	Oct-2020	15,776		
May-2016	21,355	Nov-2020	15,733		
Jun-2016	21,301	Dec-2020	15,685		
Jul-2016	19,239	Jan-2021	15,610		
Aug-2016	19,101	Feb-2021	15,513		
Sep-2016	19,087	Mar-2021	15,437		
Oct-2016	19,087	Apr-2021	15,341		
Nov-2016	19,161	May-2021	15,291		
Dec-2016	19,231	Jun-2021	15,241		
Jan-2017	19,269	Jul-2021	15,203		
Feb-2017	19,266	Aug-2021	15,176		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 402
Residential Low Income Heating

Model Type = Meter Count
-
Model Type = logi
Model Eqn = 19693-2166/(1+exp(-1.26993*(t-3.06932))}
Variable =
Coeffs =
R2 = 0.0100206
RV = 6.20293e+06

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	20,244	Mar-2017	17,551	2012	19,078
Oct-2012	19,363	Apr-2017	17,677	2013	19,831
Nov-2012	19,147	May-2017	17,663	2014	20,399
Dec-2012	18,853	Jun-2017	17,661	2015	18,313
Jan-2013	18,639	Jul-2017	17,711	2016	17,951
Feb-2013	18,442	Aug-2017	17,803	2017	17,484
Mar-2013	18,240	Sep-2017	17,821	2018	16,996
Apr-2013	18,172	Oct-2017	17,943	2019	16,483
May-2013	18,567	Nov-2017	17,951	2020	15,952
Jun-2013	18,926	Dec-2017	17,929	2021	15,411
Jul-2013	20,010	Jan-2018	17,793		
Aug-2013	20,260	Feb-2018	17,560		
Sep-2013	20,097	Mar-2018	17,431		
Oct-2013	19,509	Apr-2018	17,204		
Nov-2013	19,078	May-2018	17,193		
Dec-2013	18,801	Jun-2018	17,191		
Jan-2014	18,535	Jul-2018	17,243		
Feb-2014	18,334	Aug-2018	17,336		
Mar-2014	18,539	Sep-2018	17,355		
Apr-2014	19,817	Oct-2018	17,477		
May-2014	21,449	Nov-2018	17,484		
Jun-2014	21,497	Dec-2018	17,458		
Jul-2014	21,601	Jan-2019	17,320		
Aug-2014	21,277	Feb-2019	17,086		
Sep-2014	20,783	Mar-2019	16,954		
Oct-2014	20,296	Apr-2019	16,728		
Nov-2014	19,831	May-2019	16,715		
Dec-2014	19,721	Jun-2019	16,712		
Jan-2015	19,484	Jul-2019	16,760		
Feb-2015	19,287	Aug-2019	16,852		
Mar-2015	19,278	Sep-2019	16,867		
Apr-2015	21,378	Oct-2019	16,991		
May-2015	22,365	Nov-2019	16,996		
Jun-2015	22,770	Dec-2019	16,968		
Jul-2015	22,260	Jan-2020	16,827		
Aug-2015	21,754	Feb-2020	16,590		
Sep-2015	21,262	Mar-2020	16,455		
Oct-2015	20,787	Apr-2020	16,229		
Nov-2015	20,399	May-2020	16,214		
Dec-2015	20,070	Jun-2020	16,208		
Jan-2016	19,797	Jul-2020	16,253		
Feb-2016	19,552	Aug-2020	16,344		
Mar-2016	14,345	Sep-2020	16,355		
Apr-2016	16,881	Oct-2020	16,480		
May-2016	18,902	Nov-2020	16,483		
Jun-2016	19,390	Dec-2020	16,453		
Jul-2016	19,407	Jan-2021	16,308		
Aug-2016	19,140	Feb-2021	16,070		
Sep-2016	18,870	Mar-2021	15,933		
Oct-2016	18,545	Apr-2021	15,707		
Nov-2016	18,313	May-2021	15,691		
Dec-2016	18,017	Jun-2021	15,683		
Jan-2017	17,741	Jul-2021	15,727		
Feb-2017	17,527	Aug-2021	15,815		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 403
Residential Low Income Non-Heating

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+236
Variable =
Coeffs =
R2 = 0
RV = 6567.4

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	415	Mar-2017	237	2012	481
Oct-2012	392	Apr-2017	245	2013	588
Nov-2012	392	May-2017	244	2014	425
Dec-2012	391	Jun-2017	243	2015	243
Jan-2013	385	Jul-2017	246	2016	259
Feb-2013	382	Aug-2017	250	2017	231
Mar-2013	379	Sep-2017	251	2018	202
Apr-2013	373	Oct-2017	259	2019	171
May-2013	384	Nov-2017	259	2020	169
Jun-2013	424	Dec-2017	259	2021	169
Jul-2013	484	Jan-2018	252		
Aug-2013	504	Feb-2018	238		
Sep-2013	515	Mar-2018	230		
Oct-2013	495	Apr-2018	217		
Nov-2013	481	May-2018	215		
Dec-2013	474	Jun-2018	215		
Jan-2014	469	Jul-2018	217		
Feb-2014	461	Aug-2018	222		
Mar-2014	466	Sep-2018	223		
Apr-2014	532	Oct-2018	231		
May-2014	633	Nov-2018	231		
Jun-2014	652	Dec-2018	231		
Jul-2014	674	Jan-2019	223		
Aug-2014	665	Feb-2019	209		
Sep-2014	653	Mar-2019	202		
Oct-2014	630	Apr-2019	188		
Nov-2014	588	May-2019	187		
Dec-2014	404	Jun-2019	186		
Jan-2015	404	Jul-2019	188		
Feb-2015	409	Aug-2019	193		
Mar-2015	408	Sep-2019	194		
Apr-2015	510	Oct-2019	201		
May-2015	560	Nov-2019	202		
Jun-2015	519	Dec-2019	201		
Jul-2015	462	Jan-2020	194		
Aug-2015	459	Feb-2020	180		
Sep-2015	450	Mar-2020	172		
Oct-2015	444	Apr-2020	158		
Nov-2015	425	May-2020	157		
Dec-2015	418	Jun-2020	156		
Jan-2016	409	Jul-2020	158		
Feb-2016	410	Aug-2020	163		
Mar-2016	316	Sep-2020	163		
Apr-2016	398	Oct-2020	171		
May-2016	472	Nov-2020	171		
Jun-2016	486	Dec-2020	170		
Jul-2016	269	Jan-2021	169		
Aug-2016	256	Feb-2021	167		
Sep-2016	251	Mar-2021	165		
Oct-2016	246	Apr-2021	163		
Nov-2016	243	May-2021	161		
Dec-2016	238	Jun-2021	159		
Jan-2017	233	Jul-2021	161		
Feb-2017	236	Aug-2021	163		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 404
C&I Small

Model Type = Meter Count
-
Model Type = logisp
Model Eqn = 1 + x1
Variable = NGPRCCI
Coeffs = {19497.5723,-128.3496}
R2 = na
RV = 32613

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	18,292	Mar-2017	18,880	2012	18,269
Oct-2012	17,961	Apr-2017	18,954	2013	18,242
Nov-2012	18,097	May-2017	18,887	2014	18,242
Dec-2012	18,360	Jun-2017	18,772	2015	18,283
Jan-2013	18,613	Jul-2017	18,616	2016	18,298
Feb-2013	18,730	Aug-2017	18,462	2017	18,260
Mar-2013	18,811	Sep-2017	18,347	2018	18,174
Apr-2013	18,797	Oct-2017	18,254	2019	18,117
May-2013	18,705	Nov-2017	18,298	2020	18,072
Jun-2013	18,543	Dec-2017	18,413	2021	18,021
Jul-2013	18,411	Jan-2018	18,612		
Aug-2013	18,289	Feb-2018	18,808		
Sep-2013	18,229	Mar-2018	18,918		
Oct-2013	18,192	Apr-2018	18,923		
Nov-2013	18,269	May-2018	18,856		
Dec-2013	18,525	Jun-2018	18,740		
Jan-2014	18,741	Jul-2018	18,583		
Feb-2014	18,876	Aug-2018	18,428		
Mar-2014	18,930	Sep-2018	18,313		
Apr-2014	18,900	Oct-2018	18,217		
May-2014	18,822	Nov-2018	18,260		
Jun-2014	18,629	Dec-2018	18,371		
Jul-2014	18,432	Jan-2019	18,563		
Aug-2014	18,316	Feb-2019	18,751		
Sep-2014	18,234	Mar-2019	18,858		
Oct-2014	18,220	Apr-2019	18,859		
Nov-2014	18,242	May-2019	18,789		
Dec-2014	18,445	Jun-2019	18,670		
Jan-2015	18,693	Jul-2019	18,508		
Feb-2015	18,797	Aug-2019	18,347		
Mar-2015	18,856	Sep-2019	18,229		
Apr-2015	18,831	Oct-2019	18,130		
May-2015	18,736	Nov-2019	18,174		
Jun-2015	18,547	Dec-2019	18,287		
Jul-2015	18,353	Jan-2020	18,482		
Aug-2015	18,198	Feb-2020	18,674		
Sep-2015	18,224	Mar-2020	18,783		
Oct-2015	18,192	Apr-2020	18,787		
Nov-2015	18,242	May-2020	18,718		
Dec-2015	18,492	Jun-2020	18,601		
Jan-2016	18,688	Jul-2020	18,442		
Feb-2016	18,820	Aug-2020	18,285		
Mar-2016	18,495	Sep-2020	18,168		
Apr-2016	18,884	Oct-2020	18,071		
May-2016	18,815	Nov-2020	18,117		
Jun-2016	18,697	Dec-2020	18,231		
Jul-2016	18,532	Jan-2021	18,428		
Aug-2016	18,379	Feb-2021	18,622		
Sep-2016	18,201	Mar-2021	18,732		
Oct-2016	18,057	Apr-2021	18,737		
Nov-2016	18,283	May-2021	18,669		
Dec-2016	18,398	Jun-2021	18,553		
Jan-2017	18,638	Jul-2021	18,395		
Feb-2017	18,740	Aug-2021	18,239		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 405
C&I Medium

Model Type = Meter Count
-
Model Type = linear
Model Eqn = 1 + x1
Variable =
Coeffs = {2871.6299,4.5292}
R2 = 0.870592
RV = 2978.64

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	2,971	Mar-2017	3,227	2012	3,016
Oct-2012	2,925	Apr-2017	3,220	2013	3,076
Nov-2012	2,977	May-2017	3,222	2014	3,042
Dec-2012	2,991	Jun-2017	3,226	2015	3,250
Jan-2013	3,029	Jul-2017	3,230	2016	3,246
Feb-2013	3,035	Aug-2017	3,233	2017	3,291
Mar-2013	3,044	Sep-2017	3,237	2018	3,349
Apr-2013	3,043	Oct-2017	3,242	2019	3,401
May-2013	3,048	Nov-2017	3,246	2020	3,445
Jun-2013	3,076	Dec-2017	3,251	2021	3,489
Jul-2013	3,058	Jan-2018	3,257		
Aug-2013	3,041	Feb-2018	3,261		
Sep-2013	3,024	Mar-2018	3,265		
Oct-2013	3,025	Apr-2018	3,266		
Nov-2013	3,016	May-2018	3,269		
Dec-2013	3,041	Jun-2018	3,271		
Jan-2014	3,029	Jul-2018	3,274		
Feb-2014	3,043	Aug-2018	3,278		
Mar-2014	3,055	Sep-2018	3,281		
Apr-2014	3,036	Oct-2018	3,286		
May-2014	3,058	Nov-2018	3,291		
Jun-2014	3,075	Dec-2018	3,297		
Jul-2014	3,067	Jan-2019	3,305		
Aug-2014	3,052	Feb-2019	3,311		
Sep-2014	3,064	Mar-2019	3,315		
Oct-2014	3,081	Apr-2019	3,317		
Nov-2014	3,076	May-2019	3,320		
Dec-2014	3,100	Jun-2019	3,325		
Jan-2015	3,122	Jul-2019	3,329		
Feb-2015	3,125	Aug-2019	3,336		
Mar-2015	3,124	Sep-2019	3,339		
Apr-2015	3,120	Oct-2019	3,345		
May-2015	3,107	Nov-2019	3,349		
Jun-2015	3,089	Dec-2019	3,355		
Jul-2015	3,070	Jan-2020	3,361		
Aug-2015	3,057	Feb-2020	3,366		
Sep-2015	3,033	Mar-2020	3,369		
Oct-2015	3,037	Apr-2020	3,371		
Nov-2015	3,042	May-2020	3,374		
Dec-2015	3,063	Jun-2020	3,377		
Jan-2016	3,065	Jul-2020	3,381		
Feb-2016	3,079	Aug-2020	3,388		
Mar-2016	3,014	Sep-2020	3,391		
Apr-2016	3,069	Oct-2020	3,396		
May-2016	3,041	Nov-2020	3,401		
Jun-2016	3,179	Dec-2020	3,406		
Jul-2016	3,157	Jan-2021	3,412		
Aug-2016	3,147	Feb-2021	3,415		
Sep-2016	3,244	Mar-2021	3,419		
Oct-2016	3,205	Apr-2021	3,420		
Nov-2016	3,250	May-2021	3,423		
Dec-2016	3,219	Jun-2021	3,425		
Jan-2017	3,221	Jul-2021	3,429		
Feb-2017	3,232	Aug-2021	3,433		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 406
FT2 Medium

Model Type = Meter Count
-
Model Type = linear
Model Eqn = 1 + x1
Variable =
Coeffs = {964.7144,6.0494}
R2 = 0.914439
RV = 2589.95

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	1,170	Mar-2017	1,416	2012	1,271
Oct-2012	1,162	Apr-2017	1,414	2013	1,229
Nov-2012	1,184	May-2017	1,418	2014	1,290
Dec-2012	1,201	Jun-2017	1,422	2015	1,379
Jan-2013	1,214	Jul-2017	1,425	2016	1,440
Feb-2013	1,228	Aug-2017	1,428	2017	1,502
Mar-2013	1,233	Sep-2017	1,432	2018	1,571
Apr-2013	1,233	Oct-2017	1,436	2019	1,650
May-2013	1,234	Nov-2017	1,440	2020	1,732
Jun-2013	1,246	Dec-2017	1,446	2021	1,810
Jul-2013	1,247	Jan-2018	1,453		
Aug-2013	1,248	Feb-2018	1,460		
Sep-2013	1,251	Mar-2018	1,467		
Oct-2013	1,249	Apr-2018	1,473		
Nov-2013	1,271	May-2018	1,477		
Dec-2013	1,280	Jun-2018	1,482		
Jan-2014	1,309	Jul-2018	1,485		
Feb-2014	1,296	Aug-2018	1,488		
Mar-2014	1,267	Sep-2018	1,493		
Apr-2014	1,247	Oct-2018	1,497		
May-2014	1,237	Nov-2018	1,502		
Jun-2014	1,224	Dec-2018	1,508		
Jul-2014	1,223	Jan-2019	1,515		
Aug-2014	1,229	Feb-2019	1,523		
Sep-2014	1,226	Mar-2019	1,530		
Oct-2014	1,220	Apr-2019	1,538		
Nov-2014	1,229	May-2019	1,543		
Dec-2014	1,229	Jun-2019	1,548		
Jan-2015	1,228	Jul-2019	1,552		
Feb-2015	1,232	Aug-2019	1,556		
Mar-2015	1,229	Sep-2019	1,561		
Apr-2015	1,231	Oct-2019	1,565		
May-2015	1,245	Nov-2019	1,571		
Jun-2015	1,242	Dec-2019	1,577		
Jul-2015	1,260	Jan-2020	1,585		
Aug-2015	1,267	Feb-2020	1,594		
Sep-2015	1,284	Mar-2020	1,602		
Oct-2015	1,283	Apr-2020	1,610		
Nov-2015	1,290	May-2020	1,616		
Dec-2015	1,297	Jun-2020	1,622		
Jan-2016	1,315	Jul-2020	1,628		
Feb-2016	1,331	Aug-2020	1,633		
Mar-2016	1,300	Sep-2020	1,638		
Apr-2016	1,347	Oct-2020	1,644		
May-2016	1,355	Nov-2020	1,650		
Jun-2016	1,368	Dec-2020	1,658		
Jul-2016	1,362	Jan-2021	1,666		
Aug-2016	1,375	Feb-2021	1,676		
Sep-2016	1,363	Mar-2021	1,684		
Oct-2016	1,382	Apr-2021	1,692		
Nov-2016	1,379	May-2021	1,698		
Dec-2016	1,427	Jun-2021	1,704		
Jan-2017	1,432	Jul-2021	1,709		
Feb-2017	1,443	Aug-2021	1,714		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 407
FT1 Medium

Model Type = Meter Count
-
Model Type = linear
Model Eqn = 1 + x1
Variable =
Coeffs = {440.2211,-0.91286}
R2 = 0.954625
RV = 98.1251

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	411	Mar-2017	348	2012	406
Oct-2012	417	Apr-2017	345	2013	386
Nov-2012	415	May-2017	344	2014	382
Dec-2012	413	Jun-2017	343	2015	370
Jan-2013	413	Jul-2017	341	2016	336
Feb-2013	412	Aug-2017	341	2017	323
Mar-2013	411	Sep-2017	339	2018	312
Apr-2013	411	Oct-2017	338	2019	302
May-2013	409	Nov-2017	336	2020	293
Jun-2013	408	Dec-2017	335	2021	283
Jul-2013	410	Jan-2018	334		
Aug-2013	408	Feb-2018	334		
Sep-2013	408	Mar-2018	333		
Oct-2013	406	Apr-2018	332		
Nov-2013	406	May-2018	331		
Dec-2013	405	Jun-2018	329		
Jan-2014	404	Jul-2018	328		
Feb-2014	406	Aug-2018	327		
Mar-2014	405	Sep-2018	326		
Apr-2014	404	Oct-2018	324		
May-2014	402	Nov-2018	323		
Jun-2014	385	Dec-2018	322		
Jul-2014	394	Jan-2019	322		
Aug-2014	394	Feb-2019	321		
Sep-2014	391	Mar-2019	320		
Oct-2014	388	Apr-2019	319		
Nov-2014	386	May-2019	318		
Dec-2014	386	Jun-2019	317		
Jan-2015	386	Jul-2019	317		
Feb-2015	386	Aug-2019	315		
Mar-2015	386	Sep-2019	314		
Apr-2015	386	Oct-2019	313		
May-2015	385	Nov-2019	312		
Jun-2015	382	Dec-2019	311		
Jul-2015	381	Jan-2020	310		
Aug-2015	392	Feb-2020	310		
Sep-2015	388	Mar-2020	309		
Oct-2015	382	Apr-2020	308		
Nov-2015	382	May-2020	307		
Dec-2015	382	Jun-2020	307		
Jan-2016	383	Jul-2020	306		
Feb-2016	383	Aug-2020	305		
Mar-2016	383	Sep-2020	304		
Apr-2016	383	Oct-2020	303		
May-2016	383	Nov-2020	302		
Jun-2016	382	Dec-2020	301		
Jul-2016	380	Jan-2021	301		
Aug-2016	373	Feb-2021	300		
Sep-2016	372	Mar-2021	300		
Oct-2016	372	Apr-2021	299		
Nov-2016	370	May-2021	298		
Dec-2016	369	Jun-2021	298		
Jan-2017	369	Jul-2021	297		
Feb-2017	348	Aug-2021	296		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 408
TSS Medium

Model Type = Meter Count
-
Model Type = log
Model Eqn = b1 + b2*log(x1 + b3)
Variable =
Coeffs = {-964.3161,129.8493,1659.368}
R2 = 0.345423
RV = 179.321

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	24	Mar-2017	43	2012	41
Oct-2012	30	Apr-2017	41	2013	133
Nov-2012	36	May-2017	40	2014	149
Dec-2012	37	Jun-2017	40	2015	19
Jan-2013	37	Jul-2017	40	2016	39
Feb-2013	43	Aug-2017	40	2017	39
Mar-2013	45	Sep-2017	39	2018	39
Apr-2013	55	Oct-2017	39	2019	39
May-2013	55	Nov-2017	39	2020	39
Jun-2013	9	Dec-2017	39	2021	39
Jul-2013	24	Jan-2018	40		
Aug-2013	28	Feb-2018	40		
Sep-2013	31	Mar-2018	39		
Oct-2013	39	Apr-2018	39		
Nov-2013	41	May-2018	39		
Dec-2013	45	Jun-2018	39		
Jan-2014	51	Jul-2018	39		
Feb-2014	67	Aug-2018	39		
Mar-2014	94	Sep-2018	39		
Apr-2014	107	Oct-2018	39		
May-2014	132	Nov-2018	39		
Jun-2014	130	Dec-2018	39		
Jul-2014	116	Jan-2019	39		
Aug-2014	111	Feb-2019	39		
Sep-2014	119	Mar-2019	39		
Oct-2014	123	Apr-2019	39		
Nov-2014	133	May-2019	39		
Dec-2014	147	Jun-2019	39		
Jan-2015	156	Jul-2019	39		
Feb-2015	163	Aug-2019	39		
Mar-2015	172	Sep-2019	39		
Apr-2015	173	Oct-2019	39		
May-2015	167	Nov-2019	39		
Jun-2015	171	Dec-2019	39		
Jul-2015	172	Jan-2020	40		
Aug-2015	168	Feb-2020	40		
Sep-2015	139	Mar-2020	40		
Oct-2015	147	Apr-2020	39		
Nov-2015	149	May-2020	39		
Dec-2015	149	Jun-2020	39		
Jan-2016	146	Jul-2020	39		
Feb-2016	147	Aug-2020	39		
Mar-2016	150	Sep-2020	39		
Apr-2016	154	Oct-2020	39		
May-2016	155	Nov-2020	39		
Jun-2016	13	Dec-2020	39		
Jul-2016	7	Jan-2021	39		
Aug-2016	8	Feb-2021	39		
Sep-2016	7	Mar-2021	39		
Oct-2016	12	Apr-2021	39		
Nov-2016	19	May-2021	39		
Dec-2016	27	Jun-2021	39		
Jan-2017	35	Jul-2021	39		
Feb-2017	43	Aug-2021	39		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 409
C&I Low Load - Large

Model Type = Meter Count
-
Model Type = logi
Model Eqn = 104.667+10.3333/(1+exp(-1.03226*(t-2.8125))|
Variable =
Coeffs =
R2 = 0.308523
RV = 70.7264

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	116	Mar-2017	115	2012	122
Oct-2012	115	Apr-2017	114	2013	126
Nov-2012	118	May-2017	113	2014	121
Dec-2012	116	Jun-2017	113	2015	123
Jan-2013	117	Jul-2017	113	2016	113
Feb-2013	121	Aug-2017	113	2017	112
Mar-2013	121	Sep-2017	113	2018	112
Apr-2013	117	Oct-2017	113	2019	111
May-2013	115	Nov-2017	113	2020	110
Jun-2013	121	Dec-2017	113	2021	109
Jul-2013	121	Jan-2018	113		
Aug-2013	121	Feb-2018	113		
Sep-2013	121	Mar-2018	113		
Oct-2013	121	Apr-2018	112		
Nov-2013	122	May-2018	112		
Dec-2013	124	Jun-2018	112		
Jan-2014	124	Jul-2018	112		
Feb-2014	124	Aug-2018	112		
Mar-2014	121	Sep-2018	112		
Apr-2014	124	Oct-2018	112		
May-2014	124	Nov-2018	112		
Jun-2014	128	Dec-2018	112		
Jul-2014	126	Jan-2019	112		
Aug-2014	126	Feb-2019	112		
Sep-2014	124	Mar-2019	112		
Oct-2014	123	Apr-2019	112		
Nov-2014	126	May-2019	112		
Dec-2014	126	Jun-2019	112		
Jan-2015	128	Jul-2019	112		
Feb-2015	130	Aug-2019	112		
Mar-2015	131	Sep-2019	112		
Apr-2015	129	Oct-2019	112		
May-2015	128	Nov-2019	112		
Jun-2015	128	Dec-2019	112		
Jul-2015	125	Jan-2020	112		
Aug-2015	121	Feb-2020	112		
Sep-2015	115	Mar-2020	112		
Oct-2015	116	Apr-2020	112		
Nov-2015	121	May-2020	111		
Dec-2015	120	Jun-2020	111		
Jan-2016	121	Jul-2020	111		
Feb-2016	119	Aug-2020	111		
Mar-2016	120	Sep-2020	111		
Apr-2016	123	Oct-2020	111		
May-2016	118	Nov-2020	111		
Jun-2016	125	Dec-2020	111		
Jul-2016	124	Jan-2021	111		
Aug-2016	127	Feb-2021	111		
Sep-2016	117	Mar-2021	111		
Oct-2016	119	Apr-2021	111		
Nov-2016	123	May-2021	111		
Dec-2016	114	Jun-2021	110		
Jan-2017	119	Jul-2021	110		
Feb-2017	115	Aug-2021	110		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 410
FT2 Large Low

Model Type = Meter Count
-
Model Type = log
Model Eqn = b1 + b2*log(x1 + b3)
Variable =
Coeffs = {-7.036,46.4032,19.9366}
R2 = 0.937057
RV = 31.3686

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	171	Mar-2017	211	2012	182
Oct-2012	171	Apr-2017	211	2013	188
Nov-2012	175	May-2017	211	2014	194
Dec-2012	176	Jun-2017	212	2015	205
Jan-2013	182	Jul-2017	211	2016	212
Feb-2013	185	Aug-2017	211	2017	216
Mar-2013	186	Sep-2017	212	2018	220
Apr-2013	187	Oct-2017	212	2019	224
May-2013	190	Nov-2017	212	2020	230
Jun-2013	187	Dec-2017	212	2021	233
Jul-2013	188	Jan-2018	213		
Aug-2013	186	Feb-2018	214		
Sep-2013	178	Mar-2018	214		
Oct-2013	179	Apr-2018	215		
Nov-2013	182	May-2018	214		
Dec-2013	184	Jun-2018	215		
Jan-2014	184	Jul-2018	215		
Feb-2014	186	Aug-2018	216		
Mar-2014	189	Sep-2018	215		
Apr-2014	182	Oct-2018	215		
May-2014	188	Nov-2018	216		
Jun-2014	190	Dec-2018	216		
Jul-2014	188	Jan-2019	216		
Aug-2014	188	Feb-2019	217		
Sep-2014	187	Mar-2019	218		
Oct-2014	188	Apr-2019	219		
Nov-2014	188	May-2019	219		
Dec-2014	187	Jun-2019	219		
Jan-2015	188	Jul-2019	219		
Feb-2015	188	Aug-2019	219		
Mar-2015	188	Sep-2019	219		
Apr-2015	185	Oct-2019	220		
May-2015	186	Nov-2019	220		
Jun-2015	185	Dec-2019	221		
Jul-2015	189	Jan-2020	221		
Aug-2015	189	Feb-2020	221		
Sep-2015	189	Mar-2020	223		
Oct-2015	189	Apr-2020	223		
Nov-2015	194	May-2020	223		
Dec-2015	191	Jun-2020	224		
Jan-2016	201	Jul-2020	224		
Feb-2016	202	Aug-2020	224		
Mar-2016	204	Sep-2020	224		
Apr-2016	203	Oct-2020	224		
May-2016	207	Nov-2020	224		
Jun-2016	203	Dec-2020	226		
Jul-2016	203	Jan-2021	226		
Aug-2016	203	Feb-2021	226		
Sep-2016	204	Mar-2021	228		
Oct-2016	206	Apr-2021	228		
Nov-2016	205	May-2021	228		
Dec-2016	213	Jun-2021	228		
Jan-2017	215	Jul-2021	229		
Feb-2017	211	Aug-2021	229		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 411
FT1 Large Low

Model Type = Meter Count
-
Model Type = log
Model Eqn = b1 + b2*log(x1 + b3)
Variable =
Coeffs = {773.8644,-107.9508,437.8488}
R2 = 0.92868
RV = 2.24909

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	119	Mar-2017	98	2012	120
Oct-2012	117	Apr-2017	98	2013	116
Nov-2012	119	May-2017	98	2014	104
Dec-2012	119	Jun-2017	98	2015	99
Jan-2013	117	Jul-2017	98	2016	96
Feb-2013	116	Aug-2017	97	2017	93
Mar-2013	115	Sep-2017	97	2018	91
Apr-2013	116	Oct-2017	97	2019	89
May-2013	116	Nov-2017	96	2020	87
Jun-2013	115	Dec-2017	96	2021	85
Jul-2013	115	Jan-2018	95		
Aug-2013	121	Feb-2018	96		
Sep-2013	121	Mar-2018	96		
Oct-2013	120	Apr-2018	96		
Nov-2013	120	May-2018	96		
Dec-2013	119	Jun-2018	94		
Jan-2014	119	Jul-2018	94		
Feb-2014	121	Aug-2018	94		
Mar-2014	121	Sep-2018	94		
Apr-2014	120	Oct-2018	94		
May-2014	119	Nov-2018	93		
Jun-2014	114	Dec-2018	93		
Jul-2014	116	Jan-2019	93		
Aug-2014	116	Feb-2019	93		
Sep-2014	116	Mar-2019	93		
Oct-2014	117	Apr-2019	92		
Nov-2014	116	May-2019	92		
Dec-2014	116	Jun-2019	92		
Jan-2015	115	Jul-2019	92		
Feb-2015	115	Aug-2019	92		
Mar-2015	115	Sep-2019	91		
Apr-2015	115	Oct-2019	91		
May-2015	115	Nov-2019	91		
Jun-2015	115	Dec-2019	91		
Jul-2015	115	Jan-2020	91		
Aug-2015	105	Feb-2020	90		
Sep-2015	106	Mar-2020	90		
Oct-2015	106	Apr-2020	90		
Nov-2015	104	May-2020	90		
Dec-2015	103	Jun-2020	90		
Jan-2016	103	Jul-2020	89		
Feb-2016	101	Aug-2020	89		
Mar-2016	101	Sep-2020	89		
Apr-2016	102	Oct-2020	89		
May-2016	102	Nov-2020	89		
Jun-2016	101	Dec-2020	88		
Jul-2016	99	Jan-2021	88		
Aug-2016	99	Feb-2021	88		
Sep-2016	99	Mar-2021	89		
Oct-2016	99	Apr-2021	89		
Nov-2016	99	May-2021	88		
Dec-2016	99	Jun-2021	88		
Jan-2017	99	Jul-2021	88		
Feb-2017	99	Aug-2021	88		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 412
TSS Large Low Load

