The Narragansett Electric Company

d/b/a National Grid

INVESTIGATION AS TO THE PROPRIETY OF PROPOSED TARIFF CHANGES

Testimony and Schedules of:

Stephen F. Doucette
Evelyn M. Kaye
Michael R. Hrycin
Jeffrey P. Martin
Alfred P. Morrissey
A. Leo Silvestrini

Book 2 of 11

April 27, 2012

Submitted to:
Rhode Island Public Utilities Commission
Docket No. R.I.P.U.C. ____

Submitted by:

nationalgrid

Testimony of
Stephen F. Doucette

PRE-FILED DIRECT TESTIMONY

OF

STEPHEN F. DOUCETTE

Table of Contents

I. Introduction and Qualifications

Q. Please state your name, business address and business affiliation.

A. My name is Stephen F. Doucette. My business address is 230 Third Avenue, Waltham, MA 02451. I am employed by Aon Hewitt and serve as the actuary for the National Grid USA ("National Grid") pension and post-retirement benefit plans.

Q. On whose behalf are you testifying?

A. In this proceeding, I am testifying on behalf of the gas and electric distribution operations of The Narragansett Electric Company d/b/a National Grid (the "Company"), which is a subsidiary of National Grid.

Q. Please describe your educational background and professional experience.

A. I graduated from Boston College in 1985 with a Bachelor of Arts degree in Mathematics. From 1985 through 1990, I was employed by New England Life Insurance Company as an actuarial student. In 1990, I joined Hewitt Associates (now Aon Hewitt), which is a human resource consulting firm, and later became partner at Hewitt in 1998. I have been providing actuarial consulting services to National Grid since 1994. I am a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries, and an Enrolled Actuary. I also provide pension-related consulting services to other corporate entities not affiliated with National Grid.

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. In this proceeding, the Company is proposing to implement a reconciliation mechanism for pension expense and other post-employment benefits ("OPEB") costs for the Company's electric operations. The details of the proposed Pension Adjustment Mechanism ("PAM") are discussed in the testimony and exhibits of Company Witness Laflamme, although the mechanism would be identical to the mechanism already in place for the gas operations. My testimony is designed to provide an explanation as to the reasons that the Company's proposed ratemaking treatment for pension and OPEB expense is appropriate. For purposes of this testimony, any discussion of the pension plan and/or pension costs also applies to the OPEB plan and OPEB costs, unless otherwise stated.

Q. Would you please summarize the reasons that the implementation of the PAM is appropriate to recover pension and OPEB expenses relating to employees providing services to the Rhode Island distribution operations?

A. Yes. In short, the implementation of the PAM is appropriate because pension and OPEB expense represents a significant operating cost, with a high degree of variability not subject to the control of the Company. In fact, the nature of the expense that the Company must record to its books in relation to pension and OPEB costs in any given year differs substantially from other expenses incurred to conduct operations. Namely, the Company's ultimate pension and OPEB costs are not fully known until many years in

the future, and the associated expense, which must be recorded each year by the Company, is, by design, a forward-looking estimation of those future retirement costs. Although the estimation of those future costs (i.e., the annual pension/OPEB expense) is strictly prescribed by applicable accounting rules, the ultimate costs are not known for many years, must be updated each year for plan experience, and are driven by market conditions. The areas where this dynamic is most visible are the return on plan assets and the present value of future employer paid benefits, both highly susceptible to financial market conditions. Over time, as the experience of the pension and OPEB plans unfolds, the actual cost of these employee benefits is realized. However, the actual cost inevitably varies in some degree from expectations, with the degree of variability largely a function of changing market conditions. The expense calculation requires recognition of those changing market conditions, and as a result, annual expense is highly variable over time. Because it is not possible for National Grid or the Company to exercise direct control over the magnitude and variability of this expense, the expense is appropriately recovered through a reconciling mechanism. A reconciling mechanism will address the expense variability in a manner that ensures that customers do not pay any more or less than they should over time to support this aspect of electric and gas utility operations.

Q. What is the organization of your testimony?

A. My testimony is organized as follows: Section I is the introduction and qualifications. Section II provides the purpose of the testimony. Section III provides a detailed description of the types of plans that are used to provide retirement benefits to employees

and the ramifications of using one type of plan over another. Section IV discusses how costs for retiring employees are converted into expense for purposes of financial reporting requirements. Section V reviews the Company's expense experience and explains how the proposed PAM is an appropriate mechanism to protect the interests of customers in the long run.

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

A. This proceeding is a ratemaking proceeding for the gas and electric distribution operations of The Narragansett Electric Company, which together represent the entirety of National Grid's regulated operations in Rhode Island, as the associated direct parent company. In this case, we will refer to the regulated entity as the "Company," where the reference is to both gas and electric distribution operations on a collective basis. Where there is a need to refer to the "stand-alone" or individual operations of The Narragansett Electric Company, the Company will use the terms "Narragansett Electric" or "Narragansett Gas." Where the Company is referring to "National Grid USA", it will use the term "National Grid"; where the Company is referring to "National Grid plc," it will use that precise term.