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+6
Variable =
Coeffs =
R2 = 0
RV = 10.5195

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	5	Mar-2017	6	2012	7
Oct-2012	7	Apr-2017	5	2013	7
Nov-2012	10	May-2017	5	2014	12
Dec-2012	9	Jun-2017	5	2015	2
Jan-2013	6	Jul-2017	5	2016	5
Feb-2013	5	Aug-2017	5	2017	5
Mar-2013	4	Sep-2017	5	2018	5
Apr-2013	7	Oct-2017	5	2019	4
May-2013	3	Nov-2017	5	2020	4
Jun-2013	3	Dec-2017	5	2021	3
Jul-2013	2	Jan-2018	5		
Aug-2013	9	Feb-2018	5		
Sep-2013	6	Mar-2018	5		
Oct-2013	7	Apr-2018	5		
Nov-2013	7	May-2018	5		
Dec-2013	8	Jun-2018	5		
Jan-2014	10	Jul-2018	5		
Feb-2014	10	Aug-2018	5		
Mar-2014	10	Sep-2018	5		
Apr-2014	10	Oct-2018	5		
May-2014	9	Nov-2018	5		
Jun-2014	8	Dec-2018	5		
Jul-2014	6	Jan-2019	5		
Aug-2014	6	Feb-2019	5		
Sep-2014	6	Mar-2019	5		
Oct-2014	6	Apr-2019	5		
Nov-2014	7	May-2019	5		
Dec-2014	9	Jun-2019	5		
Jan-2015	10	Jul-2019	5		
Feb-2015	10	Aug-2019	5		
Mar-2015	10	Sep-2019	5		
Apr-2015	10	Oct-2019	5		
May-2015	14	Nov-2019	5		
Jun-2015	13	Dec-2019	5		
Jul-2015	13	Jan-2020	5		
Aug-2015	13	Feb-2020	5		
Sep-2015	13	Mar-2020	5		
Oct-2015	12	Apr-2020	5		
Nov-2015	12	May-2020	4		
Dec-2015	13	Jun-2020	4		
Jan-2016	9	Jul-2020	4		
Feb-2016	10	Aug-2020	4		
Mar-2016	9	Sep-2020	4		
Apr-2016	10	Oct-2020	4		
May-2016	9	Nov-2020	4		
Jun-2016	1	Dec-2020	4		
Jul-2016	2	Jan-2021	4		
Aug-2016	2	Feb-2021	4		
Sep-2016	1	Mar-2021	4		
Oct-2016	1	Apr-2021	4		
Nov-2016	2	May-2021	4		
Dec-2016	3	Jun-2021	4		
Jan-2017	4	Jul-2021	4		
Feb-2017	6	Aug-2021	4		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 413
C&I Low Load - Extra Large

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+5
Variable =
Coeffs =
R2 = 0
RV = 2.32468

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	7	Mar-2017	5	2012	6
Oct-2012	5	Apr-2017	5	2013	6
Nov-2012	7	May-2017	5	2014	6
Dec-2012	7	Jun-2017	5	2015	5
Jan-2013	7	Jul-2017	4	2016	4
Feb-2013	7	Aug-2017	4	2017	4
Mar-2013	7	Sep-2017	4	2018	4
Apr-2013	7	Oct-2017	4	2019	4
May-2013	8	Nov-2017	4	2020	4
Jun-2013	7	Dec-2017	4	2021	3
Jul-2013	8	Jan-2018	4		
Aug-2013	7	Feb-2018	4		
Sep-2013	7	Mar-2018	4		
Oct-2013	6	Apr-2018	4		
Nov-2013	6	May-2018	4		
Dec-2013	6	Jun-2018	4		
Jan-2014	6	Jul-2018	4		
Feb-2014	6	Aug-2018	4		
Mar-2014	5	Sep-2018	4		
Apr-2014	7	Oct-2018	4		
May-2014	6	Nov-2018	4		
Jun-2014	6	Dec-2018	4		
Jul-2014	6	Jan-2019	4		
Aug-2014	5	Feb-2019	4		
Sep-2014	7	Mar-2019	4		
Oct-2014	6	Apr-2019	4		
Nov-2014	6	May-2019	4		
Dec-2014	6	Jun-2019	4		
Jan-2015	6	Jul-2019	4		
Feb-2015	6	Aug-2019	4		
Mar-2015	6	Sep-2019	4		
Apr-2015	5	Oct-2019	4		
May-2015	7	Nov-2019	4		
Jun-2015	6	Dec-2019	4		
Jul-2015	6	Jan-2020	4		
Aug-2015	6	Feb-2020	4		
Sep-2015	7	Mar-2020	4		
Oct-2015	7	Apr-2020	4		
Nov-2015	6	May-2020	4		
Dec-2015	6	Jun-2020	4		
Jan-2016	6	Jul-2020	4		
Feb-2016	5	Aug-2020	4		
Mar-2016	6	Sep-2020	4		
Apr-2016	6	Oct-2020	4		
May-2016	6	Nov-2020	4		
Jun-2016	6	Dec-2020	4		
Jul-2016	6	Jan-2021	4		
Aug-2016	6	Feb-2021	4		
Sep-2016	4	Mar-2021	4		
Oct-2016	5	Apr-2021	4		
Nov-2016	5	May-2021	4		
Dec-2016	4	Jun-2021	4		
Jan-2017	5	Jul-2021	4		
Feb-2017	5	Aug-2021	4		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 414
FT2 Exlarge Low

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+3
Variable =
Coeffs =
R2 = 0
RV = 0.012987

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	1	Mar-2017	3	2012	5
Oct-2012	1	Apr-2017	3	2013	4
Nov-2012	1	May-2017	3	2014	4
Dec-2012	1	Jun-2017	3	2015	3
Jan-2013	2	Jul-2017	3	2016	3
Feb-2013	2	Aug-2017	3	2017	3
Mar-2013	2	Sep-2017	3	2018	3
Apr-2013	2	Oct-2017	3	2019	3
May-2013	2	Nov-2017	3	2020	3
Jun-2013	2	Dec-2017	3	2021	3
Jul-2013	2	Jan-2018	3		
Aug-2013	2	Feb-2018	3		
Sep-2013	4	Mar-2018	3		
Oct-2013	5	Apr-2018	3		
Nov-2013	5	May-2018	3		
Dec-2013	5	Jun-2018	3		
Jan-2014	5	Jul-2018	3		
Feb-2014	5	Aug-2018	3		
Mar-2014	5	Sep-2018	3		
Apr-2014	5	Oct-2018	3		
May-2014	4	Nov-2018	3		
Jun-2014	4	Dec-2018	3		
Jul-2014	4	Jan-2019	3		
Aug-2014	4	Feb-2019	3		
Sep-2014	4	Mar-2019	3		
Oct-2014	4	Apr-2019	3		
Nov-2014	4	May-2019	3		
Dec-2014	4	Jun-2019	3		
Jan-2015	4	Jul-2019	3		
Feb-2015	4	Aug-2019	3		
Mar-2015	4	Sep-2019	3		
Apr-2015	4	Oct-2019	3		
May-2015	4	Nov-2019	3		
Jun-2015	4	Dec-2019	3		
Jul-2015	4	Jan-2020	3		
Aug-2015	4	Feb-2020	3		
Sep-2015	3	Mar-2020	3		
Oct-2015	3	Apr-2020	3		
Nov-2015	4	May-2020	3		
Dec-2015	4	Jun-2020	3		
Jan-2016	4	Jul-2020	3		
Feb-2016	4	Aug-2020	3		
Mar-2016	4	Sep-2020	3		
Apr-2016	4	Oct-2020	3		
May-2016	4	Nov-2020	3		
Jun-2016	4	Dec-2020	3		
Jul-2016	4	Jan-2021	3		
Aug-2016	4	Feb-2021	3		
Sep-2016	3	Mar-2021	3		
Oct-2016	3	Apr-2021	3		
Nov-2016	3	May-2021	3		
Dec-2016	3	Jun-2021	3		
Jan-2017	3	Jul-2021	3		
Feb-2017	3	Aug-2021	3		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 415
FT1 Exlarge Low

Model Type = Meter Count
-
Model Type = logi
Model Eqn = 13-2/(1+exp(-0.666667*(t-38)))
Variable =
Coeffs =
R2 = 0.915276
RV = 2.20198

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	10	Mar-2017	10	2012	9
Oct-2012	10	Apr-2017	10	2013	9
Nov-2012	12	May-2017	10	2014	9
Dec-2012	13	Jun-2017	10	2015	10
Jan-2013	12	Jul-2017	10	2016	10
Feb-2013	12	Aug-2017	10	2017	9
Mar-2013	12	Sep-2017	10	2018	9
Apr-2013	11	Oct-2017	10	2019	9
May-2013	11	Nov-2017	10	2020	10
Jun-2013	11	Dec-2017	10	2021	10
Jul-2013	12	Jan-2018	10		
Aug-2013	10	Feb-2018	10		
Sep-2013	9	Mar-2018	10		
Oct-2013	9	Apr-2018	10		
Nov-2013	9	May-2018	10		
Dec-2013	8	Jun-2018	10		
Jan-2014	7	Jul-2018	10		
Feb-2014	6	Aug-2018	9		
Mar-2014	8	Sep-2018	9		
Apr-2014	8	Oct-2018	9		
May-2014	7	Nov-2018	9		
Jun-2014	8	Dec-2018	9		
Jul-2014	9	Jan-2019	9		
Aug-2014	8	Feb-2019	9		
Sep-2014	8	Mar-2019	9		
Oct-2014	7	Apr-2019	9		
Nov-2014	9	May-2019	9		
Dec-2014	8	Jun-2019	9		
Jan-2015	8	Jul-2019	9		
Feb-2015	8	Aug-2019	9		
Mar-2015	8	Sep-2019	9		
Apr-2015	8	Oct-2019	9		
May-2015	8	Nov-2019	9		
Jun-2015	8	Dec-2019	9		
Jul-2015	8	Jan-2020	9		
Aug-2015	9	Feb-2020	9		
Sep-2015	9	Mar-2020	9		
Oct-2015	9	Apr-2020	9		
Nov-2015	9	May-2020	9		
Dec-2015	9	Jun-2020	9		
Jan-2016	9	Jul-2020	9		
Feb-2016	9	Aug-2020	9		
Mar-2016	9	Sep-2020	9		
Apr-2016	9	Oct-2020	9		
May-2016	9	Nov-2020	9		
Jun-2016	9	Dec-2020	9		
Jul-2016	9	Jan-2021	9		
Aug-2016	10	Feb-2021	10		
Sep-2016	10	Mar-2021	10		
Oct-2016	10	Apr-2021	10		
Nov-2016	10	May-2021	10		
Dec-2016	10	Jun-2021	10		
Jan-2017	10	Jul-2021	10		
Feb-2017	11	Aug-2021	10		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 416
TSS Extra Large Low Load

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+0
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	1	Mar-2017	0	2012	0
Oct-2012	1	Apr-2017	0	2013	1
Nov-2012	1	May-2017	0	2014	0
Dec-2012	1	Jun-2017	0	2015	0
Jan-2013	0	Jul-2017	0	2016	0
Feb-2013	0	Aug-2017	0	2017	0
Mar-2013	0	Sep-2017	0	2018	0
Apr-2013	1	Oct-2017	0	2019	0
May-2013	0	Nov-2017	0	2020	0
Jun-2013	0	Dec-2017	0	2021	0
Jul-2013	0	Jan-2018	0		
Aug-2013	0	Feb-2018	0		
Sep-2013	0	Mar-2018	0		
Oct-2013	0	Apr-2018	0		
Nov-2013	0	May-2018	0		
Dec-2013	1	Jun-2018	0		
Jan-2014	0	Jul-2018	0		
Feb-2014	-1	Aug-2018	0		
Mar-2014	0	Sep-2018	0		
Apr-2014	0	Oct-2018	0		
May-2014	1	Nov-2018	0		
Jun-2014	1	Dec-2018	0		
Jul-2014	1	Jan-2019	0		
Aug-2014	1	Feb-2019	0		
Sep-2014	1	Mar-2019	0		
Oct-2014	1	Apr-2019	0		
Nov-2014	1	May-2019	0		
Dec-2014	1	Jun-2019	0		
Jan-2015	1	Jul-2019	0		
Feb-2015	1	Aug-2019	0		
Mar-2015	1	Sep-2019	0		
Apr-2015	1	Oct-2019	0		
May-2015	1	Nov-2019	0		
Jun-2015	1	Dec-2019	0		
Jul-2015	1	Jan-2020	0		
Aug-2015	1	Feb-2020	0		
Sep-2015	0	Mar-2020	0		
Oct-2015	0	Apr-2020	0		
Nov-2015	0	May-2020	0		
Dec-2015	0	Jun-2020	0		
Jan-2016	0	Jul-2020	0		
Feb-2016	0	Aug-2020	0		
Mar-2016	0	Sep-2020	0		
Apr-2016	0	Oct-2020	0		
May-2016	0	Nov-2020	0		
Jun-2016	0	Dec-2020	0		
Jul-2016	0	Jan-2021	0		
Aug-2016	0	Feb-2021	0		
Sep-2016	0	Mar-2021	0		
Oct-2016	0	Apr-2021	0		
Nov-2016	0	May-2021	0		
Dec-2016	0	Jun-2021	0		
Jan-2017	0	Jul-2021	0		
Feb-2017	0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 417
C&I High Load - Large

Model Type = Meter Count
-
Model Type = linear
Model Eqn = 1 + x1
Variable =
Coeffs = {43.8438,0.098892}
R2 = 0.238464
RV = 23.8728

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	56	Mar-2017	52	2012	52
Oct-2012	53	Apr-2017	52	2013	36
Nov-2012	56	May-2017	52	2014	37
Dec-2012	56	Jun-2017	52	2015	47
Jan-2013	56	Jul-2017	52	2016	53
Feb-2013	56	Aug-2017	53	2017	54
Mar-2013	56	Sep-2017	53	2018	54
Apr-2013	55	Oct-2017	53	2019	53
May-2013	54	Nov-2017	53	2020	53
Jun-2013	54	Dec-2017	54	2021	52
Jul-2013	53	Jan-2018	54		
Aug-2013	52	Feb-2018	53		
Sep-2013	49	Mar-2018	53		
Oct-2013	51	Apr-2018	52		
Nov-2013	52	May-2018	52		
Dec-2013	50	Jun-2018	52		
Jan-2014	50	Jul-2018	52		
Feb-2014	52	Aug-2018	52		
Mar-2014	52	Sep-2018	52		
Apr-2014	51	Oct-2018	54		
May-2014	50	Nov-2018	54		
Jun-2014	51	Dec-2018	54		
Jul-2014	50	Jan-2019	53		
Aug-2014	50	Feb-2019	52		
Sep-2014	36	Mar-2019	53		
Oct-2014	36	Apr-2019	52		
Nov-2014	36	May-2019	52		
Dec-2014	37	Jun-2019	52		
Jan-2015	36	Jul-2019	52		
Feb-2015	36	Aug-2019	54		
Mar-2015	37	Sep-2019	54		
Apr-2015	36	Oct-2019	54		
May-2015	36	Nov-2019	54		
Jun-2015	36	Dec-2019	54		
Jul-2015	36	Jan-2020	54		
Aug-2015	36	Feb-2020	53		
Sep-2015	37	Mar-2020	52		
Oct-2015	36	Apr-2020	52		
Nov-2015	37	May-2020	52		
Dec-2015	35	Jun-2020	53		
Jan-2016	36	Jul-2020	53		
Feb-2016	36	Aug-2020	53		
Mar-2016	38	Sep-2020	53		
Apr-2016	35	Oct-2020	53		
May-2016	36	Nov-2020	53		
Jun-2016	42	Dec-2020	53		
Jul-2016	41	Jan-2021	53		
Aug-2016	41	Feb-2021	52		
Sep-2016	49	Mar-2021	52		
Oct-2016	52	Apr-2021	52		
Nov-2016	47	May-2021	52		
Dec-2016	47	Jun-2021	52		
Jan-2017	49	Jul-2021	52		
Feb-2017	53	Aug-2021	52		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 418
FT2 Large High

Model Type = Meter Count
-
Model Type = log
Model Eqn = b1 + b2*log(x1 + b3)
Variable =
Coeffs = {-1939.6911,301.6349,722.5672}
R2 = 0.966218
RV = 2.83472

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	55	Mar-2017	77	2012	60
Oct-2012	57	Apr-2017	78	2013	67
Nov-2012	56	May-2017	78	2014	64
Dec-2012	56	Jun-2017	78	2015	76
Jan-2013	57	Jul-2017	79	2016	80
Feb-2013	58	Aug-2017	79	2017	85
Mar-2013	58	Sep-2017	79	2018	89
Apr-2013	59	Oct-2017	80	2019	93
May-2013	59	Nov-2017	80	2020	98
Jun-2013	59	Dec-2017	81	2021	102
Jul-2013	60	Jan-2018	81		
Aug-2013	60	Feb-2018	81		
Sep-2013	61	Mar-2018	82		
Oct-2013	60	Apr-2018	82		
Nov-2013	60	May-2018	82		
Dec-2013	61	Jun-2018	83		
Jan-2014	61	Jul-2018	83		
Feb-2014	62	Aug-2018	84		
Mar-2014	61	Sep-2018	84		
Apr-2014	59	Oct-2018	84		
May-2014	64	Nov-2018	85		
Jun-2014	65	Dec-2018	85		
Jul-2014	65	Jan-2019	85		
Aug-2014	68	Feb-2019	86		
Sep-2014	68	Mar-2019	86		
Oct-2014	67	Apr-2019	86		
Nov-2014	67	May-2019	87		
Dec-2014	68	Jun-2019	87		
Jan-2015	67	Jul-2019	88		
Feb-2015	70	Aug-2019	88		
Mar-2015	70	Sep-2019	88		
Apr-2015	72	Oct-2019	89		
May-2015	72	Nov-2019	89		
Jun-2015	73	Dec-2019	89		
Jul-2015	73	Jan-2020	90		
Aug-2015	72	Feb-2020	90		
Sep-2015	64	Mar-2020	90		
Oct-2015	64	Apr-2020	91		
Nov-2015	64	May-2020	91		
Dec-2015	65	Jun-2020	92		
Jan-2016	65	Jul-2020	92		
Feb-2016	64	Aug-2020	92		
Mar-2016	65	Sep-2020	93		
Apr-2016	66	Oct-2020	93		
May-2016	65	Nov-2020	93		
Jun-2016	65	Dec-2020	94		
Jul-2016	66	Jan-2021	94		
Aug-2016	67	Feb-2021	94		
Sep-2016	75	Mar-2021	95		
Oct-2016	74	Apr-2021	95		
Nov-2016	76	May-2021	95		
Dec-2016	77	Jun-2021	96		
Jan-2017	76	Jul-2021	96		
Feb-2017	76	Aug-2021	97		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 419
FT1 Large High

Model Type = Meter Count
-
Model Type = linear
Model Eqn = 1 + x1
Variable =
Coeffs = {53.7161,-0.09491}
R2 = 0.631621
RV = 4.11043

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	57	Mar-2017	46	2012	52
Oct-2012	58	Apr-2017	46	2013	48
Nov-2012	58	May-2017	46	2014	46
Dec-2012	58	Jun-2017	46	2015	48
Jan-2013	58	Jul-2017	46	2016	45
Feb-2013	58	Aug-2017	46	2017	44
Mar-2013	58	Sep-2017	46	2018	43
Apr-2013	58	Oct-2017	46	2019	42
May-2013	58	Nov-2017	45	2020	41
Jun-2013	58	Dec-2017	45	2021	40
Jul-2013	59	Jan-2018	45		
Aug-2013	53	Feb-2018	45		
Sep-2013	53	Mar-2018	45		
Oct-2013	52	Apr-2018	45		
Nov-2013	52	May-2018	45		
Dec-2013	50	Jun-2018	45		
Jan-2014	50	Jul-2018	45		
Feb-2014	50	Aug-2018	45		
Mar-2014	50	Sep-2018	45		
Apr-2014	52	Oct-2018	44		
May-2014	52	Nov-2018	44		
Jun-2014	49	Dec-2018	44		
Jul-2014	51	Jan-2019	44		
Aug-2014	51	Feb-2019	44		
Sep-2014	50	Mar-2019	44		
Oct-2014	49	Apr-2019	44		
Nov-2014	48	May-2019	44		
Dec-2014	48	Jun-2019	44		
Jan-2015	47	Jul-2019	44		
Feb-2015	48	Aug-2019	43		
Mar-2015	47	Sep-2019	43		
Apr-2015	47	Oct-2019	43		
May-2015	48	Nov-2019	43		
Jun-2015	48	Dec-2019	43		
Jul-2015	48	Jan-2020	43		
Aug-2015	46	Feb-2020	43		
Sep-2015	46	Mar-2020	43		
Oct-2015	46	Apr-2020	43		
Nov-2015	46	May-2020	43		
Dec-2015	46	Jun-2020	43		
Jan-2016	46	Jul-2020	42		
Feb-2016	46	Aug-2020	42		
Mar-2016	45	Sep-2020	42		
Apr-2016	45	Oct-2020	42		
May-2016	45	Nov-2020	42		
Jun-2016	44	Dec-2020	42		
Jul-2016	44	Jan-2021	42		
Aug-2016	47	Feb-2021	42		
Sep-2016	47	Mar-2021	42		
Oct-2016	47	Apr-2021	42		
Nov-2016	48	May-2021	41		
Dec-2016	48	Jun-2021	41		
Jan-2017	48	Jul-2021	41		
Feb-2017	46	Aug-2021	41		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 420
TSS Large High Load

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+3
Variable =
Coeffs =
R2 = 0
RV = 8.33766

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	1	Mar-2017	3	2012	1
Oct-2012	2	Apr-2017	3	2013	4
Nov-2012	2	May-2017	3	2014	4
Dec-2012	1	Jun-2017	3	2015	0
Jan-2013	2	Jul-2017	3	2016	3
Feb-2013	1	Aug-2017	3	2017	3
Mar-2013	0	Sep-2017	3	2018	3
Apr-2013	0	Oct-2017	3	2019	3
May-2013	0	Nov-2017	3	2020	2
Jun-2013	0	Dec-2017	3	2021	2
Jul-2013	0	Jan-2018	3		
Aug-2013	1	Feb-2018	3		
Sep-2013	1	Mar-2018	3		
Oct-2013	1	Apr-2018	3		
Nov-2013	1	May-2018	3		
Dec-2013	3	Jun-2018	3		
Jan-2014	1	Jul-2018	3		
Feb-2014	2	Aug-2018	3		
Mar-2014	2	Sep-2018	3		
Apr-2014	2	Oct-2018	3		
May-2014	2	Nov-2018	3		
Jun-2014	4	Dec-2018	3		
Jul-2014	2	Jan-2019	3		
Aug-2014	2	Feb-2019	3		
Sep-2014	2	Mar-2019	3		
Oct-2014	3	Apr-2019	3		
Nov-2014	4	May-2019	3		
Dec-2014	4	Jun-2019	3		
Jan-2015	7	Jul-2019	3		
Feb-2015	4	Aug-2019	3		
Mar-2015	4	Sep-2019	3		
Apr-2015	3	Oct-2019	3		
May-2015	3	Nov-2019	3		
Jun-2015	2	Dec-2019	3		
Jul-2015	3	Jan-2020	3		
Aug-2015	3	Feb-2020	3		
Sep-2015	3	Mar-2020	3		
Oct-2015	5	Apr-2020	2		
Nov-2015	4	May-2020	2		
Dec-2015	4	Jun-2020	2		
Jan-2016	5	Jul-2020	2		
Feb-2016	5	Aug-2020	3		
Mar-2016	5	Sep-2020	3		
Apr-2016	4	Oct-2020	3		
May-2016	6	Nov-2020	3		
Jun-2016	1	Dec-2020	3		
Jul-2016	0	Jan-2021	3		
Aug-2016	1	Feb-2021	2		
Sep-2016	0	Mar-2021	2		
Oct-2016	0	Apr-2021	2		
Nov-2016	0	May-2021	2		
Dec-2016	1	Jun-2021	2		
Jan-2017	2	Jul-2021	2		
Feb-2017	3	Aug-2021	2		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 421
C&I High Load - Extra Large

Model Type = Meter Count
-
Model Type = parlogi
Model Eqn = b1 + b2/(1 + exp(- b3*(x1 - b4)))
Variable =
Coeffs = {4.9742,-220527.3984,-0.06162,-205.2578}
R2 = 0.0155884
RV = 2.91065

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	7	Mar-2017	3	2012	6
Oct-2012	6	Apr-2017	3	2013	10
Nov-2012	7	May-2017	3	2014	5
Dec-2012	7	Jun-2017	3	2015	3
Jan-2013	7	Jul-2017	3	2016	3
Feb-2013	7	Aug-2017	3	2017	3
Mar-2013	7	Sep-2017	3	2018	3
Apr-2013	7	Oct-2017	3	2019	3
May-2013	7	Nov-2017	3	2020	3
Jun-2013	7	Dec-2017	3	2021	3
Jul-2013	7	Jan-2018	3		
Aug-2013	7	Feb-2018	3		
Sep-2013	6	Mar-2018	3		
Oct-2013	6	Apr-2018	3		
Nov-2013	6	May-2018	3		
Dec-2013	7	Jun-2018	3		
Jan-2014	7	Jul-2018	3		
Feb-2014	7	Aug-2018	3		
Mar-2014	9	Sep-2018	3		
Apr-2014	7	Oct-2018	3		
May-2014	9	Nov-2018	3		
Jun-2014	10	Dec-2018	3		
Jul-2014	11	Jan-2019	3		
Aug-2014	9	Feb-2019	3		
Sep-2014	11	Mar-2019	3		
Oct-2014	9	Apr-2019	3		
Nov-2014	10	May-2019	3		
Dec-2014	10	Jun-2019	3		
Jan-2015	9	Jul-2019	3		
Feb-2015	10	Aug-2019	3		
Mar-2015	11	Sep-2019	3		
Apr-2015	8	Oct-2019	3		
May-2015	9	Nov-2019	3		
Jun-2015	8	Dec-2019	3		
Jul-2015	7	Jan-2020	3		
Aug-2015	7	Feb-2020	3		
Sep-2015	5	Mar-2020	3		
Oct-2015	5	Apr-2020	3		
Nov-2015	5	May-2020	3		
Dec-2015	5	Jun-2020	3		
Jan-2016	4	Jul-2020	3		
Feb-2016	4	Aug-2020	3		
Mar-2016	4	Sep-2020	3		
Apr-2016	3	Oct-2020	3		
May-2016	3	Nov-2020	3		
Jun-2016	3	Dec-2020	3		
Jul-2016	3	Jan-2021	3		
Aug-2016	3	Feb-2021	3		
Sep-2016	3	Mar-2021	3		
Oct-2016	3	Apr-2021	3		
Nov-2016	3	May-2021	3		
Dec-2016	3	Jun-2021	3		
Jan-2017	3	Jul-2021	3		
Feb-2017	3	Aug-2021	3		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 422
FT2 Exlarge High

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+16
Variable =
Coeffs =
R2 = 0
RV = 4.63636

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	7	Mar-2017	16	2012	6
Oct-2012	8	Apr-2017	16	2013	7
Nov-2012	8	May-2017	16	2014	13
Dec-2012	8	Jun-2017	16	2015	16
Jan-2013	8	Jul-2017	16	2016	16
Feb-2013	8	Aug-2017	16	2017	16
Mar-2013	8	Sep-2017	16	2018	16
Apr-2013	8	Oct-2017	16	2019	16
May-2013	8	Nov-2017	16	2020	16
Jun-2013	8	Dec-2017	16	2021	16
Jul-2013	8	Jan-2018	16		
Aug-2013	8	Feb-2018	16		
Sep-2013	6	Mar-2018	16		
Oct-2013	6	Apr-2018	16		
Nov-2013	6	May-2018	16		
Dec-2013	6	Jun-2018	16		
Jan-2014	6	Jul-2018	16		
Feb-2014	6	Aug-2018	16		
Mar-2014	6	Sep-2018	16		
Apr-2014	6	Oct-2018	16		
May-2014	6	Nov-2018	16		
Jun-2014	6	Dec-2018	16		
Jul-2014	6	Jan-2019	16		
Aug-2014	6	Feb-2019	16		
Sep-2014	6	Mar-2019	16		
Oct-2014	7	Apr-2019	16		
Nov-2014	7	May-2019	16		
Dec-2014	6	Jun-2019	16		
Jan-2015	5	Jul-2019	16		
Feb-2015	5	Aug-2019	16		
Mar-2015	5	Sep-2019	16		
Apr-2015	5	Oct-2019	16		
May-2015	7	Nov-2019	16		
Jun-2015	6	Dec-2019	16		
Jul-2015	9	Jan-2020	16		
Aug-2015	7	Feb-2020	16		
Sep-2015	13	Mar-2020	16		
Oct-2015	13	Apr-2020	16		
Nov-2015	13	May-2020	16		
Dec-2015	13	Jun-2020	16		
Jan-2016	15	Jul-2020	16		
Feb-2016	13	Aug-2020	16		
Mar-2016	16	Sep-2020	16		
Apr-2016	13	Oct-2020	16		
May-2016	14	Nov-2020	16		
Jun-2016	14	Dec-2020	16		
Jul-2016	14	Jan-2021	16		
Aug-2016	15	Feb-2021	16		
Sep-2016	14	Mar-2021	16		
Oct-2016	15	Apr-2021	16		
Nov-2016	16	May-2021	16		
Dec-2016	15	Jun-2021	16		
Jan-2017	14	Jul-2021	16		
Feb-2017	16	Aug-2021	16		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 423
FT1 Exlarge High

Model Type = Meter Count
-
Model Type = logi
Model Eqn = 33+4/(1+exp(-1*(t-68)))
Variable =
Coeffs =
R2 = 0.659809
RV = 5.19293

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	31	Mar-2017	37	2012	28
Oct-2012	31	Apr-2017	37	2013	32
Nov-2012	31	May-2017	37	2014	33
Dec-2012	31	Jun-2017	37	2015	37
Jan-2013	30	Jul-2017	37	2016	37
Feb-2013	29	Aug-2017	37	2017	37
Mar-2013	30	Sep-2017	37	2018	37
Apr-2013	30	Oct-2017	37	2019	37
May-2013	29	Nov-2017	37	2020	37
Jun-2013	29	Dec-2017	37	2021	37
Jul-2013	29	Jan-2018	37		
Aug-2013	29	Feb-2018	37		
Sep-2013	29	Mar-2018	37		
Oct-2013	28	Apr-2018	37		
Nov-2013	28	May-2018	37		
Dec-2013	28	Jun-2018	37		
Jan-2014	28	Jul-2018	37		
Feb-2014	29	Aug-2018	37		
Mar-2014	32	Sep-2018	37		
Apr-2014	32	Oct-2018	37		
May-2014	32	Nov-2018	37		
Jun-2014	32	Dec-2018	37		
Jul-2014	33	Jan-2019	37		
Aug-2014	31	Feb-2019	37		
Sep-2014	31	Mar-2019	37		
Oct-2014	33	Apr-2019	37		
Nov-2014	32	May-2019	37		
Dec-2014	34	Jun-2019	37		
Jan-2015	32	Jul-2019	37		
Feb-2015	32	Aug-2019	37		
Mar-2015	32	Sep-2019	37		
Apr-2015	32	Oct-2019	37		
May-2015	32	Nov-2019	37		
Jun-2015	32	Dec-2019	37		
Jul-2015	33	Jan-2020	37		
Aug-2015	33	Feb-2020	37		
Sep-2015	32	Mar-2020	37		
Oct-2015	32	Apr-2020	37		
Nov-2015	33	May-2020	37		
Dec-2015	33	Jun-2020	37		
Jan-2016	33	Jul-2020	37		
Feb-2016	33	Aug-2020	37		
Mar-2016	33	Sep-2020	37		
Apr-2016	36	Oct-2020	37		
May-2016	36	Nov-2020	37		
Jun-2016	34	Dec-2020	37		
Jul-2016	34	Jan-2021	37		
Aug-2016	37	Feb-2021	37		
Sep-2016	37	Mar-2021	37		
Oct-2016	37	Apr-2021	37		
Nov-2016	37	May-2021	37		
Dec-2016	37	Jun-2021	37		
Jan-2017	37	Jul-2021	37		
Feb-2017	37	Aug-2021	37		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 424
TSS Extra Large High Load

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+0
Variable =
Coeffs =
R2 = 0
RV = 1.16883

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	0	Mar-2017	0	2012	-2
Oct-2012	0	Apr-2017	0	2013	0
Nov-2012	0	May-2017	0	2014	1
Dec-2012	0	Jun-2017	0	2015	0
Jan-2013	0	Jul-2017	0	2016	0
Feb-2013	1	Aug-2017	0	2017	0
Mar-2013	0	Sep-2017	0	2018	0
Apr-2013	0	Oct-2017	0	2019	0
May-2013	1	Nov-2017	0	2020	0
Jun-2013	0	Dec-2017	0	2021	0
Jul-2013	0	Jan-2018	0		
Aug-2013	0	Feb-2018	0		
Sep-2013	0	Mar-2018	0		
Oct-2013	1	Apr-2018	0		
Nov-2013	-2	May-2018	0		
Dec-2013	-1	Jun-2018	0		
Jan-2014	1	Jul-2018	0		
Feb-2014	0	Aug-2018	0		
Mar-2014	-1	Sep-2018	0		
Apr-2014	1	Oct-2018	0		
May-2014	0	Nov-2018	0		
Jun-2014	1	Dec-2018	0		
Jul-2014	0	Jan-2019	0		
Aug-2014	1	Feb-2019	0		
Sep-2014	1	Mar-2019	0		
Oct-2014	1	Apr-2019	0		
Nov-2014	0	May-2019	0		
Dec-2014	1	Jun-2019	0		
Jan-2015	1	Jul-2019	0		
Feb-2015	1	Aug-2019	0		
Mar-2015	1	Sep-2019	0		
Apr-2015	1	Oct-2019	0		
May-2015	1	Nov-2019	0		
Jun-2015	1	Dec-2019	0		
Jul-2015	1	Jan-2020	0		
Aug-2015	1	Feb-2020	0		
Sep-2015	1	Mar-2020	0		
Oct-2015	1	Apr-2020	0		
Nov-2015	1	May-2020	0		
Dec-2015	1	Jun-2020	0		
Jan-2016	0	Jul-2020	0		
Feb-2016	0	Aug-2020	0		
Mar-2016	0	Sep-2020	0		
Apr-2016	0	Oct-2020	0		
May-2016	0	Nov-2020	0		
Jun-2016	0	Dec-2020	0		
Jul-2016	0	Jan-2021	0		
Aug-2016	1	Feb-2021	0		
Sep-2016	1	Mar-2021	0		
Oct-2016	1	Apr-2021	0		
Nov-2016	0	May-2021	0		
Dec-2016	0	Jun-2021	0		
Jan-2017	0	Jul-2021	0		
Feb-2017	0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 429
Pawtucket Power

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+0
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	0	Mar-2017	0	2012	0
Oct-2012	0	Apr-2017	0	2013	0
Nov-2012	0	May-2017	0	2014	0
Dec-2012	0	Jun-2017	0	2015	0
Jan-2013	0	Jul-2017	0	2016	0
Feb-2013	0	Aug-2017	0	2017	0
Mar-2013	0	Sep-2017	0	2018	0
Apr-2013	0	Oct-2017	0	2019	0
May-2013	0	Nov-2017	0	2020	0
Jun-2013	0	Dec-2017	0	2021	0
Jul-2013	0	Jan-2018	0		
Aug-2013	0	Feb-2018	0		
Sep-2013	0	Mar-2018	0		
Oct-2013	0	Apr-2018	0		
Nov-2013	0	May-2018	0		
Dec-2013	0	Jun-2018	0		
Jan-2014	0	Jul-2018	0		
Feb-2014	0	Aug-2018	0		
Mar-2014	0	Sep-2018	0		
Apr-2014	0	Oct-2018	0		
May-2014	0	Nov-2018	0		
Jun-2014	0	Dec-2018	0		
Jul-2014	0	Jan-2019	0		
Aug-2014	0	Feb-2019	0		
Sep-2014	0	Mar-2019	0		
Oct-2014	0	Apr-2019	0		
Nov-2014	0	May-2019	0		
Dec-2014	0	Jun-2019	0		
Jan-2015	0	Jul-2019	0		
Feb-2015	0	Aug-2019	0		
Mar-2015	0	Sep-2019	0		
Apr-2015	0	Oct-2019	0		
May-2015	0	Nov-2019	0		
Jun-2015	0	Dec-2019	0		
Jul-2015	0	Jan-2020	0		
Aug-2015	0	Feb-2020	0		
Sep-2015	0	Mar-2020	0		
Oct-2015	0	Apr-2020	0		
Nov-2015	0	May-2020	0		
Dec-2015	0	Jun-2020	0		
Jan-2016	0	Jul-2020	0		
Feb-2016	0	Aug-2020	0		
Mar-2016	0	Sep-2020	0		
Apr-2016	0	Oct-2020	0		
May-2016	0	Nov-2020	0		
Jun-2016	0	Dec-2020	0		
Jul-2016	0	Jan-2021	0		
Aug-2016	0	Feb-2021	0		
Sep-2016	0	Mar-2021	0		
Oct-2016	0	Apr-2021	0		
Nov-2016	0	May-2021	0		
Dec-2016	0	Jun-2021	0		
Jan-2017	0	Jul-2021	0		
Feb-2017	0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 430
Manchester Street Project (VA Power)

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+1
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	1	Mar-2017	1	2012	1
Oct-2012	1	Apr-2017	1	2013	1
Nov-2012	1	May-2017	1	2014	1
Dec-2012	1	Jun-2017	1	2015	1
Jan-2013	1	Jul-2017	1	2016	1
Feb-2013	1	Aug-2017	1	2017	1
Mar-2013	1	Sep-2017	1	2018	1
Apr-2013	1	Oct-2017	1	2019	1
May-2013	1	Nov-2017	1	2020	1
Jun-2013	1	Dec-2017	1	2021	1
Jul-2013	1	Jan-2018	1		
Aug-2013	1	Feb-2018	1		
Sep-2013	1	Mar-2018	1		
Oct-2013	1	Apr-2018	1		
Nov-2013	1	May-2018	1		
Dec-2013	1	Jun-2018	1		
Jan-2014	1	Jul-2018	1		
Feb-2014	1	Aug-2018	1		
Mar-2014	1	Sep-2018	1		
Apr-2014	1	Oct-2018	1		
May-2014	1	Nov-2018	1		
Jun-2014	1	Dec-2018	1		
Jul-2014	1	Jan-2019	1		
Aug-2014	1	Feb-2019	1		
Sep-2014	1	Mar-2019	1		
Oct-2014	1	Apr-2019	1		
Nov-2014	1	May-2019	1		
Dec-2014	1	Jun-2019	1		
Jan-2015	1	Jul-2019	1		
Feb-2015	1	Aug-2019	1		
Mar-2015	1	Sep-2019	1		
Apr-2015	1	Oct-2019	1		
May-2015	1	Nov-2019	1		
Jun-2015	1	Dec-2019	1		
Jul-2015	1	Jan-2020	1		
Aug-2015	1	Feb-2020	1		
Sep-2015	1	Mar-2020	1		
Oct-2015	1	Apr-2020	1		
Nov-2015	1	May-2020	1		
Dec-2015	1	Jun-2020	1		
Jan-2016	1	Jul-2020	1		
Feb-2016	1	Aug-2020	1		
Mar-2016	1	Sep-2020	1		
Apr-2016	1	Oct-2020	1		
May-2016	1	Nov-2020	1		
Jun-2016	1	Dec-2020	1		
Jul-2016	1	Jan-2021	1		
Aug-2016	1	Feb-2021	1		
Sep-2016	1	Mar-2021	1		
Oct-2016	1	Apr-2021	1		
Nov-2016	1	May-2021	1		
Dec-2016	1	Jun-2021	1		
Jan-2017	1	Jul-2021	1		
Feb-2017	1	Aug-2021	1		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 433
NFS Medium

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+0
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	2	Mar-2017	0	2012	1
Oct-2012	2	Apr-2017	0	2013	0
Nov-2012	2	May-2017	0	2014	0
Dec-2012	2	Jun-2017	0	2015	0
Jan-2013	2	Jul-2017	0	2016	0
Feb-2013	2	Aug-2017	0	2017	0
Mar-2013	1	Sep-2017	0	2018	0
Apr-2013	1	Oct-2017	0	2019	0
May-2013	1	Nov-2017	0	2020	0
Jun-2013	1	Dec-2017	0	2021	0
Jul-2013	1	Jan-2018	0		
Aug-2013	1	Feb-2018	0		
Sep-2013	0	Mar-2018	0		
Oct-2013	0	Apr-2018	0		
Nov-2013	1	May-2018	0		
Dec-2013	1	Jun-2018	0		
Jan-2014	0	Jul-2018	0		
Feb-2014	0	Aug-2018	0		
Mar-2014	0	Sep-2018	0		
Apr-2014	0	Oct-2018	0		
May-2014	0	Nov-2018	0		
Jun-2014	0	Dec-2018	0		
Jul-2014	0	Jan-2019	0		
Aug-2014	0	Feb-2019	0		
Sep-2014	0	Mar-2019	0		
Oct-2014	0	Apr-2019	0		
Nov-2014	0	May-2019	0		
Dec-2014	0	Jun-2019	0		
Jan-2015	0	Jul-2019	0		
Feb-2015	0	Aug-2019	0		
Mar-2015	0	Sep-2019	0		
Apr-2015	0	Oct-2019	0		
May-2015	0	Nov-2019	0		
Jun-2015	0	Dec-2019	0		
Jul-2015	0	Jan-2020	0		
Aug-2015	0	Feb-2020	0		
Sep-2015	0	Mar-2020	0		
Oct-2015	0	Apr-2020	0		
Nov-2015	0	May-2020	0		
Dec-2015	0	Jun-2020	0		
Jan-2016	0	Jul-2020	0		
Feb-2016	0	Aug-2020	0		
Mar-2016	0	Sep-2020	0		
Apr-2016	0	Oct-2020	0		
May-2016	0	Nov-2020	0		
Jun-2016	0	Dec-2020	0		
Jul-2016	0	Jan-2021	0		
Aug-2016	0	Feb-2021	0		
Sep-2016	0	Mar-2021	0		
Oct-2016	0	Apr-2021	0		
Nov-2016	0	May-2021	0		
Dec-2016	0	Jun-2021	0		
Jan-2017	0	Jul-2021	0		
Feb-2017	0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 434
NFT Medium

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+0
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	1	Mar-2017	0	2012	0
Oct-2012	1	Apr-2017	0	2013	0
Nov-2012	1	May-2017	0	2014	0
Dec-2012	1	Jun-2017	0	2015	0
Jan-2013	1	Jul-2017	0	2016	0
Feb-2013	1	Aug-2017	0	2017	0
Mar-2013	1	Sep-2017	0	2018	0
Apr-2013	1	Oct-2017	0	2019	0
May-2013	1	Nov-2017	0	2020	0
Jun-2013	1	Dec-2017	0	2021	0
Jul-2013	1	Jan-2018	0		
Aug-2013	1	Feb-2018	0		
Sep-2013	1	Mar-2018	0		
Oct-2013	1	Apr-2018	0		
Nov-2013	0	May-2018	0		
Dec-2013	0	Jun-2018	0		
Jan-2014	1	Jul-2018	0		
Feb-2014	1	Aug-2018	0		
Mar-2014	1	Sep-2018	0		
Apr-2014	1	Oct-2018	0		
May-2014	1	Nov-2018	0		
Jun-2014	0	Dec-2018	0		
Jul-2014	0	Jan-2019	0		
Aug-2014	0	Feb-2019	0		
Sep-2014	0	Mar-2019	0		
Oct-2014	0	Apr-2019	0		
Nov-2014	0	May-2019	0		
Dec-2014	0	Jun-2019	0		
Jan-2015	0	Jul-2019	0		
Feb-2015	0	Aug-2019	0		
Mar-2015	0	Sep-2019	0		
Apr-2015	0	Oct-2019	0		
May-2015	0	Nov-2019	0		
Jun-2015	0	Dec-2019	0		
Jul-2015	0	Jan-2020	0		
Aug-2015	0	Feb-2020	0		
Sep-2015	0	Mar-2020	0		
Oct-2015	0	Apr-2020	0		
Nov-2015	0	May-2020	0		
Dec-2015	0	Jun-2020	0		
Jan-2016	0	Jul-2020	0		
Feb-2016	0	Aug-2020	0		
Mar-2016	0	Sep-2020	0		
Apr-2016	0	Oct-2020	0		
May-2016	0	Nov-2020	0		
Jun-2016	0	Dec-2020	0		
Jul-2016	0	Jan-2021	0		
Aug-2016	0	Feb-2021	0		
Sep-2016	0	Mar-2021	0		
Oct-2016	0	Apr-2021	0		
Nov-2016	0	May-2021	0		
Dec-2016	0	Jun-2021	0		
Jan-2017	0	Jul-2021	0		
Feb-2017	0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 435
NFS Large Low

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+0
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	0	Mar-2017	0	2012	0
Oct-2012	0	Apr-2017	0	2013	0
Nov-2012	0	May-2017	0	2014	0
Dec-2012	0	Jun-2017	0	2015	0
Jan-2013	0	Jul-2017	0	2016	0
Feb-2013	0	Aug-2017	0	2017	0
Mar-2013	0	Sep-2017	0	2018	0
Apr-2013	0	Oct-2017	0	2019	0
May-2013	0	Nov-2017	0	2020	0
Jun-2013	0	Dec-2017	0	2021	0
Jul-2013	0	Jan-2018	0		
Aug-2013	0	Feb-2018	0		
Sep-2013	0	Mar-2018	0		
Oct-2013	0	Apr-2018	0		
Nov-2013	0	May-2018	0		
Dec-2013	0	Jun-2018	0		
Jan-2014	0	Jul-2018	0		
Feb-2014	0	Aug-2018	0		
Mar-2014	0	Sep-2018	0		
Apr-2014	0	Oct-2018	0		
May-2014	0	Nov-2018	0		
Jun-2014	0	Dec-2018	0		
Jul-2014	0	Jan-2019	0		
Aug-2014	0	Feb-2019	0		
Sep-2014	0	Mar-2019	0		
Oct-2014	0	Apr-2019	0		
Nov-2014	0	May-2019	0		
Dec-2014	0	Jun-2019	0		
Jan-2015	0	Jul-2019	0		
Feb-2015	0	Aug-2019	0		
Mar-2015	0	Sep-2019	0		
Apr-2015	0	Oct-2019	0		
May-2015	0	Nov-2019	0		
Jun-2015	0	Dec-2019	0		
Jul-2015	0	Jan-2020	0		
Aug-2015	0	Feb-2020	0		
Sep-2015	0	Mar-2020	0		
Oct-2015	0	Apr-2020	0		
Nov-2015	0	May-2020	0		
Dec-2015	0	Jun-2020	0		
Jan-2016	0	Jul-2020	0		
Feb-2016	0	Aug-2020	0		
Mar-2016	0	Sep-2020	0		
Apr-2016	0	Oct-2020	0		
May-2016	0	Nov-2020	0		
Jun-2016	0	Dec-2020	0		
Jul-2016	0	Jan-2021	0		
Aug-2016	0	Feb-2021	0		
Sep-2016	0	Mar-2021	0		
Oct-2016	0	Apr-2021	0		
Nov-2016	0	May-2021	0		
Dec-2016	0	Jun-2021	0		
Jan-2017	0	Jul-2021	0		
Feb-2017	0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 436
NFT Large Low

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+0
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	0	Mar-2017	0	2012	0
Oct-2012	0	Apr-2017	0	2013	0
Nov-2012	0	May-2017	0	2014	0
Dec-2012	0	Jun-2017	0	2015	0
Jan-2013	0	Jul-2017	0	2016	0
Feb-2013	0	Aug-2017	0	2017	0
Mar-2013	0	Sep-2017	0	2018	0
Apr-2013	0	Oct-2017	0	2019	0
May-2013	0	Nov-2017	0	2020	0
Jun-2013	0	Dec-2017	0	2021	0
Jul-2013	0	Jan-2018	0		
Aug-2013	0	Feb-2018	0		
Sep-2013	0	Mar-2018	0		
Oct-2013	0	Apr-2018	0		
Nov-2013	0	May-2018	0		
Dec-2013	0	Jun-2018	0		
Jan-2014	0	Jul-2018	0		
Feb-2014	0	Aug-2018	0		
Mar-2014	0	Sep-2018	0		
Apr-2014	0	Oct-2018	0		
May-2014	0	Nov-2018	0		
Jun-2014	0	Dec-2018	0		
Jul-2014	0	Jan-2019	0		
Aug-2014	0	Feb-2019	0		
Sep-2014	0	Mar-2019	0		
Oct-2014	0	Apr-2019	0		
Nov-2014	0	May-2019	0		
Dec-2014	0	Jun-2019	0		
Jan-2015	0	Jul-2019	0		
Feb-2015	0	Aug-2019	0		
Mar-2015	0	Sep-2019	0		
Apr-2015	0	Oct-2019	0		
May-2015	0	Nov-2019	0		
Jun-2015	0	Dec-2019	0		
Jul-2015	0	Jan-2020	0		
Aug-2015	0	Feb-2020	0		
Sep-2015	0	Mar-2020	0		
Oct-2015	0	Apr-2020	0		
Nov-2015	0	May-2020	0		
Dec-2015	0	Jun-2020	0		
Jan-2016	0	Jul-2020	0		
Feb-2016	0	Aug-2020	0		
Mar-2016	0	Sep-2020	0		
Apr-2016	0	Oct-2020	0		
May-2016	0	Nov-2020	0		
Jun-2016	0	Dec-2020	0		
Jul-2016	0	Jan-2021	0		
Aug-2016	0	Feb-2021	0		
Sep-2016	0	Mar-2021	0		
Oct-2016	0	Apr-2021	0		
Nov-2016	0	May-2021	0		
Dec-2016	0	Jun-2021	0		
Jan-2017	0	Jul-2021	0		
Feb-2017	0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 437
NFS Large High

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+0
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	1	Mar-2017	0	2012	0
Oct-2012	1	Apr-2017	0	2013	0
Nov-2012	1	May-2017	0	2014	0
Dec-2012	0	Jun-2017	0	2015	0
Jan-2013	0	Jul-2017	0	2016	0
Feb-2013	0	Aug-2017	0	2017	0
Mar-2013	0	Sep-2017	0	2018	0
Apr-2013	0	Oct-2017	0	2019	0
May-2013	0	Nov-2017	0	2020	0
Jun-2013	0	Dec-2017	0	2021	0
Jul-2013	0	Jan-2018	0		
Aug-2013	0	Feb-2018	0		
Sep-2013	0	Mar-2018	0		
Oct-2013	0	Apr-2018	0		
Nov-2013	0	May-2018	0		
Dec-2013	0	Jun-2018	0		
Jan-2014	0	Jul-2018	0		
Feb-2014	0	Aug-2018	0		
Mar-2014	0	Sep-2018	0		
Apr-2014	0	Oct-2018	0		
May-2014	0	Nov-2018	0		
Jun-2014	0	Dec-2018	0		
Jul-2014	0	Jan-2019	0		
Aug-2014	0	Feb-2019	0		
Sep-2014	0	Mar-2019	0		
Oct-2014	0	Apr-2019	0		
Nov-2014	0	May-2019	0		
Dec-2014	0	Jun-2019	0		
Jan-2015	0	Jul-2019	0		
Feb-2015	0	Aug-2019	0		
Mar-2015	0	Sep-2019	0		
Apr-2015	0	Oct-2019	0		
May-2015	0	Nov-2019	0		
Jun-2015	0	Dec-2019	0		
Jul-2015	0	Jan-2020	0		
Aug-2015	0	Feb-2020	0		
Sep-2015	0	Mar-2020	0		
Oct-2015	0	Apr-2020	0		
Nov-2015	0	May-2020	0		
Dec-2015	0	Jun-2020	0		
Jan-2016	0	Jul-2020	0		
Feb-2016	0	Aug-2020	0		
Mar-2016	0	Sep-2020	0		
Apr-2016	0	Oct-2020	0		
May-2016	0	Nov-2020	0		
Jun-2016	0	Dec-2020	0		
Jul-2016	0	Jan-2021	0		
Aug-2016	0	Feb-2021	0		
Sep-2016	0	Mar-2021	0		
Oct-2016	0	Apr-2021	0		
Nov-2016	0	May-2021	0		
Dec-2016	0	Jun-2021	0		
Jan-2017	0	Jul-2021	0		
Feb-2017	0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 438
NFT Large High

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+0
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	0	Mar-2017	0	2012	0
Oct-2012	0	Apr-2017	0	2013	0
Nov-2012	0	May-2017	0	2014	0
Dec-2012	0	Jun-2017	0	2015	0
Jan-2013	0	Jul-2017	0	2016	0
Feb-2013	0	Aug-2017	0	2017	0
Mar-2013	0	Sep-2017	0	2018	0
Apr-2013	0	Oct-2017	0	2019	0
May-2013	0	Nov-2017	0	2020	0
Jun-2013	0	Dec-2017	0	2021	0
Jul-2013	0	Jan-2018	0		
Aug-2013	0	Feb-2018	0		
Sep-2013	0	Mar-2018	0		
Oct-2013	0	Apr-2018	0		
Nov-2013	0	May-2018	0		
Dec-2013	0	Jun-2018	0		
Jan-2014	0	Jul-2018	0		
Feb-2014	0	Aug-2018	0		
Mar-2014	0	Sep-2018	0		
Apr-2014	0	Oct-2018	0		
May-2014	0	Nov-2018	0		
Jun-2014	0	Dec-2018	0		
Jul-2014	0	Jan-2019	0		
Aug-2014	0	Feb-2019	0		
Sep-2014	0	Mar-2019	0		
Oct-2014	0	Apr-2019	0		
Nov-2014	0	May-2019	0		
Dec-2014	0	Jun-2019	0		
Jan-2015	0	Jul-2019	0		
Feb-2015	0	Aug-2019	0		
Mar-2015	0	Sep-2019	0		
Apr-2015	0	Oct-2019	0		
May-2015	0	Nov-2019	0		
Jun-2015	0	Dec-2019	0		
Jul-2015	0	Jan-2020	0		
Aug-2015	0	Feb-2020	0		
Sep-2015	0	Mar-2020	0		
Oct-2015	0	Apr-2020	0		
Nov-2015	0	May-2020	0		
Dec-2015	0	Jun-2020	0		
Jan-2016	0	Jul-2020	0		
Feb-2016	0	Aug-2020	0		
Mar-2016	0	Sep-2020	0		
Apr-2016	0	Oct-2020	0		
May-2016	0	Nov-2020	0		
Jun-2016	0	Dec-2020	0		
Jul-2016	0	Jan-2021	0		
Aug-2016	0	Feb-2021	0		
Sep-2016	0	Mar-2021	0		
Oct-2016	0	Apr-2021	0		
Nov-2016	0	May-2021	0		
Dec-2016	0	Jun-2021	0		
Jan-2017	0	Jul-2021	0		
Feb-2017	0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 439
NFS XL Low

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+1
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	1	Mar-2017	1	2012	1
Oct-2012	1	Apr-2017	1	2013	1
Nov-2012	1	May-2017	1	2014	1
Dec-2012	1	Jun-2017	1	2015	1
Jan-2013	1	Jul-2017	1	2016	0
Feb-2013	1	Aug-2017	1	2017	1
Mar-2013	1	Sep-2017	0	2018	1
Apr-2013	1	Oct-2017	0	2019	1
May-2013	1	Nov-2017	0	2020	1
Jun-2013	1	Dec-2017	0	2021	1
Jul-2013	1	Jan-2018	0		
Aug-2013	1	Feb-2018	1		
Sep-2013	1	Mar-2018	1		
Oct-2013	1	Apr-2018	1		
Nov-2013	1	May-2018	1		
Dec-2013	1	Jun-2018	1		
Jan-2014	1	Jul-2018	1		
Feb-2014	1	Aug-2018	1		
Mar-2014	1	Sep-2018	1		
Apr-2014	1	Oct-2018	1		
May-2014	1	Nov-2018	1		
Jun-2014	1	Dec-2018	1		
Jul-2014	1	Jan-2019	1		
Aug-2014	1	Feb-2019	1		
Sep-2014	1	Mar-2019	1		
Oct-2014	1	Apr-2019	1		
Nov-2014	1	May-2019	1		
Dec-2014	1	Jun-2019	1		
Jan-2015	1	Jul-2019	1		
Feb-2015	1	Aug-2019	1		
Mar-2015	1	Sep-2019	1		
Apr-2015	1	Oct-2019	1		
May-2015	1	Nov-2019	1		
Jun-2015	1	Dec-2019	1		
Jul-2015	1	Jan-2020	1		
Aug-2015	1	Feb-2020	1		
Sep-2015	1	Mar-2020	1		
Oct-2015	1	Apr-2020	1		
Nov-2015	1	May-2020	1		
Dec-2015	1	Jun-2020	1		
Jan-2016	1	Jul-2020	1		
Feb-2016	1	Aug-2020	1		
Mar-2016	1	Sep-2020	1		
Apr-2016	1	Oct-2020	1		
May-2016	1	Nov-2020	1		
Jun-2016	1	Dec-2020	1		
Jul-2016	1	Jan-2021	1		
Aug-2016	1	Feb-2021	1		
Sep-2016	1	Mar-2021	1		
Oct-2016	1	Apr-2021	2		
Nov-2016	1	May-2021	1		
Dec-2016	1	Jun-2021	1		
Jan-2017	1	Jul-2021	1		
Feb-2017	1	Aug-2021	1		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 440
NFT XL Low