III. Description of Pension Benefit Plan Structures

Q. Would you please review the types of plans that exist to provide pension benefits to employees?

A. There are many configurations of pension and other post-retirement benefits that employers provide to their employees as part of employee-compensation packages. For pension benefits, there are two general types of plan structures that may be used by employers. These two structures occupy opposite ends of a spectrum and are known as *defined benefit* plans and *defined contribution* plans.

Defined benefit plans provide a specific benefit at retirement for each eligible employee. Upon retirement, the employee receives a set monthly payment for the remainder of his or her life, with the amount of the payment derived through a calculation that typically considers among other factors, an individual's years of service, final average pay and age at retirement. In a defined benefit plan, increases and decreases in the value of the plan's investments do not directly affect the benefit amounts promised to participants. Instead, gains and losses in the fund are absorbed by the employer and factored into the employer's annual expense calculation in accordance with financial accounting standards. Defined benefit plans may or may not involve a contribution by the employee and, historically, utility retirement plans (like those used by National Grid) have not required employee contributions.

Defined contribution plans function differently. Defined contribution plans specify the amount of *contributions* to be made by the employer toward an employee's retirement account, rather than defining the benefit that the employer is committed to pay to the employee during retirement. In a defined contribution plan, the actual amount of benefits provided during retirement depends on the amount of the contributions made during the employee's time with the employer, as well as the investment returns on these contributions. In a defined contribution plan, the employer establishes and administers a retirement fund (e.g., "401K" plan); but the fund is segregated into individual employee accounts. Participating employees are able to decide how the funds in their account are invested and any investment losses or gains are attributed to that account. The employee also has discretion over how the funds will be withdrawn in later years. Defined contribution plans commonly involve an employee contribution and/or matching payments by the employer. In a defined contribution plan, the employer's obligation is certain, and the investment risk associated with a traditional defined benefit pension plan is transferred to the individual employees based on their tolerance for risk.

Q. Which type of plan was traditionally utilized by utilities to provide employee retirement-related benefits?

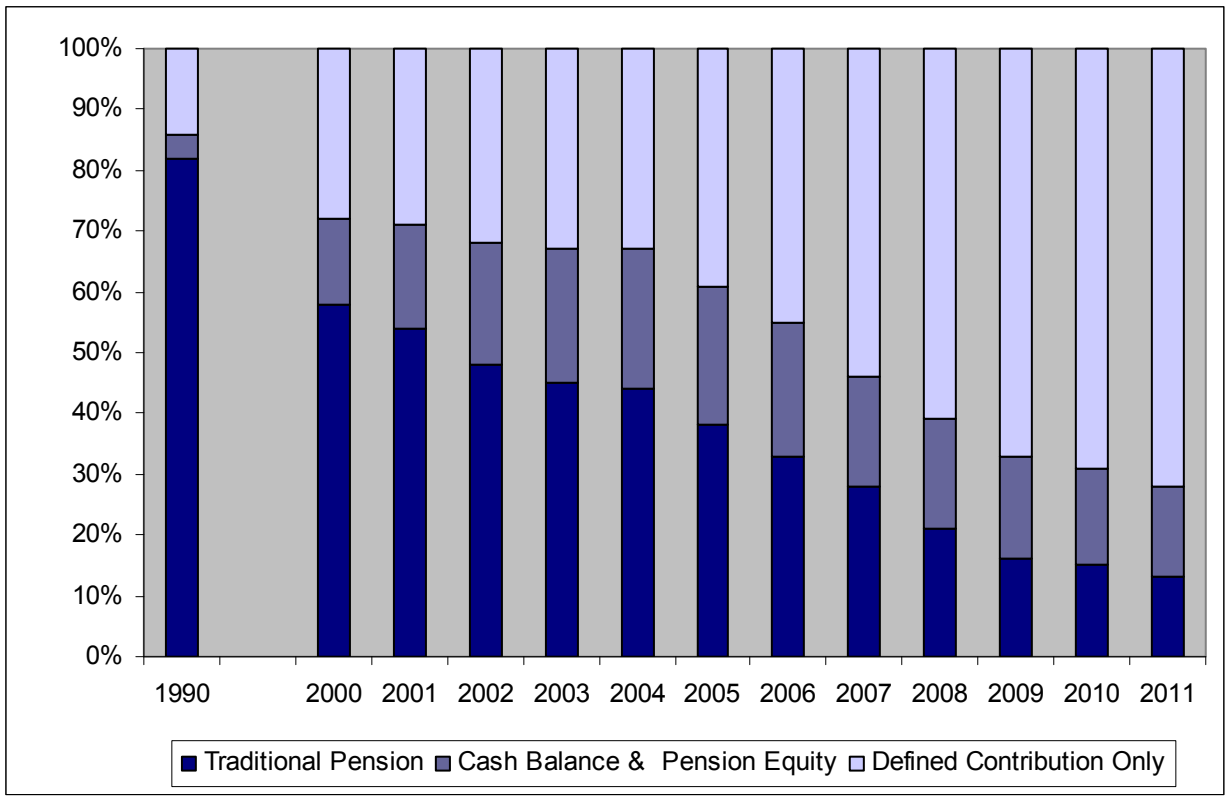
A. Traditionally, larger employers utilized defined benefit plans for their main retirement program, and until about 10 years ago, the use of defined benefit plans was prevalent in the utility industry. In the past 10 years, the prevalence of traditional defined benefit plans has declined, with employers typically transitioning to a "hybrid" structure utilizing