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+1
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	3	Mar-2017	1	2012	3
Oct-2012	3	Apr-2017	1	2013	1
Nov-2012	2	May-2017	1	2014	1
Dec-2012	1	Jun-2017	1	2015	1
Jan-2013	1	Jul-2017	1	2016	1
Feb-2013	1	Aug-2017	1	2017	1
Mar-2013	1	Sep-2017	1	2018	1
Apr-2013	1	Oct-2017	1	2019	1
May-2013	1	Nov-2017	1	2020	1
Jun-2013	1	Dec-2017	1	2021	1
Jul-2013	1	Jan-2018	1		
Aug-2013	1	Feb-2018	1		
Sep-2013	3	Mar-2018	1		
Oct-2013	3	Apr-2018	1		
Nov-2013	3	May-2018	1		
Dec-2013	3	Jun-2018	1		
Jan-2014	3	Jul-2018	1		
Feb-2014	3	Aug-2018	1		
Mar-2014	3	Sep-2018	1		
Apr-2014	3	Oct-2018	1		
May-2014	3	Nov-2018	1		
Jun-2014	3	Dec-2018	1		
Jul-2014	3	Jan-2019	1		
Aug-2014	3	Feb-2019	1		
Sep-2014	3	Mar-2019	1		
Oct-2014	3	Apr-2019	1		
Nov-2014	1	May-2019	1		
Dec-2014	1	Jun-2019	1		
Jan-2015	1	Jul-2019	1		
Feb-2015	1	Aug-2019	1		
Mar-2015	1	Sep-2019	1		
Apr-2015	1	Oct-2019	1		
May-2015	1	Nov-2019	1		
Jun-2015	1	Dec-2019	1		
Jul-2015	1	Jan-2020	1		
Aug-2015	1	Feb-2020	1		
Sep-2015	1	Mar-2020	1		
Oct-2015	1	Apr-2020	1		
Nov-2015	1	May-2020	1		
Dec-2015	1	Jun-2020	1		
Jan-2016	1	Jul-2020	1		
Feb-2016	1	Aug-2020	1		
Mar-2016	1	Sep-2020	1		
Apr-2016	1	Oct-2020	1		
May-2016	1	Nov-2020	1		
Jun-2016	1	Dec-2020	1		
Jul-2016	1	Jan-2021	1		
Aug-2016	1	Feb-2021	1		
Sep-2016	1	Mar-2021	1		
Oct-2016	1	Apr-2021	1		
Nov-2016	1	May-2021	1		
Dec-2016	1	Jun-2021	1		
Jan-2017	1	Jul-2021	1		
Feb-2017	1	Aug-2021	1		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 441
NFS XL High

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+1
Variable =
Coeffs =
R2 = 0
RV = 0

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	2	Mar-2017	1	2012	2
Oct-2012	2	Apr-2017	1	2013	1
Nov-2012	2	May-2017	1	2014	1
Dec-2012	2	Jun-2017	1	2015	1
Jan-2013	2	Jul-2017	1	2016	1
Feb-2013	2	Aug-2017	1	2017	1
Mar-2013	2	Sep-2017	1	2018	1
Apr-2013	2	Oct-2017	1	2019	1
May-2013	2	Nov-2017	1	2020	1
Jun-2013	2	Dec-2017	1	2021	1
Jul-2013	2	Jan-2018	1		
Aug-2013	2	Feb-2018	1		
Sep-2013	2	Mar-2018	1		
Oct-2013	2	Apr-2018	1		
Nov-2013	2	May-2018	1		
Dec-2013	2	Jun-2018	1		
Jan-2014	1	Jul-2018	1		
Feb-2014	1	Aug-2018	1		
Mar-2014	1	Sep-2018	1		
Apr-2014	1	Oct-2018	1		
May-2014	1	Nov-2018	1		
Jun-2014	1	Dec-2018	1		
Jul-2014	1	Jan-2019	1		
Aug-2014	1	Feb-2019	1		
Sep-2014	1	Mar-2019	1		
Oct-2014	1	Apr-2019	1		
Nov-2014	1	May-2019	1		
Dec-2014	1	Jun-2019	1		
Jan-2015	1	Jul-2019	1		
Feb-2015	1	Aug-2019	1		
Mar-2015	1	Sep-2019	1		
Apr-2015	1	Oct-2019	1		
May-2015	1	Nov-2019	1		
Jun-2015	1	Dec-2019	1		
Jul-2015	1	Jan-2020	1		
Aug-2015	1	Feb-2020	1		
Sep-2015	1	Mar-2020	1		
Oct-2015	1	Apr-2020	1		
Nov-2015	1	May-2020	1		
Dec-2015	1	Jun-2020	1		
Jan-2016	1	Jul-2020	1		
Feb-2016	1	Aug-2020	1		
Mar-2016	1	Sep-2020	1		
Apr-2016	1	Oct-2020	1		
May-2016	1	Nov-2020	1		
Jun-2016	1	Dec-2020	1		
Jul-2016	1	Jan-2021	1		
Aug-2016	1	Feb-2021	1		
Sep-2016	1	Mar-2021	1		
Oct-2016	1	Apr-2021	1		
Nov-2016	1	May-2021	1		
Dec-2016	1	Jun-2021	1		
Jan-2017	1	Jul-2021	1		
Feb-2017	1	Aug-2021	1		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 442
NFT XL High

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+7
Variable =
Coeffs =
R2 = 0
RV = 0.246753

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	14	Mar-2017	7	2012	12
Oct-2012	14	Apr-2017	7	2013	8
Nov-2012	14	May-2017	7	2014	8
Dec-2012	14	Jun-2017	7	2015	7
Jan-2013	14	Jul-2017	7	2016	7
Feb-2013	14	Aug-2017	7	2017	7
Mar-2013	14	Sep-2017	7	2018	7
Apr-2013	14	Oct-2017	7	2019	7
May-2013	14	Nov-2017	7	2020	7
Jun-2013	15	Dec-2017	7	2021	7
Jul-2013	14	Jan-2018	7		
Aug-2013	14	Feb-2018	7		
Sep-2013	12	Mar-2018	7		
Oct-2013	12	Apr-2018	7		
Nov-2013	12	May-2018	7		
Dec-2013	10	Jun-2018	7		
Jan-2014	10	Jul-2018	7		
Feb-2014	10	Aug-2018	7		
Mar-2014	9	Sep-2018	7		
Apr-2014	10	Oct-2018	7		
May-2014	10	Nov-2018	7		
Jun-2014	10	Dec-2018	7		
Jul-2014	10	Jan-2019	7		
Aug-2014	10	Feb-2019	7		
Sep-2014	10	Mar-2019	7		
Oct-2014	10	Apr-2019	7		
Nov-2014	8	May-2019	7		
Dec-2014	8	Jun-2019	7		
Jan-2015	8	Jul-2019	7		
Feb-2015	8	Aug-2019	7		
Mar-2015	8	Sep-2019	7		
Apr-2015	8	Oct-2019	7		
May-2015	8	Nov-2019	7		
Jun-2015	8	Dec-2019	7		
Jul-2015	8	Jan-2020	7		
Aug-2015	8	Feb-2020	7		
Sep-2015	8	Mar-2020	7		
Oct-2015	8	Apr-2020	7		
Nov-2015	8	May-2020	7		
Dec-2015	8	Jun-2020	7		
Jan-2016	8	Jul-2020	7		
Feb-2016	8	Aug-2020	7		
Mar-2016	8	Sep-2020	7		
Apr-2016	8	Oct-2020	7		
May-2016	8	Nov-2020	7		
Jun-2016	7	Dec-2020	7		
Jul-2016	7	Jan-2021	7		
Aug-2016	7	Feb-2021	7		
Sep-2016	7	Mar-2021	7		
Oct-2016	7	Apr-2021	7		
Nov-2016	7	May-2021	7		
Dec-2016	7	Jun-2021	7		
Jan-2017	7	Jul-2021	7		
Feb-2017	7	Aug-2021	7		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 443
FT2 Small

Model Type = Meter Count
-
Model Type = Eco
Model Eqn = 1 + x1
Variable =
Coeffs = {-7970.8135,17.2792}:
R2 = na
RV = 936.823R^2=0.83921

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	5	Mar-2017	507	2012	123
Oct-2012	13	Apr-2017	513	2013	170
Nov-2012	24	May-2017	521	2014	335
Dec-2012	32	Jun-2017	529	2015	457
Jan-2013	51	Jul-2017	538	2016	572
Feb-2013	64	Aug-2017	546	2017	672
Mar-2013	70	Sep-2017	554	2018	753
Apr-2013	72	Oct-2017	562	2019	798
May-2013	78	Nov-2017	572	2020	830
Jun-2013	82	Dec-2017	580	2021	871
Jul-2013	86	Jan-2018	591		
Aug-2013	87	Feb-2018	602		
Sep-2013	92	Mar-2018	610		
Oct-2013	114	Apr-2018	619		
Nov-2013	123	May-2018	627		
Dec-2013	141	Jun-2018	634		
Jan-2014	155	Jul-2018	642		
Feb-2014	155	Aug-2018	649		
Mar-2014	156	Sep-2018	656		
Apr-2014	154	Oct-2018	664		
May-2014	149	Nov-2018	672		
Jun-2014	139	Dec-2018	680		
Jul-2014	134	Jan-2019	690		
Aug-2014	135	Feb-2019	700		
Sep-2014	137	Mar-2019	707		
Oct-2014	135	Apr-2019	714		
Nov-2014	170	May-2019	720		
Dec-2014	184	Jun-2019	725		
Jan-2015	203	Jul-2019	730		
Feb-2015	264	Aug-2019	736		
Mar-2015	266	Sep-2019	742		
Apr-2015	266	Oct-2019	748		
May-2015	278	Nov-2019	753		
Jun-2015	278	Dec-2019	760		
Jul-2015	286	Jan-2020	768		
Aug-2015	289	Feb-2020	775		
Sep-2015	288	Mar-2020	778		
Oct-2015	290	Apr-2020	783		
Nov-2015	335	May-2020	785		
Dec-2015	351	Jun-2020	787		
Jan-2016	383	Jul-2020	789		
Feb-2016	394	Aug-2020	791		
Mar-2016	396	Sep-2020	793		
Apr-2016	408	Oct-2020	795		
May-2016	427	Nov-2020	798		
Jun-2016	428	Dec-2020	801		
Jul-2016	431	Jan-2021	806		
Aug-2016	433	Feb-2021	810		
Sep-2016	440	Mar-2021	813		
Oct-2016	453	Apr-2021	816		
Nov-2016	457	May-2021	818		
Dec-2016	518	Jun-2021	820		
Jan-2017	499	Jul-2021	822		
Feb-2017	507	Aug-2021	824		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 444
TSS Small

Model Type = Meter Count
-
Model Type = constant
Model Eqn = 0*x+45
Variable =
Coeffs =
R2 = 0
RV = 1216.48

Date	Actual Monthly Meter Count	Date	Forecast Monthly Meter Count	Year	Calendar Year-End Meter Count
Sep-2012	0	Mar-2017	44	2012	5
Oct-2012	0	Apr-2017	40	2013	41
Nov-2012	0	May-2017	40	2014	5
Dec-2012	0	Jun-2017	39	2015	2
Jan-2013	1	Jul-2017	38	2016	37
Feb-2013	1	Aug-2017	38	2017	34
Mar-2013	2	Sep-2017	38	2018	34
Apr-2013	2	Oct-2017	38	2019	32
May-2013	2	Nov-2017	37	2020	29
Jun-2013	1	Dec-2017	38	2021	25
Jul-2013	1	Jan-2018	38		
Aug-2013	3	Feb-2018	38		
Sep-2013	2	Mar-2018	38		
Oct-2013	2	Apr-2018	37		
Nov-2013	5	May-2018	36		
Dec-2013	5	Jun-2018	35		
Jan-2014	6	Jul-2018	35		
Feb-2014	7	Aug-2018	35		
Mar-2014	9	Sep-2018	34		
Apr-2014	15	Oct-2018	34		
May-2014	19	Nov-2018	34		
Jun-2014	28	Dec-2018	35		
Jul-2014	35	Jan-2019	36		
Aug-2014	39	Feb-2019	36		
Sep-2014	39	Mar-2019	36		
Oct-2014	41	Apr-2019	35		
Nov-2014	41	May-2019	35		
Dec-2014	42	Jun-2019	34		
Jan-2015	44	Jul-2019	34		
Feb-2015	44	Aug-2019	34		
Mar-2015	51	Sep-2019	34		
Apr-2015	54	Oct-2019	34		
May-2015	48	Nov-2019	34		
Jun-2015	48	Dec-2019	35		
Jul-2015	49	Jan-2020	35		
Aug-2015	50	Feb-2020	35		
Sep-2015	4	Mar-2020	35		
Oct-2015	2	Apr-2020	34		
Nov-2015	5	May-2020	33		
Dec-2015	5	Jun-2020	33		
Jan-2016	6	Jul-2020	33		
Feb-2016	6	Aug-2020	33		
Mar-2016	7	Sep-2020	32		
Apr-2016	7	Oct-2020	32		
May-2016	8	Nov-2020	32		
Jun-2016	1	Dec-2020	33		
Jul-2016	3	Jan-2021	33		
Aug-2016	3	Feb-2021	33		
Sep-2016	1	Mar-2021	32		
Oct-2016	2	Apr-2021	31		
Nov-2016	2	May-2021	31		
Dec-2016	18	Jun-2021	30		
Jan-2017	40	Jul-2021	29		
Feb-2017	45	Aug-2021	29		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 400
Residential Heating

Model Type = UPC
Submodel = basemodel
Model Eqn = 0*x+0.577668
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = 0*x+0.13545
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	19.6	Mar-2017	134	2012	509
Oct-2012	26.0	Apr-2017	97	2013	605
Nov-2012	54.9	May-2017	50	2014	677
Dec-2012	101.9	Jun-2017	27	2015	704
Jan-2013	142.3	Jul-2017	20	2016	558
Feb-2013	152.5	Aug-2017	17	2017	588
Mar-2013	132.0	Sep-2017	19	2018	605
Apr-2013	100.7	Oct-2017	24	2019	606
May-2013	50.4	Nov-2017	59	2020	605
Jun-2013	26.6	Dec-2017	104	2021	612
Jul-2013	29.4	Jan-2018	142		
Aug-2013	16.3	Feb-2018	156		
Sep-2013	12.6	Mar-2018	134		
Oct-2013	23.6	Apr-2018	94		
Nov-2013	58.0	May-2018	50		
Dec-2013	122.9	Jun-2018	28		
Jan-2014	166.0	Jul-2018	20		
Feb-2014	167.4	Aug-2018	17		
Mar-2014	155.3	Sep-2018	19		
Apr-2014	107.0	Oct-2018	24		
May-2014	55.0	Nov-2018	55		
Jun-2014	26.7	Dec-2018	103		
Jul-2014	19.6	Jan-2019	147		
Aug-2014	18.7	Feb-2019	156		
Sep-2014	19.0	Mar-2019	134		
Oct-2014	25.1	Apr-2019	91		
Nov-2014	56.4	May-2019	52		
Dec-2014	115.5	Jun-2019	27		
Jan-2015	152.7	Jul-2019	20		
Feb-2015	186.8	Aug-2019	18		
Mar-2015	175.3	Sep-2019	20		
Apr-2015	115.1	Oct-2019	23		
May-2015	47.8	Nov-2019	55		
Jun-2015	26.0	Dec-2019	103		
Jul-2015	19.9	Jan-2020	147		
Aug-2015	17.8	Feb-2020	156		
Sep-2015	18.1	Mar-2020	130		
Oct-2015	25.1	Apr-2020	96		
Nov-2015	48.9	May-2020	49		
Dec-2015	86.3	Jun-2020	27		
Jan-2016	118.0	Jul-2020	20		
Feb-2016	143.4	Aug-2020	16		
Mar-2016	123.4	Sep-2020	19		
Apr-2016	91.0	Oct-2020	23		
May-2016	54.7	Nov-2020	56		
Jun-2016	27.4	Dec-2020	102		
Jul-2016	19.7	Jan-2021	147		
Aug-2016	16.8	Feb-2021	156		
Sep-2016	17.0	Mar-2021	138		
Oct-2016	24.0	Apr-2021	96		
Nov-2016	53.3	May-2021	48		
Dec-2016	104.9	Jun-2021	27		
Jan-2017	143.3	Jul-2021	20		
Feb-2017	136.5	Aug-2021	17		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 401
Residential Non-Heating

Model Type = UPC
Submodel = model
Model Eqn = 0*x+0.607706
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	10.3	Mar-2017	36	2012	139
Oct-2012	13.0	Apr-2017	28	2013	185
Nov-2012	18.6	May-2017	18	2014	242
Dec-2012	30.6	Jun-2017	13	2015	209
Jan-2013	39.5	Jul-2017	9	2016	167
Feb-2013	41.9	Aug-2017	8	2017	146
Mar-2013	37.8	Sep-2017	9	2018	147
Apr-2013	31.7	Oct-2017	10	2019	147
May-2013	20.2	Nov-2017	15	2020	148
Jun-2013	13.7	Dec-2017	21	2021	147
Jul-2013	10.9	Jan-2018	27		
Aug-2013	10.4	Feb-2018	26		
Sep-2013	11.1	Mar-2018	36		
Oct-2013	12.3	Apr-2018	28		
Nov-2013	22.4	May-2018	18		
Dec-2013	41.8	Jun-2018	13		
Jan-2014	54.9	Jul-2018	9		
Feb-2014	55.8	Aug-2018	8		
Mar-2014	52.8	Sep-2018	9		
Apr-2014	39.5	Oct-2018	10		
May-2014	24.0	Nov-2018	14		
Jun-2014	14.9	Dec-2018	21		
Jul-2014	11.2	Jan-2019	27		
Aug-2014	10.9	Feb-2019	26		
Sep-2014	10.9	Mar-2019	36		
Oct-2014	13.2	Apr-2019	27		
Nov-2014	23.3	May-2019	19		
Dec-2014	33.8	Jun-2019	13		
Jan-2015	43.6	Jul-2019	9		
Feb-2015	50.8	Aug-2019	8		
Mar-2015	48.5	Sep-2019	9		
Apr-2015	34.9	Oct-2019	10		
May-2015	18.4	Nov-2019	14		
Jun-2015	12.8	Dec-2019	21		
Jul-2015	10.5	Jan-2020	27		
Aug-2015	9.4	Feb-2020	27		
Sep-2015	9.5	Mar-2020	36		
Oct-2015	11.4	Apr-2020	28		
Nov-2015	16.9	May-2020	18		
Dec-2015	26.6	Jun-2020	13		
Jan-2016	33.7	Jul-2020	10		
Feb-2016	39.4	Aug-2020	8		
Mar-2016	35.4	Sep-2020	9		
Apr-2016	27.9	Oct-2020	10		
May-2016	18.3	Nov-2020	15		
Jun-2016	12.7	Dec-2020	21		
Jul-2016	9.7	Jan-2021	27		
Aug-2016	8.2	Feb-2021	26		
Sep-2016	8.5	Mar-2021	35		
Oct-2016	10.2	Apr-2021	28		
Nov-2016	14.1	May-2021	18		
Dec-2016	20.9	Jun-2021	13		
Jan-2017	26.1	Jul-2021	10		
Feb-2017	25.6	Aug-2021	8		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 402
Residential Low Income Heating

Model Type = UPC
Submodel = basemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {3.0376,-0.50366,-1895.8836}
b1 Stats = SE-641.7184 t-0.0047335 p-0.99652
b2 Stats = SE-111.271 t--0.0045265 p-0.99667
b3 Stats = SE-25973.8497 t--0.072992 p-0.94641
Model Stats = R^2-0.18934, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {0.38081,-0.051602,-1886.0704}
b1 Stats = SE-0.35322 t-1.0781 p-0.34166
b2 Stats = SE-0.072867 t--0.70817 p-0.51792
b3 Stats = SE-0.00086617 t--2177488.1287 p-2.6689e-25
Model Stats = R^2-0.18649, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	20.5	Mar-2017	133	2012	504
Oct-2012	25.8	Apr-2017	97	2013	591
Nov-2012	52.9	May-2017	50	2014	656
Dec-2012	102.4	Jun-2017	27	2015	676
Jan-2013	138.8	Jul-2017	21	2016	546
Feb-2013	148.0	Aug-2017	18	2017	578
Mar-2013	129.4	Sep-2017	21	2018	595
Apr-2013	97.9	Oct-2017	25	2019	594
May-2013	49.3	Nov-2017	57	2020	590
Jun-2013	27.2	Dec-2017	105	2021	590
Jul-2013	20.4	Jan-2018	139		
Aug-2013	19.7	Feb-2018	151		
Sep-2013	20.9	Mar-2018	133		
Oct-2013	24.7	Apr-2018	94		
Nov-2013	58.2	May-2018	49		
Dec-2013	118.9	Jun-2018	29		
Jan-2014	161.3	Jul-2018	20		
Feb-2014	161.6	Aug-2018	18		
Mar-2014	149.8	Sep-2018	21		
Apr-2014	103.1	Oct-2018	25		
May-2014	53.9	Nov-2018	54		
Jun-2014	26.5	Dec-2018	104		
Jul-2014	20.5	Jan-2019	143		
Aug-2014	19.3	Feb-2019	151		
Sep-2014	19.7	Mar-2019	132		
Oct-2014	25.8	Apr-2019	90		
Nov-2014	55.9	May-2019	51		
Dec-2014	112.4	Jun-2019	27		
Jan-2015	148.1	Jul-2019	20		
Feb-2015	176.4	Aug-2019	19		
Mar-2015	166.0	Sep-2019	21		
Apr-2015	113.0	Oct-2019	24		
May-2015	46.2	Nov-2019	54		
Jun-2015	26.3	Dec-2019	104		
Jul-2015	21.4	Jan-2020	143		
Aug-2015	18.5	Feb-2020	150		
Sep-2015	19.1	Mar-2020	128		
Oct-2015	26.5	Apr-2020	96		
Nov-2015	48.8	May-2020	47		
Dec-2015	83.1	Jun-2020	27		
Jan-2016	116.6	Jul-2020	22		
Feb-2016	134.8	Aug-2020	17		
Mar-2016	122.0	Sep-2020	20		
Apr-2016	91.1	Oct-2020	24		
May-2016	53.3	Nov-2020	55		
Jun-2016	27.7	Dec-2020	102		
Jul-2016	20.7	Jan-2021	142		
Aug-2016	17.6	Feb-2021	149		
Sep-2016	18.3	Mar-2021	131		
Oct-2016	25.0	Apr-2021	95		
Nov-2016	55.1	May-2021	47		
Dec-2016	104.1	Jun-2021	27		
Jan-2017	139.4	Jul-2021	21		
Feb-2017	131.7	Aug-2021	18		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 403
Residential Low Income Non-Heating

Model Type = UPC
Submodel = model
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {48.0819,-9.4688,-1880.0518}
b1 Stats = SE-11757.8828 t-0.0040893 p-0.99699
b2 Stats = SE-1995.0574 t--0.0047461 p-0.99651
b3 Stats = SE-28108.4203 t--0.066886 p-0.95088
Model Stats = R^2-0.23599, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Actual Monthly UPC		Forecast Monthly UPC			Calendar Year UPC
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	16.9	Mar-2017	83	2012	391
Oct-2012	23.4	Apr-2017	75	2013	477
Nov-2012	45.6	May-2017	43	2014	579
Dec-2012	84.8	Jun-2017	19	2015	460
Jan-2013	113.7	Jul-2017	12	2016	379
Feb-2013	124.7	Aug-2017	10	2017	359
Mar-2013	102.7	Sep-2017	11	2018	356
Apr-2013	76.3	Oct-2017	15	2019	356
May-2013	37.5	Nov-2017	31	2020	357
Jun-2013	22.2	Dec-2017	56	2021	357
Jul-2013	17.2	Jan-2018	73		
Aug-2013	16.9	Feb-2018	67		
Sep-2013	17.8	Mar-2018	80		
Oct-2013	21.5	Apr-2018	72		
Nov-2013	56.1	May-2018	43		
Dec-2013	110.5	Jun-2018	20		
Jan-2014	144.8	Jul-2018	11		
Feb-2014	142.4	Aug-2018	10		
Mar-2014	133.9	Sep-2018	12		
Apr-2014	89.6	Oct-2018	15		
May-2014	46.6	Nov-2018	30		
Jun-2014	22.1	Dec-2018	57		
Jul-2014	17.7	Jan-2019	75		
Aug-2014	16.4	Feb-2019	67		
Sep-2014	16.9	Mar-2019	80		
Oct-2014	22.6	Apr-2019	70		
Nov-2014	48.3	May-2019	45		
Dec-2014	77.1	Jun-2019	19		
Jan-2015	99.7	Jul-2019	12		
Feb-2015	116.3	Aug-2019	11		
Mar-2015	107.8	Sep-2019	11		
Apr-2015	83.0	Oct-2019	14		
May-2015	33.8	Nov-2019	30		
Jun-2015	19.9	Dec-2019	57		
Jul-2015	16.3	Jan-2020	75		
Aug-2015	15.6	Feb-2020	66		
Sep-2015	14.4	Mar-2020	80		
Oct-2015	19.7	Apr-2020	75		
Nov-2015	34.0	May-2020	42		
Dec-2015	53.6	Jun-2020	19		
Jan-2016	77.0	Jul-2020	12		
Feb-2016	84.2	Aug-2020	10		
Mar-2016	82.7	Sep-2020	12		
Apr-2016	73.9	Oct-2020	15		
May-2016	40.7	Nov-2020	31		
Jun-2016	20.3	Dec-2020	57		
Jul-2016	12.2	Jan-2021	75		
Aug-2016	10.4	Feb-2021	67		
Sep-2016	10.8	Mar-2021	82		
Oct-2016	14.9	Apr-2021	75		
Nov-2016	29.6	May-2021	40		
Dec-2016	54.7	Jun-2021	19		
Jan-2017	72.1	Jul-2021	12		
Feb-2017	66.1	Aug-2021	10		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 404
C&I Small

Model Type = UPC
Submodel = basemodel
Model Eqn = 0*x+0.759596
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = 1 + x1
Variable = GORCI
Coeffs = {0.26907,-0.085223}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-0.01556 t-17.2929 p-6.5623e-05
x1 Stats = SE-0.029345 t--2.9042 p-0.043933
Model Stats = R^2-0.67832, F-8.4351

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	27.2	Mar-2017	206	2012	720
Oct-2012	19.8	Apr-2017	140	2013	886
Nov-2012	66.3	May-2017	62	2014	1,061
Dec-2012	176.0	Jun-2017	40	2015	1,104
Jan-2013	211.0	Jul-2017	25	2016	821
Feb-2013	239.0	Aug-2017	23	2017	879
Mar-2013	204.6	Sep-2017	26	2018	902
Apr-2013	142.7	Oct-2017	32	2019	897
May-2013	60.5	Nov-2017	69	2020	897
Jun-2013	28.0	Dec-2017	162	2021	889
Jul-2013	22.7	Jan-2018	226		
Aug-2013	21.7	Feb-2018	230		
Sep-2013	22.7	Mar-2018	205		
Oct-2013	26.4	Apr-2018	140		
Nov-2013	73.5	May-2018	62		
Dec-2013	176.9	Jun-2018	40		
Jan-2014	276.1	Jul-2018	24		
Feb-2014	275.2	Aug-2018	23		
Mar-2014	257.3	Sep-2018	26		
Apr-2014	171.4	Oct-2018	32		
May-2014	54.1	Nov-2018	66		
Jun-2014	26.8	Dec-2018	160		
Jul-2014	23.0	Jan-2019	225		
Aug-2014	22.6	Feb-2019	229		
Sep-2014	23.2	Mar-2019	204		
Oct-2014	30.9	Apr-2019	135		
Nov-2014	72.6	May-2019	64		
Dec-2014	165.6	Jun-2019	40		
Jan-2015	242.7	Jul-2019	24		
Feb-2015	309.2	Aug-2019	23		
Mar-2015	292.5	Sep-2019	26		
Apr-2015	169.0	Oct-2019	30		
May-2015	61.7	Nov-2019	66		
Jun-2015	29.2	Dec-2019	160		
Jul-2015	52.1	Jan-2020	225		
Aug-2015	-3.1	Feb-2020	233		
Sep-2015	23.5	Mar-2020	200		
Oct-2015	30.8	Apr-2020	138		
Nov-2015	60.2	May-2020	61		
Dec-2015	114.9	Jun-2020	40		
Jan-2016	174.7	Jul-2020	25		
Feb-2016	225.6	Aug-2020	22		
Mar-2016	189.6	Sep-2020	26		
Apr-2016	126.1	Oct-2020	31		
May-2016	70.3	Nov-2020	67		
Jun-2016	34.5	Dec-2020	159		
Jul-2016	25.5	Jan-2021	224		
Aug-2016	22.8	Feb-2021	228		
Sep-2016	19.9	Mar-2021	202		
Oct-2016	26.4	Apr-2021	137		
Nov-2016	62.7	May-2021	59		
Dec-2016	146.2	Jun-2021	39		
Jan-2017	222.1	Jul-2021	25		
Feb-2017	209.5	Aug-2021	22		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 405
C&I Medium

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = GORI
Coeffs = {36.4415,-19.0521}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-3.4024 t-10.7105 p-0.00043061
x1 Stats = SE-6.8198 t--2.7937 p-0.049128
Model Stats = R^2-0.67201, F-8.1959

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	296.0	Mar-2017	1,393	2012	5,894
Oct-2012	361.3	Apr-2017	1,025	2013	6,737
Nov-2012	628.5	May-2017	648	2014	7,542
Dec-2012	1,173.5	Jun-2017	369	2015	7,888
Jan-2013	1,572.6	Jul-2017	279	2016	6,301
Feb-2013	1,662.9	Aug-2017	292	2017	6,423
Mar-2013	1,442.3	Sep-2017	277	2018	6,433
Apr-2013	1,101.4	Oct-2017	364	2019	6,429
May-2013	605.2	Nov-2017	650	2020	6,462
Jun-2013	352.4	Dec-2017	1,155	2021	6,361
Jul-2013	323.3	Jan-2018	1,553		
Aug-2013	256.5	Feb-2018	1,451		
Sep-2013	318.4	Mar-2018	1,390		
Oct-2013	318.5	Apr-2018	1,022		
Nov-2013	683.2	May-2018	647		
Dec-2013	1,500.4	Jun-2018	370		
Jan-2014	1,726.6	Jul-2018	280		
Feb-2014	1,839.6	Aug-2018	293		
Mar-2014	1,757.9	Sep-2018	278		
Apr-2014	1,196.7	Oct-2018	362		
May-2014	669.7	Nov-2018	625		
Jun-2014	351.4	Dec-2018	1,149		
Jul-2014	277.3	Jan-2019	1,552		
Aug-2014	274.7	Feb-2019	1,450		
Sep-2014	276.6	Mar-2019	1,391		
Oct-2014	353.2	Apr-2019	991		
Nov-2014	719.7	May-2019	671		
Dec-2014	1,250.2	Jun-2019	374		
Jan-2015	1,693.9	Jul-2019	284		
Feb-2015	2,035.6	Aug-2019	309		
Mar-2015	1,941.7	Sep-2019	283		
Apr-2015	1,289.1	Oct-2019	355		
May-2015	576.3	Nov-2019	628		
Jun-2015	351.6	Dec-2019	1,149		
Jul-2015	280.8	Jan-2020	1,546		
Aug-2015	259.3	Feb-2020	1,491		
Sep-2015	267.4	Mar-2020	1,384		
Oct-2015	354.8	Apr-2020	1,020		
Nov-2015	646.7	May-2020	648		
Dec-2015	938.4	Jun-2020	373		
Jan-2016	1,289.5	Jul-2020	293		
Feb-2016	1,575.2	Aug-2020	288		
Mar-2016	1,390.6	Sep-2020	282		
Apr-2016	1,022.2	Oct-2020	364		
May-2016	650.8	Nov-2020	646		
Jun-2016	372.3	Dec-2020	1,144		
Jul-2016	289.3	Jan-2021	1,539		
Aug-2016	294.5	Feb-2021	1,437		
Sep-2016	275.1	Mar-2021	1,378		
Oct-2016	360.4	Apr-2021	1,013		
Nov-2016	621.4	May-2021	624		
Dec-2016	1,138.4	Jun-2021	371		
Jan-2017	1,548.4	Jul-2021	291		
Feb-2017	1,439.3	Aug-2021	296		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 406
FT2 Medium

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = GORCI
Coeffs = {41.5931,-13.3126}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-3.1144 t-13.3551 p-0.00018176
x1 Stats = SE-5.8736 t--2.2665 p-0.086057
Model Stats = R^2-0.56242, F-5.1416

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	350.6	Mar-2017	1,775	2012	7,242
Oct-2012	440.1	Apr-2017	1,357	2013	7,422
Nov-2012	797.5	May-2017	890	2014	9,337
Dec-2012	2,406.8	Jun-2017	509	2015	9,771
Jan-2013	879.5	Jul-2017	374	2016	8,136
Feb-2013	2,002.4	Aug-2017	332	2017	8,291
Mar-2013	1,793.0	Sep-2017	335	2018	8,299
Apr-2013	1,451.9	Oct-2017	456	2019	8,268
May-2013	812.0	Nov-2017	872	2020	8,317
Jun-2013	482.7	Dec-2017	1,461	2021	8,218
Jul-2013	369.6	Jan-2018	1,931		
Aug-2013	363.4	Feb-2018	1,845		
Sep-2013	377.5	Mar-2018	1,770		
Oct-2013	476.9	Apr-2018	1,353		
Nov-2013	951.4	May-2018	890		
Dec-2013	1,612.7	Jun-2018	510		
Jan-2014	2,126.7	Jul-2018	375		
Feb-2014	2,192.4	Aug-2018	334		
Mar-2014	2,123.6	Sep-2018	337		
Apr-2014	1,518.3	Oct-2018	458		
May-2014	894.3	Nov-2018	841		
Jun-2014	481.4	Dec-2018	1,456		
Jul-2014	384.5	Jan-2019	1,927		
Aug-2014	362.6	Feb-2019	1,840		
Sep-2014	359.5	Mar-2019	1,765		
Oct-2014	445.2	Apr-2019	1,308		
Nov-2014	895.5	May-2019	918		
Dec-2014	1,568.6	Jun-2019	511		
Jan-2015	2,055.3	Jul-2019	377		
Feb-2015	2,447.0	Aug-2019	347		
Mar-2015	2,345.0	Sep-2019	338		
Apr-2015	1,662.8	Oct-2019	443		
May-2015	827.0	Nov-2019	839		
Jun-2015	434.3	Dec-2019	1,451		
Jul-2015	391.5	Jan-2020	1,920		
Aug-2015	354.9	Feb-2020	1,893		
Sep-2015	365.4	Mar-2020	1,758		
Oct-2015	472.0	Apr-2020	1,348		
Nov-2015	804.7	May-2020	887		
Dec-2015	1,259.3	Jun-2020	511		
Jan-2016	1,660.8	Jul-2020	390		
Feb-2016	1,952.9	Aug-2020	325		
Mar-2016	1,764.0	Sep-2020	339		
Apr-2016	1,358.7	Oct-2020	457		
May-2016	892.0	Nov-2020	864		
Jun-2016	507.5	Dec-2020	1,444		
Jul-2016	384.1	Jan-2021	1,911		
Aug-2016	331.6	Feb-2021	1,822		
Sep-2016	328.6	Mar-2021	1,749		
Oct-2016	443.4	Apr-2021	1,341		
Nov-2016	826.9	May-2021	885		
Dec-2016	1,435.8	Jun-2021	510		
Jan-2017	1,927.7	Jul-2021	390		
Feb-2017	1,832.3	Aug-2021	338		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 407
FT1 Medium

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = GORCI
Coeffs = {56.616,-20.4609}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-3.7474 t-15.1081 p-0.00011187
x1 Stats = SE-7.0674 t--2.8951 p-0.044335
Model Stats = R^2-0.67696, F-8.3825

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	714.6	Mar-2017	1,816	2012	8,587
Oct-2012	988.4	Apr-2017	1,509	2013	9,878
Nov-2012	1,840.5	May-2017	951	2014	10,758
Dec-2012	2,068.7	Jun-2017	648	2015	11,261
Jan-2013	2,511.7	Jul-2017	633	2016	9,757
Feb-2013	2,333.4	Aug-2017	583	2017	9,328
Mar-2013	2,146.1	Sep-2017	645	2018	9,352
Apr-2013	1,371.2	Oct-2017	1,066	2019	9,347
May-2013	860.9	Nov-2017	1,535	2020	9,386
Jun-2013	654.9	Dec-2017	2,477	2021	9,276
Jul-2013	608.1	Jan-2018	2,412		
Aug-2013	656.0	Feb-2018	2,019		
Sep-2013	735.7	Mar-2018	1,813		
Oct-2013	1,063.2	Apr-2018	1,505		
Nov-2013	1,806.9	May-2018	952		
Dec-2013	2,477.9	Jun-2018	651		
Jan-2014	2,840.8	Jul-2018	636		
Feb-2014	2,546.8	Aug-2018	586		
Mar-2014	2,384.7	Sep-2018	649		
Apr-2014	1,425.4	Oct-2018	1,070		
May-2014	882.5	Nov-2018	1,533		
Jun-2014	678.0	Dec-2018	2,473		
Jul-2014	650.9	Jan-2019	2,410		
Aug-2014	662.1	Feb-2019	2,016		
Sep-2014	700.8	Mar-2019	1,810		
Oct-2014	1,040.0	Apr-2019	1,507		
Nov-2014	1,763.4	May-2019	951		
Dec-2014	2,216.4	Jun-2019	653		
Jan-2015	2,908.7	Jul-2019	639		
Feb-2015	3,002.5	Aug-2019	591		
Mar-2015	2,440.0	Sep-2019	652		
Apr-2015	1,428.0	Oct-2019	1,071		
May-2015	790.3	Nov-2019	1,532		
Jun-2015	691.8	Dec-2019	2,467		
Jul-2015	645.5	Jan-2020	2,402		
Aug-2015	633.7	Feb-2020	2,072		
Sep-2015	646.1	Mar-2020	1,803		
Oct-2015	1,193.3	Apr-2020	1,502		
Nov-2015	1,486.8	May-2020	951		
Dec-2015	1,665.9	Jun-2020	656		
Jan-2016	2,537.3	Jul-2020	642		
Feb-2016	2,313.4	Aug-2020	593		
Mar-2016	1,798.2	Sep-2020	655		
Apr-2016	1,510.1	Oct-2020	1,072		
May-2016	952.4	Nov-2020	1,528		
Jun-2016	646.1	Dec-2020	2,459		
Jul-2016	630.5	Jan-2021	2,390		
Aug-2016	583.5	Feb-2021	1,996		
Sep-2016	636.1	Mar-2021	1,792		
Oct-2016	1,049.3	Apr-2021	1,492		
Nov-2016	1,510.7	May-2021	949		
Dec-2016	2,440.0	Jun-2021	657		
Jan-2017	2,406.1	Jul-2021	645		
Feb-2017	1,997.6	Aug-2021	597		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 408
TSS Medium

Model Type = UPC
Submodel = model
Model Eqn = 0*x+33.5399
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	418.4	Mar-2017	1,430	2012	7,130
Oct-2012	796.3	Apr-2017	1,099	2013	6,735
Nov-2012	1,135.5	May-2017	713	2014	8,833
Dec-2012	1,935.1	Jun-2017	490	2015	9,138
Jan-2013	1,645.8	Jul-2017	942	2016	6,782
Feb-2013	1,527.5	Aug-2017	846	2017	6,709
Mar-2013	1,410.1	Sep-2017	704	2018	6,689
Apr-2013	1,200.1	Oct-2017	556	2019	6,669
May-2013	573.9	Nov-2017	894	2020	6,651
Jun-2013	377.5	Dec-2017	1,376	2021	6,632
Jul-2013	211.3	Jan-2018	1,527		
Aug-2013	285.9	Feb-2018	1,441		
Sep-2013	377.4	Mar-2018	1,425		
Oct-2013	450.1	Apr-2018	1,096		
Nov-2013	876.3	May-2018	711		
Dec-2013	1,630.2	Jun-2018	489		
Jan-2014	2,422.7	Jul-2018	939		
Feb-2014	2,033.2	Aug-2018	844		
Mar-2014	1,876.9	Sep-2018	702		
Apr-2014	1,286.5	Oct-2018	554		
May-2014	779.8	Nov-2018	891		
Jun-2014	433.9	Dec-2018	1,372		
Jul-2014	418.2	Jan-2019	1,523		
Aug-2014	483.8	Feb-2019	1,437		
Sep-2014	454.3	Mar-2019	1,421		
Oct-2014	509.8	Apr-2019	1,093		
Nov-2014	836.0	May-2019	709		
Dec-2014	1,493.5	Jun-2019	487		
Jan-2015	1,981.0	Jul-2019	936		
Feb-2015	2,380.5	Aug-2019	841		
Mar-2015	2,108.1	Sep-2019	700		
Apr-2015	1,497.3	Oct-2019	552		
May-2015	726.5	Nov-2019	889		
Jun-2015	444.2	Dec-2019	1,368		
Jul-2015	372.9	Jan-2020	1,518		
Aug-2015	367.0	Feb-2020	1,433		
Sep-2015	430.6	Mar-2020	1,417		
Oct-2015	519.1	Apr-2020	1,090		
Nov-2015	699.6	May-2020	707		
Dec-2015	1,083.4	Jun-2020	486		
Jan-2016	1,425.4	Jul-2020	934		
Feb-2016	1,612.8	Aug-2020	839		
Mar-2016	1,434.1	Sep-2020	698		
Apr-2016	1,102.8	Oct-2020	551		
May-2016	715.1	Nov-2020	886		
Jun-2016	491.9	Dec-2020	1,364		
Jul-2016	945.0	Jan-2021	1,514		
Aug-2016	848.9	Feb-2021	1,429		
Sep-2016	706.2	Mar-2021	1,413		
Oct-2016	557.4	Apr-2021	1,087		
Nov-2016	897.0	May-2021	705		
Dec-2016	1,380.0	Jun-2021	485		
Jan-2017	1,531.5	Jul-2021	931		
Feb-2017	1,445.2	Aug-2021	837		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 409
C&I Low Load - Large

Model Type = UPC
Submodel = basemodel
Model Eqn = 1 + x1
Variable = GORI
Coeffs = {39.8064,-36.6347}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-5.2163 t-7.6312 p-0.0015836
x1 Stats = SE-10.4555 t--3.5039 p-0.024809
Model Stats = R^2-0.76587, F-13.0848

Model Type = UPC
Submodel = slopemodel
Model Eqn = 0*x+9.06722
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	1,115.2	Mar-2017	8,320	2012	30,582
Oct-2012	1,299.4	Apr-2017	5,572	2013	35,261
Nov-2012	2,944.1	May-2017	3,248	2014	43,765
Dec-2012	6,031.0	Jun-2017	1,376	2015	44,316
Jan-2013	8,064.6	Jul-2017	733	2016	36,009
Feb-2013	8,892.6	Aug-2017	658	2017	36,251
Mar-2013	7,799.6	Sep-2017	974	2018	36,907
Apr-2013	6,078.4	Oct-2017	1,197	2019	36,631
May-2013	3,200.6	Nov-2017	3,243	2020	36,520
Jun-2013	1,225.7	Dec-2017	6,954	2021	36,119
Jul-2013	834.2	Jan-2018	9,139		
Aug-2013	838.5	Feb-2018	9,350		
Sep-2013	831.2	Mar-2018	8,274		
Oct-2013	1,254.6	Apr-2018	5,546		
Nov-2013	3,471.6	May-2018	3,218		
Dec-2013	7,254.5	Jun-2018	1,380		
Jan-2014	10,474.2	Jul-2018	716		
Feb-2014	10,620.1	Aug-2018	644		
Mar-2014	10,665.2	Sep-2018	960		
Apr-2014	7,032.2	Oct-2018	1,177		
May-2014	3,631.0	Nov-2018	3,106		
Jun-2014	1,342.3	Dec-2018	6,867		
Jul-2014	784.5	Jan-2019	9,087		
Aug-2014	736.4	Feb-2019	9,313		
Sep-2014	817.9	Mar-2019	8,233		
Oct-2014	1,229.4	Apr-2019	5,337		
Nov-2014	3,280.5	May-2019	3,302		
Dec-2014	7,206.2	Jun-2019	1,360		
Jan-2015	9,684.7	Jul-2019	703		
Feb-2015	11,655.5	Aug-2019	631		
Mar-2015	11,087.7	Sep-2019	950		
Apr-2015	7,712.1	Oct-2019	1,131		
May-2015	3,018.6	Nov-2019	3,081		
Jun-2015	1,156.9	Dec-2019	6,845		
Jul-2015	790.8	Jan-2020	9,051		
Aug-2015	712.8	Feb-2020	9,432		
Sep-2015	649.7	Mar-2020	8,053		
Oct-2015	1,210.5	Apr-2020	5,465		
Nov-2015	2,862.8	May-2020	3,177		
Dec-2015	5,073.4	Jun-2020	1,341		
Jan-2016	7,321.8	Jul-2020	720		
Feb-2016	9,662.4	Aug-2020	596		
Mar-2016	8,772.7	Sep-2020	923		
Apr-2016	5,550.0	Oct-2020	1,137		
May-2016	3,358.2	Nov-2020	3,129		
Jun-2016	1,343.7	Dec-2020	6,787		
Jul-2016	680.7	Jan-2021	9,003		
Aug-2016	558.7	Feb-2021	9,229		
Sep-2016	675.2	Mar-2021	8,139		
Oct-2016	1,248.9	Apr-2021	5,407		
Nov-2016	3,033.9	May-2021	3,034		
Dec-2016	6,476.4	Jun-2021	1,306		
Jan-2017	9,290.6	Jul-2021	702		
Feb-2017	8,444.1	Aug-2021	604		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 410
FT2 Large Low

Model Type = UPC
Submodel = basemodel
Model Eqn = 1 + x1
Variable = GORI
Coeffs = {38.343,-24.2243}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-5.0226 t-7.6341 p-0.0015813
x1 Stats = SE-10.0673 t--2.4062 p-0.073855
Model Stats = R^2-0.60891, F-6.2281

Model Type = UPC
Submodel = slopemodel
Model Eqn = 0*x+9.81712
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	883.3	Mar-2017	9,106	2012	34,165
Oct-2012	1,338.8	Apr-2017	6,112	2013	40,866
Nov-2012	4,099.4	May-2017	3,613	2014	46,700
Dec-2012	7,230.8	Jun-2017	1,597	2015	47,061
Jan-2013	9,567.1	Jul-2017	888	2016	38,800
Feb-2013	10,288.2	Aug-2017	807	2017	39,786
Mar-2013	9,057.6	Sep-2017	1,147	2018	40,513
Apr-2013	6,995.8	Oct-2017	1,535	2019	40,295
May-2013	3,511.1	Nov-2017	4,176	2020	40,249
Jun-2013	1,446.4	Dec-2017	8,004	2021	39,959
Jul-2013	915.6	Jan-2018	9,959		
Aug-2013	945.0	Feb-2018	10,189		
Sep-2013	912.6	Mar-2018	9,064		
Oct-2013	1,466.9	Apr-2018	6,097		
Nov-2013	4,650.3	May-2018	3,592		
Dec-2013	7,683.5	Jun-2018	1,613		
Jan-2014	10,800.3	Jul-2018	884		
Feb-2014	11,651.5	Aug-2018	805		
Mar-2014	10,886.4	Sep-2018	1,144		
Apr-2014	7,913.7	Oct-2018	1,529		
May-2014	3,951.9	Nov-2018	4,020		
Jun-2014	1,496.2	Dec-2018	7,926		
Jul-2014	916.1	Jan-2019	9,919		
Aug-2014	869.5	Feb-2019	10,159		
Sep-2014	933.0	Mar-2019	9,031		
Oct-2014	1,502.3	Apr-2019	5,875		
Nov-2014	3,935.7	May-2019	3,704		
Dec-2014	7,935.5	Jun-2019	1,605		
Jan-2015	10,642.1	Jul-2019	884		
Feb-2015	12,309.7	Aug-2019	806		
Mar-2015	11,733.4	Sep-2019	1,147		
Apr-2015	7,723.7	Oct-2019	1,485		
May-2015	3,297.2	Nov-2019	4,001		
Jun-2015	1,355.1	Dec-2019	7,912		
Jul-2015	930.0	Jan-2020	9,890		
Aug-2015	797.2	Feb-2020	10,309		
Sep-2015	806.2	Mar-2020	8,848		
Oct-2015	1,520.9	Apr-2020	6,030		
Nov-2015	3,480.5	May-2020	3,575		
Dec-2015	6,241.9	Jun-2020	1,598		
Jan-2016	8,175.1	Jul-2020	919		
Feb-2016	10,025.0	Aug-2020	776		
Mar-2016	8,857.4	Sep-2020	1,129		
Apr-2016	6,291.3	Oct-2020	1,507		
May-2016	3,818.3	Nov-2020	4,077		
Jun-2016	1,632.4	Dec-2020	7,851		
Jul-2016	856.0	Jan-2021	9,843		
Aug-2016	749.3	Feb-2021	10,079		
Sep-2016	805.0	Mar-2021	8,944		
Oct-2016	1,419.4	Apr-2021	5,981		
Nov-2016	3,756.5	May-2021	3,544		
Dec-2016	7,296.1	Jun-2021	1,568		
Jan-2017	9,800.6	Jul-2021	911		
Feb-2017	9,557.3	Aug-2021	800		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 411
FT1 Large Low

Model Type = UPC
Submodel = basemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {33.9949,1.7298,-2009.5064}
b1 Stats = SE-18.0866 t-1.8796 p-0.15676
b2 Stats = SE-8.3557 t-0.20702 p-0.84925
b3 Stats = SE-13.5823 t--147.9504 p-6.8085e-07
Model Stats = R^2-0.28635, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = 1 + x1
Variable = TimeLinear
Coeffs = {385.1829,-0.18657}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-111.3151 t-3.4603 p-0.025811
x1 Stats = SE-0.055277 t--3.3752 p-0.027909
Model Stats = R^2-0.74754, F-11.8447

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	1,528.3	Mar-2017	8,137	2012	33,992
Oct-2012	3,340.4	Apr-2017	4,784	2013	38,993
Nov-2012	7,359.7	May-2017	2,587	2014	43,050
Dec-2012	8,682.9	Jun-2017	1,492	2015	43,832
Jan-2013	10,808.2	Jul-2017	1,141	2016	36,300
Feb-2013	10,158.4	Aug-2017	1,137	2017	34,179
Mar-2013	9,124.4	Sep-2017	1,573	2018	37,467
Apr-2013	5,281.9	Oct-2017	3,778	2019	37,384
May-2013	2,337.9	Nov-2017	6,090	2020	37,308
Jun-2013	1,282.2	Dec-2017	9,291	2021	37,150
Jul-2013	1,074.0	Jan-2018	11,030		
Aug-2013	1,159.5	Feb-2018	9,473		
Sep-2013	1,668.4	Mar-2018	8,115		
Oct-2013	3,694.5	Apr-2018	4,770		
Nov-2013	7,767.0	May-2018	2,584		
Dec-2013	10,348.6	Jun-2018	1,494		
Jan-2014	12,547.1	Jul-2018	1,143		
Feb-2014	10,983.2	Aug-2018	1,140		
Mar-2014	10,267.0	Sep-2018	1,576		
Apr-2014	5,451.5	Oct-2018	3,775		
May-2014	2,512.0	Nov-2018	6,075		
Jun-2014	1,289.6	Dec-2018	9,266		
Jul-2014	1,148.7	Jan-2019	11,004		
Aug-2014	1,188.4	Feb-2019	9,448		
Sep-2014	1,564.4	Mar-2019	8,095		
Oct-2014	3,492.1	Apr-2019	4,764		
Nov-2014	7,067.6	May-2019	2,579		
Dec-2014	9,099.0	Jun-2019	1,495		
Jan-2015	12,363.4	Jul-2019	1,147		
Feb-2015	12,681.8	Aug-2019	1,144		
Mar-2015	9,990.5	Sep-2019	1,577		
Apr-2015	5,267.6	Oct-2019	3,769		
May-2015	1,988.3	Nov-2019	6,061		
Jun-2015	1,540.5	Dec-2019	9,240		
Jul-2015	1,234.7	Jan-2020	10,971		
Aug-2015	1,129.5	Feb-2020	9,447		
Sep-2015	1,264.4	Mar-2020	8,070		
Oct-2015	3,910.7	Apr-2020	4,750		
Nov-2015	5,477.7	May-2020	2,575		
Dec-2015	6,291.5	Jun-2020	1,496		
Jan-2016	10,562.2	Jul-2020	1,149		
Feb-2016	9,228.2	Aug-2020	1,145		
Mar-2016	6,848.2	Sep-2020	1,578		
Apr-2016	5,577.2	Oct-2020	3,763		
May-2016	2,801.5	Nov-2020	6,044		
Jun-2016	1,283.2	Dec-2020	9,213		
Jul-2016	1,145.2	Jan-2021	10,934		
Aug-2016	1,129.8	Feb-2021	9,384		
Sep-2016	1,446.8	Mar-2021	8,039		
Oct-2016	3,653.0	Apr-2021	4,729		
Nov-2016	5,726.9	May-2021	2,569		
Dec-2016	9,409.0	Jun-2021	1,494		
Jan-2017	9,513.1	Jul-2021	1,150		
Feb-2017	7,664.9	Aug-2021	1,148		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 412
TSS Large Low Load

Model Type = UPC
Submodel = basemodel
Model Eqn = 1 + x1
Variable = FGDP$A
Coeffs = {-1381.6528,0.028404}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-297.8705 t--4.6384 p-0.0097454
x1 Stats = SE-0.0059899 t-4.7419 p-0.0090242
Model Stats = R^2-0.85685, F-23.9431

Model Type = UPC
Submodel = slopemodel
Model Eqn = 0*x+11.2894
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	818.2	Mar-2017	11,091	2012	67,249
Oct-2012	3,713.6	Apr-2017	7,650	2013	35,222
Nov-2012	5,094.6	May-2017	4,658	2014	36,908
Dec-2012	8,031.5	Jun-2017	2,345	2015	41,512
Jan-2013	9,452.2	Jul-2017	1,645	2016	30,868
Feb-2013	9,256.5	Aug-2017	1,549	2017	50,628
Mar-2013	6,327.9	Sep-2017	2,038	2018	51,870
Apr-2013	6,736.1	Oct-2017	1,993	2019	51,767
May-2013	2,723.0	Nov-2017	7,668	2020	51,208
Jun-2013	726.2	Dec-2017	11,383	2021	50,753
Jul-2013	127.5	Jan-2018	13,600		
Aug-2013	210.3	Feb-2018	12,603		
Sep-2013	364.4	Mar-2018	11,077		
Oct-2013	972.5	Apr-2018	7,599		
Nov-2013	4,292.6	May-2018	4,624		
Dec-2013	10,745.8	Jun-2018	2,367		
Jan-2014	8,245.7	Jul-2018	1,631		
Feb-2014	9,913.7	Aug-2018	1,539		
Mar-2014	9,913.8	Sep-2018	2,039		
Apr-2014	4,477.8	Oct-2018	1,970		
May-2014	3,460.2	Nov-2018	7,344		
Jun-2014	896.3	Dec-2018	11,568		
Jul-2014	1,140.2	Jan-2019	13,521		
Aug-2014	1,394.8	Feb-2019	12,551		
Sep-2014	1,510.0	Mar-2019	11,025		
Oct-2014	1,507.9	Apr-2019	7,593		
Nov-2014	3,917.8	May-2019	4,737		
Dec-2014	6,838.9	Jun-2019	2,341		
Jan-2015	9,763.9	Jul-2019	1,625		
Feb-2015	10,507.6	Aug-2019	1,536		
Mar-2015	9,878.2	Sep-2019	2,025		
Apr-2015	7,349.5	Oct-2019	1,899		
May-2015	2,809.1	Nov-2019	7,281		
Jun-2015	1,203.4	Dec-2019	11,530		
Jul-2015	721.9	Jan-2020	13,458		
Aug-2015	656.7	Feb-2020	12,625		
Sep-2015	399.3	Mar-2020	10,753		
Oct-2015	1,062.4	Apr-2020	7,521		
Nov-2015	3,521.2	May-2020	4,556		
Dec-2015	5,859.3	Jun-2020	2,293		
Jan-2016	8,720.0	Jul-2020	1,670		
Feb-2016	8,974.4	Aug-2020	1,464		
Mar-2016	8,539.8	Sep-2020	2,014		
Apr-2016	5,407.4	Oct-2020	1,937		
May-2016	3,381.1	Nov-2020	7,426		
Jun-2016	-4,154.9	Dec-2020	11,526		
Jul-2016	2,039.3	Jan-2021	13,399		
Aug-2016	1,575.2	Feb-2021	12,482		
Sep-2016	2,093.8	Mar-2021	10,863		
Oct-2016	-548.5	Apr-2021	7,392		
Nov-2016	3,201.5	May-2021	4,360		
Dec-2016	5,214.8	Jun-2021	2,257		
Jan-2017	12,967.3	Jul-2021	1,595		
Feb-2017	11,917.6	Aug-2021	1,511		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 413
C&I Low Load - Extra Large

Model Type = UPC
Submodel = basemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {289.3523,-125.586,-2009.0174}
b1 Stats = SE-452.888 t-0.6389 p-0.56832
b2 Stats = SE-194.1757 t--0.64676 p-0.56386
b3 Stats = SE-5.3412 t--376.1331 p-4.1441e-08
Model Stats = R^2-0.83308, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {107.7993,-16.4336,-1828.2197}
b1 Stats = SE-252018.7169 t-0.00042774 p-0.99969
b2 Stats = SE-40506.0531 t--0.00040571 p-0.9997
b3 Stats = SE-456602.1628 t--0.004004 p-0.99706
Model Stats = R^2-0.0052544, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	5,278.2	Mar-2017	19,400	2012	125,072
Oct-2012	10,008.6	Apr-2017	13,153	2013	104,308
Nov-2012	10,186.8	May-2017	7,474	2014	133,664
Dec-2012	17,785.0	Jun-2017	4,216	2015	114,731
Jan-2013	21,871.1	Jul-2017	1,283	2016	85,597
Feb-2013	21,001.6	Aug-2017	890	2017	83,245
Mar-2013	22,199.6	Sep-2017	1,556	2018	84,147
Apr-2013	19,355.9	Oct-2017	2,580	2019	81,227
May-2013	13,250.4	Nov-2017	6,954	2020	80,487
Jun-2013	6,629.6	Dec-2017	18,220	2021	80,270
Jul-2013	5,448.2	Jan-2018	21,443		
Aug-2013	3,145.0	Feb-2018	21,715		
Sep-2013	3,095.0	Mar-2018	18,510		
Oct-2013	3,548.0	Apr-2018	12,246		
Nov-2013	10,668.4	May-2018	6,603		
Dec-2013	24,456.2	Jun-2018	3,631		
Jan-2014	32,292.6	Jul-2018	495		
Feb-2014	31,839.7	Aug-2018	196		
Mar-2014	34,513.3	Sep-2018	920		
Apr-2014	18,055.5	Oct-2018	1,945		
May-2014	12,254.7	Nov-2018	6,085		
Jun-2014	4,708.7	Dec-2018	17,386		
Jul-2014	2,440.8	Jan-2019	21,551		
Aug-2014	1,426.4	Feb-2019	20,536		
Sep-2014	1,054.8	Mar-2019	18,040		
Oct-2014	3,458.0	Apr-2019	11,515		
Nov-2014	7,290.5	May-2019	6,444		
Dec-2014	17,293.6	Jun-2019	3,141		
Jan-2015	24,195.5	Jul-2019	240		
Feb-2015	25,760.5	Aug-2019	0		
Mar-2015	28,511.7	Sep-2019	708		
Apr-2015	21,803.9	Oct-2019	1,715		
May-2015	8,812.0	Nov-2019	5,934		
Jun-2015	5,647.0	Dec-2019	17,251		
Jul-2015	2,548.2	Jan-2020	21,337		
Aug-2015	2,368.3	Feb-2020	20,585		
Sep-2015	2,298.0	Mar-2020	17,601		
Oct-2015	3,785.3	Apr-2020	11,777		
Nov-2015	6,209.1	May-2020	6,177		
Dec-2015	13,212.2	Jun-2020	3,009		
Jan-2016	16,602.6	Jul-2020	254		
Feb-2016	19,979.8	Aug-2020	0		
Mar-2016	21,376.6	Sep-2020	666		
Apr-2016	14,134.4	Oct-2020	1,640		
May-2016	8,818.4	Nov-2020	5,949		
Jun-2016	4,685.4	Dec-2020	17,061		
Jul-2016	2,003.3	Jan-2021	21,259		
Aug-2016	1,683.7	Feb-2021	20,256		
Sep-2016	743.3	Mar-2021	17,820		
Oct-2016	2,223.6	Apr-2021	11,952		
Nov-2016	7,025.9	May-2021	6,052		
Dec-2016	21,381.3	Jun-2021	2,930		
Jan-2017	19,645.0	Jul-2021	232		
Feb-2017	19,357.8	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 414
FT2 Exlarge Low

Model Type = UPC
Submodel = basemodel
Model Eqn = 0*x+129.054
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = 0*x+27.3218
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	0.0	Mar-2017	29,314	2012	101,833
Oct-2012	116.2	Apr-2017	22,772	2013	108,233
Nov-2012	4,623.4	May-2017	14,775	2014	109,407
Dec-2012	26,303.8	Jun-2017	8,116	2015	119,703
Jan-2013	26,256.0	Jul-2017	4,666	2016	131,078
Feb-2013	27,489.3	Aug-2017	3,902	2017	122,284
Mar-2013	25,784.7	Sep-2017	4,375	2018	138,121
Apr-2013	20,880.7	Oct-2017	6,693	2019	137,293
May-2013	6,903.8	Nov-2017	14,904	2020	136,378
Jun-2013	918.8	Dec-2017	23,283	2021	135,692
Jul-2013	805.7	Jan-2018	29,392		
Aug-2013	853.4	Feb-2018	33,100		
Sep-2013	3,444.0	Mar-2018	29,249		
Oct-2013	5,499.7	Apr-2018	22,736		
Nov-2013	10,665.0	May-2018	14,805		
Dec-2013	17,129.6	Jun-2018	8,840		
Jan-2014	24,624.4	Jul-2018	4,541		
Feb-2014	26,338.6	Aug-2018	3,948		
Mar-2014	25,374.5	Sep-2018	4,297		
Apr-2014	17,995.2	Oct-2018	6,877		
May-2014	10,648.8	Nov-2018	14,271		
Jun-2014	4,425.4	Dec-2018	22,951		
Jul-2014	2,478.6	Jan-2019	30,205		
Aug-2014	2,510.1	Feb-2019	32,040		
Sep-2014	3,051.8	Mar-2019	29,199		
Oct-2014	6,061.0	Apr-2019	21,935		
Nov-2014	12,165.2	May-2019	15,330		
Dec-2014	21,495.9	Jun-2019	8,585		
Jan-2015	23,247.6	Jul-2019	4,616		
Feb-2015	29,743.4	Aug-2019	4,151		
Mar-2015	34,303.7	Sep-2019	4,361		
Apr-2015	19,844.1	Oct-2019	6,834		
May-2015	8,986.1	Nov-2019	14,369		
Jun-2015	3,577.7	Dec-2019	23,019		
Jul-2015	2,668.3	Jan-2020	30,915		
Aug-2015	2,204.2	Feb-2020	31,831		
Sep-2015	1,456.4	Mar-2020	28,404		
Oct-2015	4,330.0	Apr-2020	22,427		
Nov-2015	10,913.2	May-2020	14,741		
Dec-2015	20,524.0	Jun-2020	8,061		
Jan-2016	22,740.9	Jul-2020	4,981		
Feb-2016	29,503.2	Aug-2020	3,918		
Mar-2016	31,730.6	Sep-2020	4,231		
Apr-2016	21,830.2	Oct-2020	6,538		
May-2016	16,265.8	Nov-2020	14,361		
Jun-2016	9,007.2	Dec-2020	23,379		
Jul-2016	5,809.2	Jan-2021	29,978		
Aug-2016	3,894.1	Feb-2021	31,733		
Sep-2016	1,569.6	Mar-2021	28,869		
Oct-2016	3,110.3	Apr-2021	23,037		
Nov-2016	4,611.8	May-2021	14,028		
Dec-2016	16,768.7	Jun-2021	8,046		
Jan-2017	26,011.5	Jul-2021	5,018		
Feb-2017	21,294.9	Aug-2021	4,101		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 415
FT1 Exlarge Low

Model Type = UPC
Submodel = basemodel
Model Eqn = 1 + x1
Variable = FRTFSA
Coeffs = {-2738.56,0.21924}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-1328.9275 t--2.0607 p-0.10836
x1 Stats = SE-0.098057 t-2.2359 p-0.089029
Model Stats = R^2-0.58707, F-5.6872

Model Type = UPC
Submodel = slopemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {-9.9892,25.1704,-2006.2792}
b1 Stats = SE-148.5963 t--0.067224 p-0.95063
b2 Stats = SE-50.9325 t-0.49419 p-0.65509
b3 Stats = b3: SE-13.3802 t--149.9437 p-6.5406e-07
Model Stats = R^2-0.90046, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	7,724.0	Mar-2017	45,174	2012	127,262
Oct-2012	14,156.5	Apr-2017	29,078	2013	142,700
Nov-2012	33,129.5	May-2017	19,162	2014	169,512
Dec-2012	38,677.0	Jun-2017	10,709	2015	241,824
Jan-2013	39,877.6	Jul-2017	9,077	2016	214,321
Feb-2013	36,099.5	Aug-2017	9,015	2017	190,709
Mar-2013	32,105.2	Sep-2017	11,210	2018	212,913
Apr-2013	18,899.9	Oct-2017	24,583	2019	212,902
May-2013	9,590.0	Nov-2017	35,241	2020	212,384
Jun-2013	6,127.3	Dec-2017	51,659	2021	211,025
Jul-2013	5,133.5	Jan-2018	58,380		
Aug-2013	6,814.0	Feb-2018	50,518		
Sep-2013	7,405.7	Mar-2018	45,068		
Oct-2013	13,017.8	Apr-2018	28,994		
Nov-2013	28,983.3	May-2018	19,175		
Dec-2013	41,929.5	Jun-2018	10,778		
Jan-2014	49,838.5	Jul-2018	9,141		
Feb-2014	44,305.5	Aug-2018	9,091		
Mar-2014	40,478.2	Sep-2018	11,325		
Apr-2014	19,982.2	Oct-2018	24,683		
May-2014	9,149.1	Nov-2018	35,232		
Jun-2014	5,758.3	Dec-2018	51,633		
Jul-2014	5,236.5	Jan-2019	58,331		
Aug-2014	5,442.6	Feb-2019	50,466		
Sep-2014	7,174.8	Mar-2019	45,037		
Oct-2014	12,454.9	Apr-2019	29,046		
Nov-2014	36,211.1	May-2019	19,178		
Dec-2014	50,919.2	Jun-2019	10,845		
Jan-2015	65,640.3	Jul-2019	9,244		
Feb-2015	63,775.2	Aug-2019	9,202		
Mar-2015	54,029.0	Sep-2019	11,377		
Apr-2015	30,921.5	Oct-2019	24,681		
May-2015	15,163.7	Nov-2019	35,183		
Jun-2015	12,294.5	Dec-2019	51,478		
Jul-2015	12,142.9	Jan-2020	58,127		
Aug-2015	10,360.9	Feb-2020	50,401		
Sep-2015	11,888.9	Mar-2020	44,845		
Oct-2015	24,897.5	Apr-2020	28,948		
Nov-2015	32,394.2	May-2020	19,166		
Dec-2015	35,776.7	Jun-2020	10,897		
Jan-2016	58,200.3	Jul-2020	9,305		
Feb-2016	51,416.6	Aug-2020	9,236		
Mar-2016	40,424.2	Sep-2020	11,438		
Apr-2016	34,192.0	Oct-2020	24,673		
May-2016	19,044.6	Nov-2020	35,068		
Jun-2016	11,043.4	Dec-2020	51,278		
Jul-2016	9,990.6	Jan-2021	57,846		
Aug-2016	8,965.1	Feb-2021	49,926		
Sep-2016	11,206.8	Mar-2021	44,539		
Oct-2016	22,785.5	Apr-2021	28,736		
Nov-2016	30,906.9	May-2021	19,109		
Dec-2016	49,720.2	Jun-2021	10,869		
Jan-2017	49,714.8	Jul-2021	9,302		
Feb-2017	36,871.8	Aug-2021	9,272		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 416
TSS Extra Large Low Load

Model Type = UPC
Submodel = basemodel
Model Eqn = 1 + x1
Variable = FE23A
Coeffs = {-861.1329,54.7396}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-428.6403 t--2.009 p-0.11493
x1 Stats = SE-26.7882 t-2.0434 p-0.11051
Model Stats = R^2-0.51074, F-4.1760

Model Type = UPC
Submodel = slopemodel
Model Eqn = 1 + x1
Variable = FGDP$A
Coeffs = {-110.4115,0.0022648}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-40.3066 t--2.7393 p-0.051943
x1 Stats = SE-0.00081053 t-2.7942 p-0.049101
Model Stats = R^2-0.67538, F-8.3225

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	10.7	Mar-2017	0	2012	0
Oct-2012	17,176.1	Apr-2017	0	2013	35,852
Nov-2012	13,325.2	May-2017	0	2014	5,034
Dec-2012	19,621.3	Jun-2017	0	2015	33,888
Jan-2013	0.0	Jul-2017	0	2016	0
Feb-2013	0.0	Aug-2017	0	2017	0
Mar-2013	0.0	Sep-2017	0	2018	0
Apr-2013	35,852.5	Oct-2017	0	2019	0
May-2013	0.0	Nov-2017	0	2020	0
Jun-2013	0.0	Dec-2017	0	2021	0
Jul-2013	0.0	Jan-2018	0		
Aug-2013	0.0	Feb-2018	0		
Sep-2013	0.0	Mar-2018	0		
Oct-2013	0.0	Apr-2018	0		
Nov-2013	0.0	May-2018	0		
Dec-2013	27,002.9	Jun-2018	0		
Jan-2014	0.0	Jul-2018	0		
Feb-2014	0.0	Aug-2018	0		
Mar-2014	0.0	Sep-2018	0		
Apr-2014	0.0	Oct-2018	0		
May-2014	3,073.7	Nov-2018	0		
Jun-2014	1,960.5	Dec-2018	0		
Jul-2014	1,355.7	Jan-2019	0		
Aug-2014	1,159.7	Feb-2019	0		
Sep-2014	1,207.7	Mar-2019	0		
Oct-2014	1,863.6	Apr-2019	0		
Nov-2014	3,210.2	May-2019	0		
Dec-2014	5,150.9	Jun-2019	0		
Jan-2015	7,296.6	Jul-2019	0		
Feb-2015	8,103.3	Aug-2019	0		
Mar-2015	7,901.9	Sep-2019	0		
Apr-2015	6,026.1	Oct-2019	0		
May-2015	2,467.9	Nov-2019	0		
Jun-2015	2,092.0	Dec-2019	0		
Jul-2015	1,632.7	Jan-2020	0		
Aug-2015	1,210.3	Feb-2020	0		
Sep-2015	0.0	Mar-2020	0		
Oct-2015	0.0	Apr-2020	0		
Nov-2015	0.0	May-2020	0		
Dec-2015	0.0	Jun-2020	0		
Jan-2016	0.0	Jul-2020	0		
Feb-2016	0.0	Aug-2020	0		
Mar-2016	0.0	Sep-2020	0		
Apr-2016	0.0	Oct-2020	0		
May-2016	0.0	Nov-2020	0		
Jun-2016	0.0	Dec-2020	0		
Jul-2016	0.0	Jan-2021	0		
Aug-2016	0.0	Feb-2021	0		
Sep-2016	0.0	Mar-2021	0		
Oct-2016	0.0	Apr-2021	0		
Nov-2016	0.0	May-2021	0		
Dec-2016	0.0	Jun-2021	0		
Jan-2017	0.0	Jul-2021	0		
Feb-2017	0.0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 417
C&I High Load - Large

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = GORI
Coeffs = {203.8676,-123.5096}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-27.5621 t-7.3967 p-0.0017818
x1 Stats = SE-55.2453 t--2.2357 p-0.08905
Model Stats = R^2-0.59986, F-5.9968

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	3,420.3	Mar-2017	4,800	2012	28,989
Oct-2012	3,425.8	Apr-2017	4,327	2013	29,185
Nov-2012	3,769.7	May-2017	4,358	2014	29,853
Dec-2012	5,343.1	Jun-2017	5,164	2015	33,408
Jan-2013	5,397.0	Jul-2017	3,862	2016	28,211
Feb-2013	5,868.2	Aug-2017	2,702	2017	28,785
Mar-2013	5,708.9	Sep-2017	3,068	2018	28,753
Apr-2013	4,871.9	Oct-2017	3,539	2019	28,261
May-2013	3,961.7	Nov-2017	3,994	2020	27,694
Jun-2013	3,377.4	Dec-2017	4,820	2021	27,017
Jul-2013	2,995.9	Jan-2018	5,460		
Aug-2013	3,505.0	Feb-2018	5,005		
Sep-2013	4,120.3	Mar-2018	4,708		
Oct-2013	4,182.5	Apr-2018	4,239		
Nov-2013	4,750.0	May-2018	4,273		
Dec-2013	5,243.5	Jun-2018	5,067		
Jan-2014	5,995.2	Jul-2018	3,786		
Feb-2014	5,539.5	Aug-2018	2,649		
Mar-2014	5,397.7	Sep-2018	3,011		
Apr-2014	4,650.7	Oct-2018	3,469		
May-2014	4,212.8	Nov-2018	3,783		
Jun-2014	4,057.4	Dec-2018	4,720		
Jul-2014	4,038.9	Jan-2019	5,353		
Aug-2014	5,831.3	Feb-2019	4,909		
Sep-2014	3,902.6	Mar-2019	4,635		
Oct-2014	3,984.9	Apr-2019	4,048		
Nov-2014	4,409.6	May-2019	4,343		
Dec-2014	5,554.3	Jun-2019	4,973		
Jan-2015	7,222.7	Jul-2019	3,739		
Feb-2015	7,891.2	Aug-2019	2,739		
Mar-2015	6,811.1	Sep-2019	2,994		
Apr-2015	5,188.3	Oct-2019	3,322		
May-2015	3,415.2	Nov-2019	3,739		
Jun-2015	2,879.1	Dec-2019	4,644		
Jul-2015	2,849.8	Jan-2020	5,243		
Aug-2015	3,384.7	Feb-2020	4,962		
Sep-2015	3,795.0	Mar-2020	4,543		
Oct-2015	4,017.3	Apr-2020	4,099		
Nov-2015	4,252.8	May-2020	4,126		
Dec-2015	4,686.2	Jun-2020	4,720		
Jan-2016	5,061.0	Jul-2020	3,787		
Feb-2016	5,427.2	Aug-2020	2,521		
Mar-2016	4,583.3	Sep-2020	2,940		
Apr-2016	4,125.9	Oct-2020	3,367		
May-2016	4,046.3	Nov-2020	3,787		
Jun-2016	4,967.6	Dec-2020	4,558		
Jul-2016	3,830.0	Jan-2021	5,141		
Aug-2016	2,597.3	Feb-2021	4,716		
Sep-2016	2,933.4	Mar-2021	4,450		
Oct-2016	3,388.8	Apr-2021	4,010		
Nov-2016	3,685.3	May-2021	3,916		
Dec-2016	4,563.3	Jun-2021	4,784		
Jan-2017	5,298.7	Jul-2021	3,714		
Feb-2017	4,837.9	Aug-2021	2,557		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 418
FT2 Large High

Model Type = UPC
Submodel = model
Model Eqn = 0*x+169.599
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	2,930.6	Mar-2017	6,690	2012	32,904
Oct-2012	3,033.9	Apr-2017	6,189	2013	31,960
Nov-2012	3,962.9	May-2017	5,355	2014	39,880
Dec-2012	5,379.7	Jun-2017	4,207	2015	41,278
Jan-2013	6,184.3	Jul-2017	3,457	2016	36,603
Feb-2013	6,117.7	Aug-2017	3,119	2017	36,699
Mar-2013	5,910.2	Sep-2017	3,392	2018	36,813
Apr-2013	5,523.1	Oct-2017	3,590	2019	36,821
May-2013	4,574.4	Nov-2017	4,719	2020	36,766
Jun-2013	3,650.5	Dec-2017	5,837	2021	36,479
Jul-2013	3,225.0	Jan-2018	7,505		
Aug-2013	3,410.9	Feb-2018	6,976		
Sep-2013	4,807.1	Mar-2018	6,671		
Oct-2013	4,351.7	Apr-2018	5,974		
Nov-2013	5,322.2	May-2018	5,345		
Dec-2013	7,012.0	Jun-2018	4,341		
Jan-2014	8,288.7	Jul-2018	3,339		
Feb-2014	8,021.7	Aug-2018	3,116		
Mar-2014	7,725.7	Sep-2018	3,389		
Apr-2014	6,707.7	Oct-2018	3,708		
May-2014	5,086.1	Nov-2018	4,551		
Jun-2014	4,050.3	Dec-2018	5,821		
Jul-2014	3,679.9	Jan-2019	7,731		
Aug-2014	3,579.8	Feb-2019	6,959		
Sep-2014	3,656.6	Mar-2019	6,656		
Oct-2014	3,951.7	Apr-2019	5,768		
Nov-2014	4,883.1	May-2019	5,512		
Dec-2014	6,681.9	Jun-2019	4,195		
Jan-2015	7,850.2	Jul-2019	3,451		
Feb-2015	8,783.8	Aug-2019	3,330		
Mar-2015	8,629.0	Sep-2019	3,277		
Apr-2015	6,847.2	Oct-2019	3,458		
May-2015	4,912.3	Nov-2019	4,542		
Jun-2015	4,255.1	Dec-2019	5,805		
Jul-2015	3,744.8	Jan-2020	7,711		
Aug-2015	3,754.1	Feb-2020	6,932		
Sep-2015	3,515.7	Mar-2020	6,637		
Oct-2015	3,955.2	Apr-2020	6,149		
Nov-2015	4,907.2	May-2020	5,147		
Dec-2015	5,907.7	Jun-2020	4,190		
Jan-2016	6,521.0	Jul-2020	3,675		
Feb-2016	7,412.2	Aug-2020	3,006		
Mar-2016	6,915.5	Sep-2020	3,274		
Apr-2016	6,207.0	Oct-2020	3,574		
May-2016	5,193.2	Nov-2020	4,685		
Jun-2016	4,353.6	Dec-2020	5,787		
Jul-2016	3,576.6	Jan-2021	7,686		
Aug-2016	3,125.6	Feb-2021	6,913		
Sep-2016	3,278.8	Mar-2021	6,612		
Oct-2016	3,699.1	Apr-2021	6,128		
Nov-2016	4,549.0	May-2021	4,959		
Dec-2016	5,812.5	Jun-2021	4,181		
Jan-2017	7,283.8	Jul-2021	3,556		
Feb-2017	6,974.6	Aug-2021	3,110		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 419
FT1 Large High

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = GORI
Coeffs = {219.3415,-76.068}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-11.9859 t-18.3 p-5.2451e-05
x1 Stats = SE-24.0244 t--3.1663 p-0.033979
Model Stats = R^2-0.72057, F-10.3151

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	4,130.1	Mar-2017	6,593	2012	32,412
Oct-2012	4,573.3	Apr-2017	6,000	2013	34,563
Nov-2012	5,788.0	May-2017	5,246	2014	38,262
Dec-2012	6,239.2	Jun-2017	5,034	2015	38,500
Jan-2013	7,245.0	Jul-2017	4,336	2016	38,319
Feb-2013	6,899.2	Aug-2017	3,917	2017	35,275
Mar-2013	6,549.7	Sep-2017	4,020	2018	35,254
Apr-2013	5,186.6	Oct-2017	4,639	2019	35,235
May-2013	4,468.0	Nov-2017	5,074	2020	35,373
Jun-2013	4,214.2	Dec-2017	6,752	2021	35,074
Jul-2013	3,858.6	Jan-2018	6,537		
Aug-2013	4,379.1	Feb-2018	5,873		
Sep-2013	4,745.3	Mar-2018	6,580		
Oct-2013	5,391.9	Apr-2018	5,987		
Nov-2013	6,248.7	May-2018	5,242		
Dec-2013	7,237.3	Jun-2018	5,034		
Jan-2014	8,339.6	Jul-2018	4,338		
Feb-2014	7,580.2	Aug-2018	3,919		
Mar-2014	7,429.9	Sep-2018	4,026		
Apr-2014	5,828.3	Oct-2018	4,643		
May-2014	4,858.6	Nov-2018	5,068		
Jun-2014	4,225.5	Dec-2018	6,740		
Jul-2014	4,150.5	Jan-2019	6,532		
Aug-2014	4,304.8	Feb-2019	5,866		
Sep-2014	4,431.2	Mar-2019	6,573		
Oct-2014	5,209.9	Apr-2019	5,989		
Nov-2014	5,950.4	May-2019	5,240		
Dec-2014	6,831.1	Jun-2019	5,034		
Jan-2015	8,287.6	Jul-2019	4,343		
Feb-2015	8,450.0	Aug-2019	3,931		
Mar-2015	7,402.8	Sep-2019	4,031		
Apr-2015	5,463.0	Oct-2019	4,645		
May-2015	4,389.9	Nov-2019	5,067		
Jun-2015	4,506.5	Dec-2019	6,729		
Jul-2015	4,095.7	Jan-2020	6,518		
Aug-2015	4,581.3	Feb-2020	6,044		
Sep-2015	4,654.9	Mar-2020	6,559		
Oct-2015	5,716.5	Apr-2020	5,978		
Nov-2015	6,131.3	May-2020	5,236		
Dec-2015	6,180.9	Jun-2020	5,038		
Jan-2016	8,057.7	Jul-2020	4,349		
Feb-2016	7,376.6	Aug-2020	3,932		
Mar-2016	6,567.2	Sep-2020	4,039		
Apr-2016	6,015.3	Oct-2020	4,648		
May-2016	5,264.5	Nov-2020	5,060		
Jun-2016	5,037.5	Dec-2020	6,714		
Jul-2016	4,337.4	Jan-2021	6,493		
Aug-2016	3,923.4	Feb-2021	5,825		
Sep-2016	4,005.9	Mar-2021	6,532		
Oct-2016	4,606.3	Apr-2021	5,956		
Nov-2016	5,037.0	May-2021	5,232		
Dec-2016	6,690.7	Jun-2021	5,036		
Jan-2017	6,554.7	Jul-2021	4,353		
Feb-2017	5,847.4	Aug-2021	3,942		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 420
TSS Large High Load

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = GORI
Coeffs = {426.9729,-603.4271}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-131.5521 t-3.2457 p-0.031505
x1 Stats = SE-263.682 t--2.2885 p-0.083999
Model Stats = R^2-0.59159, F-5.7945

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	4,249.9	Mar-2017	5,554	2012	24,737
Oct-2012	4,137.8	Apr-2017	6,543	2013	2,131
Nov-2012	4,385.1	May-2017	4,733	2014	61,961
Dec-2012	8,443.9	Jun-2017	2,790	2015	41,512
Jan-2013	2,079.1	Jul-2017	90	2016	31,159
Feb-2013	52.1	Aug-2017	2,122	2017	25,873
Mar-2013	0.0	Sep-2017	44	2018	26,001
Apr-2013	0.0	Oct-2017	36	2019	25,862
May-2013	0.0	Nov-2017	79	2020	25,754
Jun-2013	0.0	Dec-2017	3,171	2021	25,736
Jul-2013	0.0	Jan-2018	3,503		
Aug-2013	4,278.5	Feb-2018	2,866		
Sep-2013	4,830.0	Mar-2018	5,536		
Oct-2013	2,647.8	Apr-2018	6,506		
Nov-2013	6,072.7	May-2018	4,712		
Dec-2013	7,135.7	Jun-2018	2,878		
Jan-2014	9,780.8	Jul-2018	83		
Feb-2014	10,588.4	Aug-2018	2,111		
Mar-2014	23,775.3	Sep-2018	46		
Apr-2014	6,937.8	Oct-2018	28		
May-2014	6,473.1	Nov-2018	60		
Jun-2014	4,405.4	Dec-2018	3,132		
Jul-2014	4,921.2	Jan-2019	3,594		
Aug-2014	5,303.7	Feb-2019	2,851		
Sep-2014	5,048.9	Mar-2019	5,516		
Oct-2014	4,144.9	Apr-2019	6,292		
Nov-2014	6,063.7	May-2019	4,840		
Dec-2014	7,263.4	Jun-2019	2,769		
Jan-2015	7,263.0	Jul-2019	84		
Feb-2015	8,165.6	Aug-2019	2,180		
Mar-2015	6,489.3	Sep-2019	39		
Apr-2015	8,013.4	Oct-2019	27		
May-2015	5,680.2	Nov-2019	58		
Jun-2015	5,900.6	Dec-2019	3,113		
Jul-2015	4,715.9	Jan-2020	3,571		
Aug-2015	4,526.2	Feb-2020	2,879		
Sep-2015	4,748.8	Mar-2020	5,483		
Oct-2015	3,213.9	Apr-2020	6,511		
Nov-2015	4,554.3	May-2020	4,655		
Dec-2015	5,253.5	Jun-2020	2,655		
Jan-2016	5,705.6	Jul-2020	82		
Feb-2016	6,102.0	Aug-2020	2,098		
Mar-2016	5,484.1	Sep-2020	41		
Apr-2016	6,467.2	Oct-2020	19		
May-2016	4,585.3	Nov-2020	40		
Jun-2016	2,815.1	Dec-2020	3,099		
Jul-2016	0.0	Jan-2021	3,549		
Aug-2016	2,130.9	Feb-2021	2,860		
Sep-2016	0.0	Mar-2021	5,464		
Oct-2016	0.0	Apr-2021	6,651		
Nov-2016	0.0	May-2021	4,483		
Dec-2016	2,969.0	Jun-2021	2,728		
Jan-2017	3,527.1	Jul-2021	74		
Feb-2017	2,726.7	Aug-2021	2,089		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 421
C&I High Load - Extra Large

Model Type = UPC
Submodel = model
Model Eqn = 0*x+683.163
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	26,540.5	Mar-2017	23,773	2012	207,660
Oct-2012	31,973.4	Apr-2017	23,118	2013	242,524
Nov-2012	35,952.8	May-2017	16,517	2014	218,992
Dec-2012	46,533.3	Jun-2017	18,487	2015	220,490
Jan-2013	206,582.2	Jul-2017	18,575	2016	119,106
Feb-2013	455.5	Aug-2017	17,392	2017	107,778
Mar-2013	7,431.9	Sep-2017	21,829	2018	110,742
Apr-2013	3,008.3	Oct-2017	26,910	2019	110,671
May-2013	11,641.8	Nov-2017	34,477	2020	108,875
Jun-2013	13,404.4	Dec-2017	26,158	2021	109,031
Jul-2013	19,992.3	Jan-2018	14,568		
Aug-2013	28,351.7	Feb-2018	14,217		
Sep-2013	27,882.1	Mar-2018	23,681		
Oct-2013	27,026.9	Apr-2018	22,803		
Nov-2013	32,705.2	May-2018	16,374		
Dec-2013	34,096.8	Jun-2018	19,099		
Jan-2014	48,012.0	Jul-2018	18,431		
Feb-2014	35,271.0	Aug-2018	17,274		
Mar-2014	35,448.2	Sep-2018	21,805		
Apr-2014	36,687.4	Oct-2018	26,726		
May-2014	31,661.3	Nov-2018	33,007		
Jun-2014	31,912.1	Dec-2018	25,664		
Jul-2014	23,200.0	Jan-2019	14,799		
Aug-2014	30,488.9	Feb-2019	14,572		
Sep-2014	46,438.2	Mar-2019	23,851		
Oct-2014	40,264.6	Apr-2019	22,618		
Nov-2014	41,510.6	May-2019	16,595		
Dec-2014	46,858.1	Jun-2019	18,236		
Jan-2015	43,450.6	Jul-2019	18,414		
Feb-2015	39,753.6	Aug-2019	17,286		
Mar-2015	36,965.7	Sep-2019	21,781		
Apr-2015	40,663.5	Oct-2019	25,847		
May-2015	26,046.8	Nov-2019	33,076		
Jun-2015	33,609.6	Dec-2019	26,044		
Jul-2015	29,718.0	Jan-2020	14,838		
Aug-2015	22,719.5	Feb-2020	13,916		
Sep-2015	26,959.9	Mar-2020	23,470		
Oct-2015	24,641.6	Apr-2020	23,442		
Nov-2015	24,267.6	May-2020	15,808		
Dec-2015	31,674.4	Jun-2020	17,401		
Jan-2016	20,022.7	Jul-2020	18,891		
Feb-2016	19,857.1	Aug-2020	17,100		
Mar-2016	22,644.3	Sep-2020	21,294		
Apr-2016	21,859.2	Oct-2020	26,522		
May-2016	15,952.4	Nov-2020	33,786		
Jun-2016	18,770.3	Dec-2020	25,890		
Jul-2016	19,078.1	Jan-2021	14,963		
Aug-2016	17,475.6	Feb-2021	14,608		
Sep-2016	21,294.1	Mar-2021	23,233		
Oct-2016	26,496.4	Apr-2021	23,270		
Nov-2016	32,369.3	May-2021	15,167		
Dec-2016	23,303.6	Jun-2021	17,791		
Jan-2017	13,668.0	Jul-2021	18,712		
Feb-2017	12,213.8	Aug-2021	17,057		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 422
FT2 Exlarge High

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = FGDP$A
Coeffs = {-8790.9581,0.19304}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-1866.9447 t--4.7087 p-0.0092483
x1 Stats = SE-0.037543 t-5.1419 p-0.0067822
Model Stats = R^2-0.86863, F-26.4481

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	12,256.8	Mar-2017	30,451	2012	129,096
Oct-2012	13,605.7	Apr-2017	32,551	2013	111,477
Nov-2012	15,659.0	May-2017	27,850	2014	172,847
Dec-2012	20,268.3	Jun-2017	25,809	2015	213,115
Jan-2013	20,971.4	Jul-2017	23,695	2016	178,653
Feb-2013	21,854.9	Aug-2017	22,836	2017	182,873
Mar-2013	20,631.6	Sep-2017	28,760	2018	181,730
Apr-2013	18,735.3	Oct-2017	23,427	2019	182,109
May-2013	16,082.4	Nov-2017	27,294	2020	182,587
Jun-2013	13,201.1	Dec-2017	31,405	2021	183,735
Jul-2013	11,084.4	Jan-2018	33,800		
Aug-2013	11,647.4	Feb-2018	31,420		
Sep-2013	19,216.3	Mar-2018	30,469		
Oct-2013	17,829.1	Apr-2018	31,515		
Nov-2013	23,825.2	May-2018	26,956		
Dec-2013	24,962.3	Jun-2018	27,569		
Jan-2014	35,532.6	Jul-2018	22,947		
Feb-2014	35,156.0	Aug-2018	22,878		
Mar-2014	36,223.1	Sep-2018	28,809		
Apr-2014	29,321.5	Oct-2018	24,305		
May-2014	20,275.8	Nov-2018	26,411		
Jun-2014	16,337.9	Dec-2018	31,424		
Jul-2014	13,396.5	Jan-2019	34,967		
Aug-2014	20,329.7	Feb-2019	31,446		
Sep-2014	16,549.1	Mar-2019	30,501		
Oct-2014	16,165.0	Apr-2019	30,522		
Nov-2014	20,778.2	May-2019	27,920		
Dec-2014	25,067.7	Jun-2019	26,752		
Jan-2015	33,146.9	Jul-2019	23,788		
Feb-2015	36,201.0	Aug-2019	23,727		
Mar-2015	39,641.8	Sep-2019	28,851		
Apr-2015	44,589.1	Oct-2019	23,512		
May-2015	30,526.2	Nov-2019	26,446		
Jun-2015	29,009.9	Dec-2019	32,446		
Jul-2015	25,024.6	Jan-2020	34,977		
Aug-2015	29,962.5	Feb-2020	32,486		
Sep-2015	27,252.3	Mar-2020	30,507		
Oct-2015	25,042.7	Apr-2020	31,585		
Nov-2015	30,453.2	May-2020	27,951		
Dec-2015	37,441.0	Jun-2020	25,081		
Jan-2016	29,961.8	Jul-2020	25,408		
Feb-2016	33,023.7	Aug-2020	22,971		
Mar-2016	31,357.3	Sep-2020	27,051		
Apr-2016	32,540.3	Oct-2020	24,382		
May-2016	25,998.1	Nov-2020	27,365		
Jun-2016	25,771.6	Dec-2020	32,451		
Jul-2016	24,445.6	Jan-2021	36,084		
Aug-2016	22,819.5	Feb-2021	31,415		
Sep-2016	27,753.6	Mar-2021	30,479		
Oct-2016	24,948.7	Apr-2021	33,669		
Nov-2016	26,233.6	May-2021	26,120		
Dec-2016	31,162.2	Jun-2021	25,967		
Jan-2017	34,920.8	Jul-2021	24,659		
Feb-2017	31,291.3	Aug-2021	23,025		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 423
FT1 Exlarge High

Model Type = UPC
Submodel = model
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {1097.8148,110.7774,-2010.6901}
b1 Stats = SE-195.0379 t-5.6287 p-0.011091
b2 Stats = SE-131.9873 t-0.8393 p-0.46291
b3 Stats = SE-1.0344 t--1943.9083 p-3.0022e-10
Model Stats = R^2-0.73993, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	27,414.5	Mar-2017	48,024	2012	194,292
Oct-2012	32,344.5	Apr-2017	41,889	2013	219,324
Nov-2012	38,208.6	May-2017	38,597	2014	233,736
Dec-2012	36,387.8	Jun-2017	37,600	2015	279,861
Jan-2013	42,344.9	Jul-2017	35,798	2016	242,358
Feb-2013	41,047.9	Aug-2017	36,094	2017	245,750
Mar-2013	41,049.8	Sep-2017	35,655	2018	253,992
Apr-2013	35,325.0	Oct-2017	40,259	2019	243,737
May-2013	31,031.0	Nov-2017	42,690	2020	239,469
Jun-2013	28,525.8	Dec-2017	51,151	2021	235,809
Jul-2013	27,462.0	Jan-2018	47,956		
Aug-2013	28,989.1	Feb-2018	40,675		
Sep-2013	30,241.0	Mar-2018	47,784		
Oct-2013	34,507.7	Apr-2018	41,678		
Nov-2013	36,223.3	May-2018	38,439		
Dec-2013	43,701.9	Jun-2018	37,461		
Jan-2014	47,179.6	Jul-2018	35,667		
Feb-2014	41,761.5	Aug-2018	35,962		
Mar-2014	46,191.1	Sep-2018	35,539		
Apr-2014	36,476.6	Oct-2018	40,111		
May-2014	32,092.9	Nov-2018	42,488		
Jun-2014	30,033.7	Dec-2018	50,897		
Jul-2014	30,939.1	Jan-2019	46,008		
Aug-2014	30,567.6	Feb-2019	39,018		
Sep-2014	30,018.1	Mar-2019	45,842		
Oct-2014	33,213.0	Apr-2019	40,023		
Nov-2014	40,282.7	May-2019	36,884		
Dec-2014	59,443.5	Jun-2019	35,963		
Jan-2015	65,983.2	Jul-2019	34,262		
Feb-2015	61,936.3	Aug-2019	34,560		
Mar-2015	46,495.4	Sep-2019	34,125		
Apr-2015	37,891.3	Oct-2019	38,505		
May-2015	34,015.5	Nov-2019	40,773		
Jun-2015	33,539.1	Dec-2019	48,803		
Jul-2015	31,965.1	Jan-2020	44,940		
Aug-2015	31,445.4	Feb-2020	39,385		
Sep-2015	32,058.3	Mar-2020	44,775		
Oct-2015	37,711.7	Apr-2020	39,103		
Nov-2015	38,282.9	May-2020	36,067		
Dec-2015	41,974.6	Jun-2020	35,199		
Jan-2016	48,858.0	Jul-2020	33,532		
Feb-2016	44,971.1	Aug-2020	33,801		
Mar-2016	42,807.8	Sep-2020	33,412		
Apr-2016	37,510.1	Oct-2020	37,670		
May-2016	34,584.4	Nov-2020	39,843		
Jun-2016	33,626.5	Dec-2020	47,671		
Jul-2016	32,012.0	Jan-2021	44,470		
Aug-2016	32,308.9	Feb-2021	37,680		
Sep-2016	31,816.3	Mar-2021	44,295		
Oct-2016	35,847.4	Apr-2021	38,697		
Nov-2016	38,003.7	May-2021	35,762		
Dec-2016	45,449.8	Jun-2021	34,905		
Jan-2017	43,195.5	Jul-2021	33,275		
Feb-2017	36,445.6	Aug-2021	33,568		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 424
TSS Extra Large High Load

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = GORCI
Coeffs = {1689.6791,-2472.7969}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-323.7189 t-5.2196 p-0.0064293
x1 Stats = SE-610.5163 t--4.0503 p-0.015471
Model Stats = R^2-0.80416, F-16.4248

Actual Monthly UPC		Forecast Monthly UPC			Calendar Year UPC
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	0.0	Mar-2017	0	2012	12,544
Oct-2012	0.0	Apr-2017	0	2013	28,479
Nov-2012	0.0	May-2017	0	2014	98,478
Dec-2012	0.0	Jun-2017	0	2015	245,916
Jan-2013	0.0	Jul-2017	0	2016	0
Feb-2013	773.5	Aug-2017	0	2017	0
Mar-2013	0.0	Sep-2017	0	2018	0
Apr-2013	0.0	Oct-2017	0	2019	0
May-2013	27,705.9	Nov-2017	0	2020	0
Jun-2013	0.0	Dec-2017	0	2021	0
Jul-2013	0.0	Jan-2018	0		
Aug-2013	0.0	Feb-2018	0		
Sep-2013	0.0	Mar-2018	0		
Oct-2013	62,569.3	Apr-2018	0		
Nov-2013	0.0	May-2018	0		
Dec-2013	0.0	Jun-2018	0		
Jan-2014	40,851.0	Jul-2018	0		
Feb-2014	0.0	Aug-2018	0		
Mar-2014	0.0	Sep-2018	0		
Apr-2014	51,088.4	Oct-2018	0		
May-2014	0.0	Nov-2018	0		
Jun-2014	6,539.0	Dec-2018	0		
Jul-2014	0.0	Jan-2019	0		
Aug-2014	10,514.6	Feb-2019	0		
Sep-2014	10,829.5	Mar-2019	0		
Oct-2014	11,031.3	Apr-2019	0		
Nov-2014	0.0	May-2019	0		
Dec-2014	41,620.7	Jun-2019	0		
Jan-2015	46,680.2	Jul-2019	0		
Feb-2015	48,274.3	Aug-2019	0		
Mar-2015	49,499.8	Sep-2019	0		
Apr-2015	42,211.0	Oct-2019	0		
May-2015	32,720.3	Nov-2019	0		
Jun-2015	26,530.0	Dec-2019	0		
Jul-2015	23,494.5	Jan-2020	0		
Aug-2015	21,418.2	Feb-2020	0		
Sep-2015	24,451.0	Mar-2020	0		
Oct-2015	24,098.8	Apr-2020	0		
Nov-2015	21,959.2	May-2020	0		
Dec-2015	28,061.0	Jun-2020	0		
Jan-2016	0.0	Jul-2020	0		
Feb-2016	0.0	Aug-2020	0		
Mar-2016	0.0	Sep-2020	0		
Apr-2016	0.0	Oct-2020	0		
May-2016	0.0	Nov-2020	0		
Jun-2016	0.0	Dec-2020	0		
Jul-2016	0.0	Jan-2021	0		
Aug-2016	10.0	Feb-2021	0		
Sep-2016	11.0	Mar-2021	0		
Oct-2016	9.3	Apr-2021	0		
Nov-2016	0.0	May-2021	0		
Dec-2016	0.0	Jun-2021	0		
Jan-2017	0.0	Jul-2021	0		
Feb-2017	0.0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 429
Pawtucket Power

Model Type = UPC
Submodel = model
Model Eqn = 0*x+1e-06
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	0.0	Mar-2017	0	2012	31,192
Oct-2012	0.0	Apr-2017	0	2013	0
Nov-2012	0.0	May-2017	0	2014	0
Dec-2012	0.0	Jun-2017	0	2015	0
Jan-2013	0.0	Jul-2017	0	2016	0
Feb-2013	0.0	Aug-2017	0	2017	0
Mar-2013	0.0	Sep-2017	0	2018	0
Apr-2013	0.0	Oct-2017	0	2019	0
May-2013	0.0	Nov-2017	0	2020	0
Jun-2013	0.0	Dec-2017	0	2021	0
Jul-2013	0.0	Jan-2018	0		
Aug-2013	0.0	Feb-2018	0		
Sep-2013	0.0	Mar-2018	0		
Oct-2013	0.0	Apr-2018	0		
Nov-2013	0.0	May-2018	0		
Dec-2013	0.0	Jun-2018	0		
Jan-2014	0.0	Jul-2018	0		
Feb-2014	0.0	Aug-2018	0		
Mar-2014	0.0	Sep-2018	0		
Apr-2014	0.0	Oct-2018	0		
May-2014	0.0	Nov-2018	0		
Jun-2014	0.0	Dec-2018	0		
Jul-2014	0.0	Jan-2019	0		
Aug-2014	0.0	Feb-2019	0		
Sep-2014	0.0	Mar-2019	0		
Oct-2014	0.0	Apr-2019	0		
Nov-2014	0.0	May-2019	0		
Dec-2014	0.0	Jun-2019	0		
Jan-2015	0.0	Jul-2019	0		
Feb-2015	0.0	Aug-2019	0		
Mar-2015	0.0	Sep-2019	0		
Apr-2015	0.0	Oct-2019	0		
May-2015	0.0	Nov-2019	0		
Jun-2015	0.0	Dec-2019	0		
Jul-2015	0.0	Jan-2020	0		
Aug-2015	0.0	Feb-2020	0		
Sep-2015	0.0	Mar-2020	0		
Oct-2015	0.0	Apr-2020	0		
Nov-2015	0.0	May-2020	0		
Dec-2015	0.0	Jun-2020	0		
Jan-2016	0.0	Jul-2020	0		
Feb-2016	0.0	Aug-2020	0		
Mar-2016	0.0	Sep-2020	0		
Apr-2016	0.0	Oct-2020	0		
May-2016	0.0	Nov-2020	0		
Jun-2016	0.0	Dec-2020	0		
Jul-2016	0.0	Jan-2021	0		
Aug-2016	0.0	Feb-2021	0		
Sep-2016	0.0	Mar-2021	0		
Oct-2016	0.0	Apr-2021	0		
Nov-2016	0.0	May-2021	0		
Dec-2016	0.0	Jun-2021	0		
Jan-2017	0.0	Jul-2021	0		
Feb-2017	0.0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 430
Manchester Street Project (VA Power)

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = GORC
Coeffs = {0.074892,-0.085226}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-0+0.0090172i t-0-8.3055i p-0.0011477
x1 Stats = SE-0+0.016068i t-0+5.3041i p-0.0060705
Model Stats = R^2-1.1635, F--28.4649

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	1.0	Mar-2017	1	2012	5
Oct-2012	1.0	Apr-2017	1	2013	6
Nov-2012	1.0	May-2017	1	2014	6
Dec-2012	1.0	Jun-2017	1	2015	6
Jan-2013	1.0	Jul-2017	1	2016	6
Feb-2013	0.9	Aug-2017	1	2017	6
Mar-2013	1.1	Sep-2017	1	2018	6
Apr-2013	1.0	Oct-2017	1	2019	6
May-2013	1.0	Nov-2017	1	2020	6
Jun-2013	1.0	Dec-2017	1	2021	6
Jul-2013	1.0	Jan-2018	1		
Aug-2013	0.9	Feb-2018	1		
Sep-2013	1.1	Mar-2018	1		
Oct-2013	1.0	Apr-2018	1		
Nov-2013	1.0	May-2018	1		
Dec-2013	1.0	Jun-2018	1		
Jan-2014	0.9	Jul-2018	1		
Feb-2014	1.1	Aug-2018	1		
Mar-2014	1.0	Sep-2018	1		
Apr-2014	1.0	Oct-2018	1		
May-2014	0.9	Nov-2018	1		
Jun-2014	1.1	Dec-2018	1		
Jul-2014	1.0	Jan-2019	1		
Aug-2014	1.0	Feb-2019	1		
Sep-2014	1.0	Mar-2019	1		
Oct-2014	1.0	Apr-2019	1		
Nov-2014	0.9	May-2019	1		
Dec-2014	1.1	Jun-2019	1		
Jan-2015	1.0	Jul-2019	1		
Feb-2015	1.0	Aug-2019	1		
Mar-2015	1.0	Sep-2019	1		
Apr-2015	0.9	Oct-2019	1		
May-2015	1.1	Nov-2019	1		
Jun-2015	1.0	Dec-2019	1		
Jul-2015	0.9	Jan-2020	1		
Aug-2015	1.1	Feb-2020	1		
Sep-2015	1.0	Mar-2020	1		
Oct-2015	1.0	Apr-2020	1		
Nov-2015	0.9	May-2020	1		
Dec-2015	1.1	Jun-2020	1		
Jan-2016	1.0	Jul-2020	1		
Feb-2016	1.0	Aug-2020	1		
Mar-2016	1.0	Sep-2020	1		
Apr-2016	1.0	Oct-2020	1		
May-2016	1.0	Nov-2020	1		
Jun-2016	1.0	Dec-2020	1		
Jul-2016	1.0	Jan-2021	1		
Aug-2016	1.0	Feb-2021	1		
Sep-2016	1.0	Mar-2021	1		
Oct-2016	1.0	Apr-2021	1		
Nov-2016	1.0	May-2021	1		
Dec-2016	0.9	Jun-2021	1		
Jan-2017	1.1	Jul-2021	1		
Feb-2017	1.0	Aug-2021	1		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 433
NFS Medium

Model Type = UPC
Submodel = model
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {110.7398,-59.9835,-2008.6555}
b1 Stats = SE-388.5146 t-0.28503 p-0.79416
b2 Stats = SE-159.4108 t--0.37628 p-0.73174
b3 Stats = SE-10.3782 t--193.5452 p-3.0415e-07
Model Stats = R^2-0.67412, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	0.0	Mar-2017	0	2012	12,203
Oct-2012	76.5	Apr-2017	0	2013	14,053
Nov-2012	1,688.4	May-2017	0	2014	0
Dec-2012	8,224.5	Jun-2017	0	2015	0
Jan-2013	6,488.2	Jul-2017	0	2016	0
Feb-2013	6,532.2	Aug-2017	0	2017	0
Mar-2013	1,032.3	Sep-2017	0	2018	0
Apr-2013	0.0	Oct-2017	0	2019	0
May-2013	0.0	Nov-2017	0	2020	0
Jun-2013	0.0	Dec-2017	0	2021	0
Jul-2013	0.0	Jan-2018	0		
Aug-2013	0.0	Feb-2018	0		
Sep-2013	0.0	Mar-2018	0		
Oct-2013	0.0	Apr-2018	0		
Nov-2013	0.0	May-2018	0		
Dec-2013	0.0	Jun-2018	0		
Jan-2014	0.0	Jul-2018	0		
Feb-2014	0.0	Aug-2018	0		
Mar-2014	0.0	Sep-2018	0		
Apr-2014	0.0	Oct-2018	0		
May-2014	0.0	Nov-2018	0		
Jun-2014	0.0	Dec-2018	0		
Jul-2014	0.0	Jan-2019	0		
Aug-2014	0.0	Feb-2019	0		
Sep-2014	0.0	Mar-2019	0		
Oct-2014	0.0	Apr-2019	0		
Nov-2014	0.0	May-2019	0		
Dec-2014	0.0	Jun-2019	0		
Jan-2015	0.0	Jul-2019	0		
Feb-2015	0.0	Aug-2019	0		
Mar-2015	0.0	Sep-2019	0		
Apr-2015	0.0	Oct-2019	0		
May-2015	0.0	Nov-2019	0		
Jun-2015	0.0	Dec-2019	0		
Jul-2015	0.0	Jan-2020	0		
Aug-2015	0.0	Feb-2020	0		
Sep-2015	0.0	Mar-2020	0		
Oct-2015	0.0	Apr-2020	0		
Nov-2015	0.0	May-2020	0		
Dec-2015	0.0	Jun-2020	0		
Jan-2016	0.0	Jul-2020	0		
Feb-2016	0.0	Aug-2020	0		
Mar-2016	0.0	Sep-2020	0		
Apr-2016	0.0	Oct-2020	0		
May-2016	0.0	Nov-2020	0		
Jun-2016	0.0	Dec-2020	0		
Jul-2016	0.0	Jan-2021	0		
Aug-2016	0.0	Feb-2021	0		
Sep-2016	0.0	Mar-2021	0		
Oct-2016	0.0	Apr-2021	0		
Nov-2016	0.0	May-2021	0		
Dec-2016	0.0	Jun-2021	0		
Jan-2017	0.0	Jul-2021	0		
Feb-2017	0.0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 434
NFT Medium

Model Type = UPC
Submodel = basemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {1e-06,0,-2010}
b1 Stats = SE-NaN t-NaN p-NaN
b2 Stats = SE-NaN t-NaN p-NaN
b3 Stats = SE-NaN t-NaN p-NaN
Model Stats = R^2-NaN, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {1e-06,0,-2010}
b1 Stats = SE-NaN t-NaN p-NaN
b2 Stats = SE-NaN t-NaN p-NaN
b3 Stats = SE-NaN t-NaN p-NaN
Model Stats = R^2-NaN, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	0.0	Mar-2017	0	2012	0
Oct-2012	0.0	Apr-2017	0	2013	0
Nov-2012	0.0	May-2017	0	2014	0
Dec-2012	0.0	Jun-2017	0	2015	0
Jan-2013	0.0	Jul-2017	0	2016	0
Feb-2013	0.0	Aug-2017	0	2017	0
Mar-2013	0.0	Sep-2017	0	2018	0
Apr-2013	0.0	Oct-2017	0	2019	0
May-2013	0.0	Nov-2017	0	2020	0
Jun-2013	0.0	Dec-2017	0	2021	0
Jul-2013	0.0	Jan-2018	0		
Aug-2013	0.0	Feb-2018	0		
Sep-2013	0.0	Mar-2018	0		
Oct-2013	0.0	Apr-2018	0		
Nov-2013	0.0	May-2018	0		
Dec-2013	0.0	Jun-2018	0		
Jan-2014	0.0	Jul-2018	0		
Feb-2014	0.0	Aug-2018	0		
Mar-2014	0.0	Sep-2018	0		
Apr-2014	0.0	Oct-2018	0		
May-2014	0.0	Nov-2018	0		
Jun-2014	0.0	Dec-2018	0		
Jul-2014	0.0	Jan-2019	0		
Aug-2014	0.0	Feb-2019	0		
Sep-2014	0.0	Mar-2019	0		
Oct-2014	0.0	Apr-2019	0		
Nov-2014	0.0	May-2019	0		
Dec-2014	0.0	Jun-2019	0		
Jan-2015	0.0	Jul-2019	0		
Feb-2015	0.0	Aug-2019	0		
Mar-2015	0.0	Sep-2019	0		
Apr-2015	0.0	Oct-2019	0		
May-2015	0.0	Nov-2019	0		
Jun-2015	0.0	Dec-2019	0		
Jul-2015	0.0	Jan-2020	0		
Aug-2015	0.0	Feb-2020	0		
Sep-2015	0.0	Mar-2020	0		
Oct-2015	0.0	Apr-2020	0		
Nov-2015	0.0	May-2020	0		
Dec-2015	0.0	Jun-2020	0		
Jan-2016	0.0	Jul-2020	0		
Feb-2016	0.0	Aug-2020	0		
Mar-2016	0.0	Sep-2020	0		
Apr-2016	0.0	Oct-2020	0		
May-2016	0.0	Nov-2020	0		
Jun-2016	0.0	Dec-2020	0		
Jul-2016	0.0	Jan-2021	0		
Aug-2016	0.0	Feb-2021	0		
Sep-2016	0.0	Mar-2021	0		
Oct-2016	0.0	Apr-2021	0		
Nov-2016	0.0	May-2021	0		
Dec-2016	0.0	Jun-2021	0		
Jan-2017	0.0	Jul-2021	0		
Feb-2017	0.0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 435
NFS Large Low

Model Type = UPC
Submodel = basemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {1e-06,0,-2010}
b1 Stats = SE-NaN t-NaN p-NaN
b2 Stats = SE-NaN t-NaN p-NaN
b3 Stats = SE-NaN t-NaN p-NaN
Model Stats = R^2-NaN, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {1e-06,0,-2010}
b1 Stats = SE-NaN t-NaN p-NaN
b2 Stats = SE-NaN t-NaN p-NaN
b3 Stats = SE-NaN t-NaN p-NaN
Model Stats = R^2-NaN, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	0.0	Mar-2017	0	2012	0
Oct-2012	0.0	Apr-2017	0	2013	0
Nov-2012	0.0	May-2017	0	2014	0
Dec-2012	0.0	Jun-2017	0	2015	0
Jan-2013	0.0	Jul-2017	0	2016	0
Feb-2013	0.0	Aug-2017	0	2017	0
Mar-2013	0.0	Sep-2017	0	2018	0
Apr-2013	0.0	Oct-2017	0	2019	0
May-2013	0.0	Nov-2017	0	2020	0
Jun-2013	0.0	Dec-2017	0	2021	0
Jul-2013	0.0	Jan-2018	0		
Aug-2013	0.0	Feb-2018	0		
Sep-2013	0.0	Mar-2018	0		
Oct-2013	0.0	Apr-2018	0		
Nov-2013	0.0	May-2018	0		
Dec-2013	0.0	Jun-2018	0		
Jan-2014	0.0	Jul-2018	0		
Feb-2014	0.0	Aug-2018	0		
Mar-2014	0.0	Sep-2018	0		
Apr-2014	0.0	Oct-2018	0		
May-2014	0.0	Nov-2018	0		
Jun-2014	0.0	Dec-2018	0		
Jul-2014	0.0	Jan-2019	0		
Aug-2014	0.0	Feb-2019	0		
Sep-2014	0.0	Mar-2019	0		
Oct-2014	0.0	Apr-2019	0		
Nov-2014	0.0	May-2019	0		
Dec-2014	0.0	Jun-2019	0		
Jan-2015	0.0	Jul-2019	0		
Feb-2015	0.0	Aug-2019	0		
Mar-2015	0.0	Sep-2019	0		
Apr-2015	0.0	Oct-2019	0		
May-2015	0.0	Nov-2019	0		
Jun-2015	0.0	Dec-2019	0		
Jul-2015	0.0	Jan-2020	0		
Aug-2015	0.0	Feb-2020	0		
Sep-2015	0.0	Mar-2020	0		
Oct-2015	0.0	Apr-2020	0		
Nov-2015	0.0	May-2020	0		
Dec-2015	0.0	Jun-2020	0		
Jan-2016	0.0	Jul-2020	0		
Feb-2016	0.0	Aug-2020	0		
Mar-2016	0.0	Sep-2020	0		
Apr-2016	0.0	Oct-2020	0		
May-2016	0.0	Nov-2020	0		
Jun-2016	0.0	Dec-2020	0		
Jul-2016	0.0	Jan-2021	0		
Aug-2016	0.0	Feb-2021	0		
Sep-2016	0.0	Mar-2021	0		
Oct-2016	0.0	Apr-2021	0		
Nov-2016	0.0	May-2021	0		
Dec-2016	0.0	Jun-2021	0		
Jan-2017	0.0	Jul-2021	0		
Feb-2017	0.0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 436
NFT Large Low

Model Type = UPC
Submodel = basemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {1e-06,0,-2010}
b1 Stats = SE-NaN t-NaN p-NaN
b2 Stats = SE-NaN t-NaN p-NaN
b3 Stats = SE-NaN t-NaN p-NaN
Model Stats = R^2-NaN, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {1e-06,0,-2010}
b1 Stats = SE-NaN t-NaN p-NaN
b2 Stats = SE-NaN t-NaN p-NaN
b3 Stats = SE-NaN t-NaN p-NaN
Model Stats = R^2-NaN, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	0.0	Mar-2017	0	2012	0
Oct-2012	0.0	Apr-2017	0	2013	0
Nov-2012	0.0	May-2017	0	2014	0
Dec-2012	0.0	Jun-2017	0	2015	0
Jan-2013	0.0	Jul-2017	0	2016	0
Feb-2013	0.0	Aug-2017	0	2017	0
Mar-2013	0.0	Sep-2017	0	2018	0
Apr-2013	0.0	Oct-2017	0	2019	0
May-2013	0.0	Nov-2017	0	2020	0
Jun-2013	0.0	Dec-2017	0	2021	0
Jul-2013	0.0	Jan-2018	0		
Aug-2013	0.0	Feb-2018	0		
Sep-2013	0.0	Mar-2018	0		
Oct-2013	0.0	Apr-2018	0		
Nov-2013	0.0	May-2018	0		
Dec-2013	0.0	Jun-2018	0		
Jan-2014	0.0	Jul-2018	0		
Feb-2014	0.0	Aug-2018	0		
Mar-2014	0.0	Sep-2018	0		
Apr-2014	0.0	Oct-2018	0		
May-2014	0.0	Nov-2018	0		
Jun-2014	0.0	Dec-2018	0		
Jul-2014	0.0	Jan-2019	0		
Aug-2014	0.0	Feb-2019	0		
Sep-2014	0.0	Mar-2019	0		
Oct-2014	0.0	Apr-2019	0		
Nov-2014	0.0	May-2019	0		
Dec-2014	0.0	Jun-2019	0		
Jan-2015	0.0	Jul-2019	0		
Feb-2015	0.0	Aug-2019	0		
Mar-2015	0.0	Sep-2019	0		
Apr-2015	0.0	Oct-2019	0		
May-2015	0.0	Nov-2019	0		
Jun-2015	0.0	Dec-2019	0		
Jul-2015	0.0	Jan-2020	0		
Aug-2015	0.0	Feb-2020	0		
Sep-2015	0.0	Mar-2020	0		
Oct-2015	0.0	Apr-2020	0		
Nov-2015	0.0	May-2020	0		
Dec-2015	0.0	Jun-2020	0		
Jan-2016	0.0	Jul-2020	0		
Feb-2016	0.0	Aug-2020	0		
Mar-2016	0.0	Sep-2020	0		
Apr-2016	0.0	Oct-2020	0		
May-2016	0.0	Nov-2020	0		
Jun-2016	0.0	Dec-2020	0		
Jul-2016	0.0	Jan-2021	0		
Aug-2016	0.0	Feb-2021	0		
Sep-2016	0.0	Mar-2021	0		
Oct-2016	0.0	Apr-2021	0		
Nov-2016	0.0	May-2021	0		
Dec-2016	0.0	Jun-2021	0		
Jan-2017	0.0	Jul-2021	0		
Feb-2017	0.0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 437
NFS Large High

Model Type = UPC
Submodel = model
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {1e-06,0,-2010}
b1 Stats = SE-NaN t-NaN p-NaN
b2 Stats = SE-NaN t-NaN p-NaN
b3 Stats = SE-NaN t-NaN p-NaN
Model Stats = R^2-NaN, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	4,205.8	Mar-2017	0	2012	8,670
Oct-2012	4,892.8	Apr-2017	0	2013	0
Nov-2012	87.9	May-2017	0	2014	0
Dec-2012	0.0	Jun-2017	0	2015	0
Jan-2013	0.0	Jul-2017	0	2016	0
Feb-2013	0.0	Aug-2017	0	2017	0
Mar-2013	0.0	Sep-2017	0	2018	0
Apr-2013	0.0	Oct-2017	0	2019	0
May-2013	0.0	Nov-2017	0	2020	0
Jun-2013	0.0	Dec-2017	0	2021	0
Jul-2013	0.0	Jan-2018	0		
Aug-2013	0.0	Feb-2018	0		
Sep-2013	0.0	Mar-2018	0		
Oct-2013	0.0	Apr-2018	0		
Nov-2013	0.0	May-2018	0		
Dec-2013	0.0	Jun-2018	0		
Jan-2014	0.0	Jul-2018	0		
Feb-2014	0.0	Aug-2018	0		
Mar-2014	0.0	Sep-2018	0		
Apr-2014	0.0	Oct-2018	0		
May-2014	0.0	Nov-2018	0		
Jun-2014	0.0	Dec-2018	0		
Jul-2014	0.0	Jan-2019	0		
Aug-2014	0.0	Feb-2019	0		
Sep-2014	0.0	Mar-2019	0		
Oct-2014	0.0	Apr-2019	0		
Nov-2014	0.0	May-2019	0		
Dec-2014	0.0	Jun-2019	0		
Jan-2015	0.0	Jul-2019	0		
Feb-2015	0.0	Aug-2019	0		
Mar-2015	0.0	Sep-2019	0		
Apr-2015	0.0	Oct-2019	0		
May-2015	0.0	Nov-2019	0		
Jun-2015	0.0	Dec-2019	0		
Jul-2015	0.0	Jan-2020	0		
Aug-2015	0.0	Feb-2020	0		
Sep-2015	0.0	Mar-2020	0		
Oct-2015	0.0	Apr-2020	0		
Nov-2015	0.0	May-2020	0		
Dec-2015	0.0	Jun-2020	0		
Jan-2016	0.0	Jul-2020	0		
Feb-2016	0.0	Aug-2020	0		
Mar-2016	0.0	Sep-2020	0		
Apr-2016	0.0	Oct-2020	0		
May-2016	0.0	Nov-2020	0		
Jun-2016	0.0	Dec-2020	0		
Jul-2016	0.0	Jan-2021	0		
Aug-2016	0.0	Feb-2021	0		
Sep-2016	0.0	Mar-2021	0		
Oct-2016	0.0	Apr-2021	0		
Nov-2016	0.0	May-2021	0		
Dec-2016	0.0	Jun-2021	0		
Jan-2017	0.0	Jul-2021	0		
Feb-2017	0.0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 438
NFT Large High

Model Type = UPC
Submodel = model
Model Eqn = 0*x+1e-06
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Actual Monthly UPC		Forecast Monthly UPC			Calendar Year UPC
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	0.0	Mar-2017	0	2012	0
Oct-2012	0.0	Apr-2017	0	2013	0
Nov-2012	0.0	May-2017	0	2014	0
Dec-2012	0.0	Jun-2017	0	2015	0
Jan-2013	0.0	Jul-2017	0	2016	0
Feb-2013	0.0	Aug-2017	0	2017	0
Mar-2013	0.0	Sep-2017	0	2018	0
Apr-2013	0.0	Oct-2017	0	2019	0
May-2013	0.0	Nov-2017	0	2020	0
Jun-2013	0.0	Dec-2017	0	2021	0
Jul-2013	0.0	Jan-2018	0		
Aug-2013	0.0	Feb-2018	0		
Sep-2013	0.0	Mar-2018	0		
Oct-2013	0.0	Apr-2018	0		
Nov-2013	0.0	May-2018	0		
Dec-2013	0.0	Jun-2018	0		
Jan-2014	0.0	Jul-2018	0		
Feb-2014	0.0	Aug-2018	0		
Mar-2014	0.0	Sep-2018	0		
Apr-2014	0.0	Oct-2018	0		
May-2014	0.0	Nov-2018	0		
Jun-2014	0.0	Dec-2018	0		
Jul-2014	0.0	Jan-2019	0		
Aug-2014	0.0	Feb-2019	0		
Sep-2014	0.0	Mar-2019	0		
Oct-2014	0.0	Apr-2019	0		
Nov-2014	0.0	May-2019	0		
Dec-2014	0.0	Jun-2019	0		
Jan-2015	0.0	Jul-2019	0		
Feb-2015	0.0	Aug-2019	0		
Mar-2015	0.0	Sep-2019	0		
Apr-2015	0.0	Oct-2019	0		
May-2015	0.0	Nov-2019	0		
Jun-2015	0.0	Dec-2019	0		
Jul-2015	0.0	Jan-2020	0		
Aug-2015	0.0	Feb-2020	0		
Sep-2015	0.0	Mar-2020	0		
Oct-2015	0.0	Apr-2020	0		
Nov-2015	0.0	May-2020	0		
Dec-2015	0.0	Jun-2020	0		
Jan-2016	0.0	Jul-2020	0		
Feb-2016	0.0	Aug-2020	0		
Mar-2016	0.0	Sep-2020	0		
Apr-2016	0.0	Oct-2020	0		
May-2016	0.0	Nov-2020	0		
Jun-2016	0.0	Dec-2020	0		
Jul-2016	0.0	Jan-2021	0		
Aug-2016	0.0	Feb-2021	0		
Sep-2016	0.0	Mar-2021	0		
Oct-2016	0.0	Apr-2021	0		
Nov-2016	0.0	May-2021	0		
Dec-2016	0.0	Jun-2021	0		
Jan-2017	0.0	Jul-2021	0		
Feb-2017	0.0	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 439
NFS XL Low

Model Type = UPC
Submodel = basemodel
Model Eqn = 0*x+1e-06
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {414.3719,-109.4658,-2009.1332}
b1 Stats = SE-1126.232 t-0.36793 p-0.73735
b2 Stats = SE-490.577 t--0.22314 p-0.83776
b3 Stats = SE-14.8178 t--135.5894 p-8.8452e-07
Model Stats = R^2-0.36411, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	3,017.7	Mar-2017	335,902	2012	1,229,892
Oct-2012	56,152.2	Apr-2017	240,592	2013	1,206,306
Nov-2012	309,407.1	May-2017	62,364	2014	748,211
Dec-2012	314,677.4	Jun-2017	11,981	2015	776,069
Jan-2013	237,796.6	Jul-2017	943	2016	881,952
Feb-2013	337,489.8	Aug-2017	0	2017	1,136,294
Mar-2013	374,083.7	Sep-2017	0	2018	911,977
Apr-2013	256,483.1	Oct-2017	0	2019	1,146,226
May-2013	446.6	Nov-2017	0	2020	1,140,606
Jun-2013	6.5	Dec-2017	0	2021	1,138,782
Jul-2013	0.5	Jan-2018	0		
Aug-2013	0.0	Feb-2018	261,762		
Sep-2013	695.8	Mar-2018	336,002		
Oct-2013	57,211.7	Apr-2018	239,804		
Nov-2013	275,949.5	May-2018	62,207		
Dec-2013	236,516.7	Jun-2018	12,202		
Jan-2014	109,470.8	Jul-2018	847		
Feb-2014	24,272.9	Aug-2018	0		
Mar-2014	296,692.9	Sep-2018	2,669		
Apr-2014	255,346.7	Oct-2018	93,384		
May-2014	62,428.1	Nov-2018	160,675		
Jun-2014	0.1	Dec-2018	260,284		
Jul-2014	1.9	Jan-2019	235,750		
Aug-2014	-21.6	Feb-2019	261,313		
Sep-2014	-1,104.6	Mar-2019	335,579		
Oct-2014	-15,275.1	Apr-2019	240,260		
Nov-2014	270,054.7	May-2019	61,514		
Dec-2014	306,187.9	Jun-2019	11,810		
Jan-2015	214,635.6	Jul-2019	756		
Feb-2015	15,372.7	Aug-2019	0		
Mar-2015	295,369.1	Sep-2019	2,327		
Apr-2015	224,370.4	Oct-2019	93,184		
May-2015	25,697.8	Nov-2019	160,331		
Jun-2015	623.1	Dec-2019	259,649		
Jul-2015	0.0	Jan-2020	234,996		
Aug-2015	0.0	Feb-2020	258,766		
Sep-2015	1,103.0	Mar-2020	334,485		
Oct-2015	92,936.6	Apr-2020	239,571		
Nov-2015	230,248.2	May-2020	61,195		
Dec-2015	248,253.1	Jun-2020	11,593		
Jan-2016	193,607.4	Jul-2020	460		
Feb-2016	129,058.8	Aug-2020	0		
Mar-2016	270,409.7	Sep-2020	2,209		
Apr-2016	246,556.0	Oct-2020	92,781		
May-2016	42,320.2	Nov-2020	159,577		
Jun-2016	0.0	Dec-2020	259,206		
Jul-2016	0.0	Jan-2021	234,481		
Aug-2016	0.0	Feb-2021	259,967		
Sep-2016	2,349.4	Mar-2021	334,022		
Oct-2016	93,039.8	Apr-2021	237,904		
Nov-2016	243,478.7	May-2021	61,081		
Dec-2016	301,993.8	Jun-2021	11,327		
Jan-2017	293,536.1	Jul-2021	271		
Feb-2017	191,919.2	Aug-2021	0		

The Narragansett Electric Company d/b/a National Grid
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Rate Code 440
NFT XL Low

Model Type = UPC
Submodel = basemodel
Model Eqn = 1 + x1
Variable = FETA
Coeffs = {-43949.4921,97.9083}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-16261.5934 t--2.7027 p-0.053946
x1 Stats = SE-34.5232 t-2.836 p-0.047057
Model Stats = R^2-0.69722, F-9.2111

Model Type = UPC
Submodel = slopemodel
Model Eqn = b1 + b2*log(x1 + b3)
Variable = TimeLog
Coeffs = {-10566.9302,2193.3875,-1879.3187}
b1 Stats = SE-4056655.6103 t--0.0026048 p-0.99809
b2 Stats = SE-687686.8478 t-0.0031895 p-0.99766
b3 Stats = SE-42056.1967 t--0.044686 p-0.96717
Model Stats = R^2-0.13498, F-NaN
Intercept Stats = na
x1 Stats = na
Model Stats = na

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	45,498.8	Mar-2017	368,670	2012	693,077
Oct-2012	89,334.0	Apr-2017	325,038	2013	1,689,690
Nov-2012	204,637.5	May-2017	183,904	2014	659,380
Dec-2012	370,798.4	Jun-2017	131,937	2015	1,364,413
Jan-2013	284,730.0	Jul-2017	126,835	2016	1,673,966
Feb-2013	400,013.5	Aug-2017	107,523	2017	1,723,074
Mar-2013	414,359.4	Sep-2017	157,582	2018	1,723,074
Apr-2013	303,251.9	Oct-2017	260,121	2019	1,723,074
May-2013	166,830.2	Nov-2017	345,556	2020	1,723,074
Jun-2013	120,505.3	Dec-2017	444,463	2021	1,723,074
Jul-2013	104,781.0	Jan-2018	406,807		
Aug-2013	118,645.9	Feb-2018	306,718		
Sep-2013	67,620.1	Mar-2018	368,670		
Oct-2013	100,222.2	Apr-2018	325,038		
Nov-2013	158,786.8	May-2018	183,904		
Dec-2013	147,784.4	Jun-2018	131,937		
Jan-2014	89,700.8	Jul-2018	126,835		
Feb-2014	125,199.9	Aug-2018	107,523		
Mar-2014	162,375.6	Sep-2018	157,582		
Apr-2014	147,052.8	Oct-2018	260,121		
May-2014	81,054.6	Nov-2018	345,556		
Jun-2014	53,995.8	Dec-2018	444,463		
Jul-2014	51,821.0	Jan-2019	406,807		
Aug-2014	56,551.9	Feb-2019	306,718		
Sep-2014	70,758.6	Mar-2019	368,670		
Oct-2014	102,558.6	Apr-2019	325,038		
Nov-2014	351,467.3	May-2019	183,904		
Dec-2014	416,153.8	Jun-2019	131,937		
Jan-2015	230,455.2	Jul-2019	126,835		
Feb-2015	84,704.2	Aug-2019	107,523		
Mar-2015	452,682.2	Sep-2019	157,582		
Apr-2015	319,341.9	Oct-2019	260,121		
May-2015	152,779.8	Nov-2019	345,556		
Jun-2015	124,449.9	Dec-2019	444,463		
Jul-2015	107,048.4	Jan-2020	406,807		
Aug-2015	90,880.9	Feb-2020	306,718		
Sep-2015	126,880.6	Mar-2020	368,670		
Oct-2015	250,359.3	Apr-2020	325,038		
Nov-2015	315,123.7	May-2020	183,904		
Dec-2015	339,899.4	Jun-2020	131,937		
Jan-2016	329,493.6	Jul-2020	126,835		
Feb-2016	334,923.2	Aug-2020	107,523		
Mar-2016	368,669.8	Sep-2020	157,582		
Apr-2016	325,038.2	Oct-2020	260,121		
May-2016	183,903.8	Nov-2020	345,556		
Jun-2016	131,937.0	Dec-2020	444,463		
Jul-2016	126,834.7	Jan-2021	406,807		
Aug-2016	107,523.1	Feb-2021	306,718		
Sep-2016	157,581.6	Mar-2021	368,670		
Oct-2016	260,121.2	Apr-2021	325,038		
Nov-2016	345,556.4	May-2021	183,904		
Dec-2016	444,462.6	Jun-2021	131,937		
Jan-2017	406,807.0	Jul-2021	126,835		
Feb-2017	306,717.7	Aug-2021	107,523		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 441
NFS XL High

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = FGDP$A
Coeffs = {-13679.1247,0.30472}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-4433.6765 t--3.0853 p-0.036743
x1 Stats = SE-0.089157 t-3.4178 p-0.026835
Model Stats = R^2-0.74493, F-11.6821

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	56,465.7	Mar-2017	2,546	2012	115,157
Oct-2012	49,149.2	Apr-2017	41,913	2013	116,224
Nov-2012	41,766.0	May-2017	75,252	2014	168,181
Dec-2012	29,626.4	Jun-2017	91,437	2015	162,059
Jan-2013	0.0	Jul-2017	63,953	2016	208,202
Feb-2013	15.8	Aug-2017	67,173	2017	211,148
Mar-2013	1,244.3	Sep-2017	57,743	2018	215,073
Apr-2013	23,881.4	Oct-2017	82,468	2019	214,310
May-2013	42,080.5	Nov-2017	79,624	2020	212,851
Jun-2013	49,001.6	Dec-2017	38,032	2021	211,973
Jul-2013	47,268.7	Jan-2018	2,088		
Aug-2013	55,529.1	Feb-2018	2,114		
Sep-2013	71,127.0	Mar-2018	2,541		
Oct-2013	57,562.0	Apr-2018	41,689		
Nov-2013	50,492.8	May-2018	75,165		
Dec-2013	27,061.2	Jun-2018	91,476		
Jan-2014	2,864.2	Jul-2018	63,868		
Feb-2014	0.0	Aug-2018	67,105		
Mar-2014	1,412.9	Sep-2018	57,931		
Apr-2014	41,077.5	Oct-2018	82,297		
May-2014	67,791.2	Nov-2018	79,127		
Jun-2014	55,035.1	Dec-2018	37,182		
Jul-2014	64,077.9	Jan-2019	1,589		
Aug-2014	64,458.8	Feb-2019	2,023		
Sep-2014	91,246.5	Mar-2019	2,485		
Oct-2014	110,087.0	Apr-2019	41,864		
Nov-2014	100,745.8	May-2019	74,991		
Dec-2014	39,385.6	Jun-2019	91,358		
Jan-2015	1,157.7	Jul-2019	63,867		
Feb-2015	0.0	Aug-2019	67,158		
Mar-2015	1,380.8	Sep-2019	57,839		
Apr-2015	39,570.3	Oct-2019	82,267		
May-2015	54,088.7	Nov-2019	79,079		
Jun-2015	65,861.1	Dec-2019	37,039		
Jul-2015	83,650.0	Jan-2020	1,421		
Aug-2015	78,906.9	Feb-2020	1,337		
Sep-2015	87,845.9	Mar-2020	2,220		
Oct-2015	90,080.1	Apr-2020	41,679		
Nov-2015	89,844.1	May-2020	74,880		
Dec-2015	58,077.0	Jun-2020	91,314		
Jan-2016	0.0	Jul-2020	63,793		
Feb-2016	0.0	Aug-2020	67,062		
Mar-2016	1,259.7	Sep-2020	57,845		
Apr-2016	41,075.5	Oct-2020	82,150		
May-2016	74,712.1	Nov-2020	78,859		
Jun-2016	91,154.2	Dec-2020	36,955		
Jul-2016	63,480.3	Jan-2021	1,272		
Aug-2016	67,120.3	Feb-2021	1,643		
Sep-2016	57,371.1	Mar-2021	2,049		
Oct-2016	81,830.1	Apr-2021	40,961		
Nov-2016	78,093.7	May-2021	74,846		
Dec-2016	34,977.0	Jun-2021	91,202		
Jan-2017	0.0	Jul-2021	63,709		
Feb-2017	0.0	Aug-2021	67,050		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 442
NFT XL High

Model Type = UPC
Submodel = model
Model Eqn = 1 + x1
Variable = FGDP$A
Coeffs = {-41481.4178,0.90609}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-11911.8127 t--3.4824 p-0.025297
x1 Stats = SE-0.23954 t-3.7827 p-0.019391
Model Stats = R^2-0.78153, F-14.3096

Actual Monthly UPC		Forecast Monthly UPC		Calendar Year UPC	
Date	(therms)	Date	(therms)	Year	(therms)
Sep-2012	85,180.6	Mar-2017	115,959	2012	496,919
Oct-2012	90,388.3	Apr-2017	97,487	2013	453,639
Nov-2012	99,455.1	May-2017	119,419	2014	491,391
Dec-2012	88,093.6	Jun-2017	117,434	2015	630,154
Jan-2013	58,255.0	Jul-2017	203,062	2016	599,287
Feb-2013	79,535.0	Aug-2017	263,819	2017	589,448
Mar-2013	85,993.2	Sep-2017	229,282	2018	598,448
Apr-2013	82,694.7	Oct-2017	160,849	2019	601,796
May-2013	73,909.8	Nov-2017	132,056	2020	603,361
Jun-2013	73,250.8	Dec-2017	92,885	2021	598,550
Jul-2013	88,769.8	Jan-2018	77,366		
Aug-2013	83,633.9	Feb-2018	68,798		
Sep-2013	99,203.2	Mar-2018	115,940		
Oct-2013	102,755.3	Apr-2018	97,581		
Nov-2013	97,584.8	May-2018	120,224		
Dec-2013	75,922.7	Jun-2018	118,538		
Jan-2014	36,383.1	Jul-2018	204,163		
Feb-2014	55,860.4	Aug-2018	264,946		
Mar-2014	97,192.0	Sep-2018	230,728		
Apr-2014	90,294.4	Oct-2018	161,938		
May-2014	104,517.4	Nov-2018	132,294		
Jun-2014	107,143.4	Dec-2018	92,592		
Jul-2014	132,822.4	Jan-2019	77,520		
Aug-2014	122,705.3	Feb-2019	68,785		
Sep-2014	124,389.7	Mar-2019	116,178		
Oct-2014	115,887.9	Apr-2019	98,643		
Nov-2014	124,244.2	May-2019	121,062		
Dec-2014	113,513.3	Jun-2019	119,609		
Jan-2015	57,347.7	Jul-2019	205,544		
Feb-2015	18,689.8	Aug-2019	266,569		
Mar-2015	110,986.7	Sep-2019	231,791		
Apr-2015	140,531.3	Oct-2019	162,850		
May-2015	154,545.7	Nov-2019	132,848		
Jun-2015	148,052.6	Dec-2019	92,341		
Jul-2015	181,187.6	Jan-2020	76,999		
Aug-2015	181,161.5	Feb-2020	69,516		
Sep-2015	190,694.6	Mar-2020	115,678		
Oct-2015	149,772.5	Apr-2020	98,684		
Nov-2015	150,288.5	May-2020	121,672		
Dec-2015	102,735.7	Jun-2020	120,811		
Jan-2016	85,572.7	Jul-2020	206,672		
Feb-2016	79,518.7	Aug-2020	267,381		
Mar-2016	109,610.3	Sep-2020	233,091		
Apr-2016	94,450.9	Oct-2020	163,706		
May-2016	116,586.7	Nov-2020	132,908		
Jun-2016	113,547.6	Dec-2020	91,845		
Jul-2016	200,636.8	Jan-2021	75,740		
Aug-2016	263,243.0	Feb-2021	66,587		
Sep-2016	226,876.6	Mar-2021	114,498		
Oct-2016	155,473.0	Apr-2021	98,003		
Nov-2016	125,726.6	May-2021	122,241		
Dec-2016	84,178.2	Jun-2021	121,481		
Jan-2017	75,677.3	Jul-2021	207,712		
Feb-2017	63,471.5	Aug-2021	268,842		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 443
FT2 Small

Model Type = UPC
Submodel = basemodel
Model Eqn = 0*x+1.41632
Variable = constant
Coeffs =
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = na
x1 Stats = na
Model Stats = na

Model Type = UPC
Submodel = slopemodel
Model Eqn = 1 + x1
Variable = GORC
Coeffs = {0.83688,-0.94787}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-0.13666 t-6.124 p-0.0036017
x1 Stats = SE-0.24351 t--3.8925 p-0.017653
Model Stats = R^2-0.7913, F-15.1666

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	71.9	Mar-2017	370	2012	0
Oct-2012	36.8	Apr-2017	284	2013	1,428
Nov-2012	68.2	May-2017	173	2014	1,750
Dec-2012	207.9	Jun-2017	86	2015	2,033
Jan-2013	292.9	Jul-2017	49	2016	1,456
Feb-2013	384.3	Aug-2017	41	2017	1,671
Mar-2013	339.2	Sep-2017	49	2018	1,736
Apr-2013	237.6	Oct-2017	94	2019	1,752
May-2013	111.1	Nov-2017	215	2020	1,736
Jun-2013	63.2	Dec-2017	326	2021	1,740
Jul-2013	49.2	Jan-2018	408		
Aug-2013	48.7	Feb-2018	421		
Sep-2013	53.5	Mar-2018	369		
Oct-2013	69.9	Apr-2018	275		
Nov-2013	141.8	May-2018	173		
Dec-2013	302.9	Jun-2018	90		
Jan-2014	430.5	Jul-2018	49		
Feb-2014	428.6	Aug-2018	42		
Mar-2014	403.9	Sep-2018	49		
Apr-2014	271.0	Oct-2018	97		
May-2014	135.2	Nov-2018	200		
Jun-2014	81.1	Dec-2018	321		
Jul-2014	62.7	Jan-2019	421		
Aug-2014	65.5	Feb-2019	421		
Sep-2014	79.7	Mar-2019	368		
Oct-2014	91.6	Apr-2019	275		
Nov-2014	131.7	May-2019	179		
Dec-2014	278.6	Jun-2019	87		
Jan-2015	450.9	Jul-2019	49		
Feb-2015	593.5	Aug-2019	45		
Mar-2015	532.2	Sep-2019	50		
Apr-2015	286.9	Oct-2019	93		
May-2015	109.3	Nov-2019	200		
Jun-2015	60.3	Dec-2019	322		
Jul-2015	51.3	Jan-2020	421		
Aug-2015	51.1	Feb-2020	420		
Sep-2015	50.2	Mar-2020	357		
Oct-2015	61.4	Apr-2020	282		
Nov-2015	102.4	May-2020	168		
Dec-2015	194.6	Jun-2020	87		
Jan-2016	308.6	Jul-2020	51		
Feb-2016	405.9	Aug-2020	40		
Mar-2016	337.9	Sep-2020	49		
Apr-2016	221.1	Oct-2020	91		
May-2016	122.7	Nov-2020	202		
Jun-2016	59.5	Dec-2020	319		
Jul-2016	47.8	Jan-2021	420		
Aug-2016	41.2	Feb-2021	421		
Sep-2016	40.8	Mar-2021	367		
Oct-2016	58.5	Apr-2021	280		
Nov-2016	124.5	May-2021	166		
Dec-2016	253.3	Jun-2021	86		
Jan-2017	392.1	Jul-2021	51		
Feb-2017	366.4	Aug-2021	43		

The Narragansett Electric Company d/b/a National Grid
2017 Gas Delivery Forecast Model Specifications

Rate Code 444
TSS Small

Model Type = UPC
Submodel = basemodel
Model Eqn = 1 + x1
Variable = FE23A
Coeffs = {-24.7301,1.5781}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-10.9688 t--2.2546 p-0.087201
x1 Stats = SE-0.6855 t-2.3021 p-0.082746
Model Stats = R^2-0.56988, F-5.3001

Model Type = UPC
Submodel = slopemodel
Model Eqn = 1 + x1
Variable = FETA
Coeffs = {-8.0328,0.017511}
b1 Stats = na
b2 Stats = na
b3 Stats = na
Model Stats = na
Intercept Stats = SE-0.77108 t--10.4176 p-0.00047959
x1 Stats = SE-0.001637 t-10.6969 p-0.00043274
Model Stats = R^2-0.96622, F-114.4252

Date	Actual Monthly UPC (therms)	Date	Forecast Monthly UPC (therms)	Year	Calendar Year UPC (therms)
Sep-2012	0.0	Mar-2017	357	2012	0
Oct-2012	0.0	Apr-2017	228	2013	1,428
Nov-2012	0.0	May-2017	120	2014	965
Dec-2012	0.0	Jun-2017	34	2015	1,511
Jan-2013	2.9	Jul-2017	6	2016	1,453
Feb-2013	146.9	Aug-2017	3	2017	1,532
Mar-2013	582.9	Sep-2017	20	2018	1,599
Apr-2013	450.0	Oct-2017	110	2019	1,597
May-2013	234.1	Nov-2017	228	2020	1,584
Jun-2013	11.3	Dec-2017	361	2021	1,571
Jul-2013	18.7	Jan-2018	450		
Aug-2013	12.2	Feb-2018	412		
Sep-2013	1.3	Mar-2018	356		
Oct-2013	2.3	Apr-2018	228		
Nov-2013	45.9	May-2018	119		
Dec-2013	72.2	Jun-2018	35		
Jan-2014	112.2	Jul-2018	6		
Feb-2014	195.3	Aug-2018	3		
Mar-2014	318.4	Sep-2018	20		
Apr-2014	153.1	Oct-2018	109		
May-2014	130.1	Nov-2018	226		
Jun-2014	55.8	Dec-2018	369		
Jul-2014	43.3	Jan-2019	447		
Aug-2014	35.6	Feb-2019	411		
Sep-2014	36.7	Mar-2019	355		
Oct-2014	44.6	Apr-2019	227		
Nov-2014	81.1	May-2019	122		
Dec-2014	209.2	Jun-2019	35		
Jan-2015	312.4	Jul-2019	6		
Feb-2015	425.1	Aug-2019	3		
Mar-2015	410.0	Sep-2019	20		
Apr-2015	243.9	Oct-2019	110		
May-2015	75.6	Nov-2019	217		
Jun-2015	44.3	Dec-2019	368		
Jul-2015	38.7	Jan-2020	446		
Aug-2015	36.2	Feb-2020	415		
Sep-2015	53.3	Mar-2020	346		
Oct-2015	193.3	Apr-2020	225		
Nov-2015	72.6	May-2020	118		
Dec-2015	112.9	Jun-2020	34		
Jan-2016	328.6	Jul-2020	6		
Feb-2016	390.0	Aug-2020	3		
Mar-2016	343.1	Sep-2020	19		
Apr-2016	182.9	Oct-2020	107		
May-2016	122.3	Nov-2020	221		
Jun-2016	86.0	Dec-2020	366		
Jul-2016	2.8	Jan-2021	444		
Aug-2016	3.4	Feb-2021	408		
Sep-2016	22.2	Mar-2021	351		
Oct-2016	18.2	Apr-2021	222		
Nov-2016	282.2	May-2021	113		
Dec-2016	457.9	Jun-2021	33		
Jan-2017	412.1	Jul-2021	6		
Feb-2017	380.7	Aug-2021	3		