aspects of both defined benefit and defined contribution plans. Hybrid plans include cash balance and pension equity plans. A cash balance plan is a defined benefit plan that specifies the future benefit in terms of a stated account balance, which is characteristic of a defined contribution plan.[1] In a typical cash balance plan, a participant's account is credited each year with a pay credit (such as five percent of compensation) from his or her employer and an interest credit (either a fixed rate or a variable rate that is linked to an index such as the thirty-year Treasury rate). Increases and decreases in the value of the plan's investments do not directly affect the benefit amounts promised to participants (which is more characteristic of a defined benefit plan).

In recent years, many employers have transitioned from a hybrid model to a full-fledged defined contribution plan. Table 1, below, demonstrates the transition from defined benefit plans to defined contribution plans. The data in Table 1 is based on general industry and not just utilities.

[1] For example, assume that a participant has an account balance of $100,000 when he or she reaches age 65. If the participant decides to retire at that time, he or she would have the right to an annuity. The annuity might be approximately $10,000 per year for life. In many cash balance plans, however, the participant could instead choose (with consent from his or her spouse) to take a lump sum benefit equal to the $100,000 account balance.

Table 1: Prevalence of Retirement Plan Structures



Q. What are some of the reasons that employers have transitioned from the use of defined benefit plans to defined contribution plans?

A. There are a number of reasons that employers have made the transition from defined benefit plans to defined contribution plans. One of the practical reasons is to attract highly qualified employees in the current competitive marketplace. For example, a significant factor over the past 20 to 30 years has been the increased mobility of U.S. workers. Thirty years ago, it was common for employees to remain with a single employer for a majority of his or her working life, and certainly employees of utility companies would fall into this category. Defined benefit plans were characteristic of the

long-term relationship between an employee and an employer with the employer having the responsibility to manage and maintain retirement funds. In today's economy, contributions made by an employer into a 401K account are fully portable, which is a more attractive alternative for those entering the workforce as well as for experienced workers who may be considering a career switch. Today's workforce prefers the flexibility, so that if the employee decides to seek new employment, the retirement account balance can be transferred to the 401K of the new employer or into an individual retirement account ("IRA"). Defined contribution plans are also more attractive to today's employee because the results of the contributions made by the employer/employee are both immediate and fully transparent to the employee.

Q. Are there any other considerations involved in transitioning from a defined benefit plan to a defined contribution plan?

A. Yes. For employers, an important factor is expense (both the amount and the variability). In a defined benefit plan, investment gains and losses must be absorbed by the employer and are reflected in the annual expense calculation on an amortized basis in accordance with applicable financial accounting standards. With a defined contribution plan, investment gains and losses occur within an individual's retirement account rather than being absorbed by the employer. Thus, the employer's cost is limited to the annual contribution made to the fund it is administering on behalf of employees. Annual contributions are treated as a current cost and are expensed (or capitalized) on the employer's books in the year that the contribution is made; there is no fluctuation in

future expense due to changing market conditions. This is a critical difference, which eliminates the employer's investment risk, provides the employer with more predictability of future costs, and eliminates the variability of the expense. Hybrid plans offer similar benefits but to a more limited extent given that hybrid plans are defined benefit plans.

Q. Does the transition to defined contribution plans render the expense associated with defined benefit plans inappropriate or unreasonable?

A. No, it does not. The use of defined benefit and hybrid pension plans was standard operating practice for utilities for many, many years, and National Grid and the Company are obligated to fulfill their commitments to employees who were compensated through participation in those plans. Although employers may decide to transition to a defined contribution plan for *new* employees, applicable laws do not allow an employer to forego its existing commitment to employees who were extended retirement benefits through a defined benefit plan structure. In addition, applicable laws, regulation, and accounting rules do not provide employers with any material influence over the calculation of expense associated with defined benefit plans. The expense calculation is fully dictated by Financial Accounting Standard ("FAS") 87 for pension expense and FAS 106 for OPEB.[2] As I explain below, the FAS 87 expense calculation involves a number of components, but the variability of expense is primarily a function of two elements: the

[2] In 2009, the Financial Accounting Standards Board renamed FAS 87 and FAS 106 to Accounting Standards Codification 715, or "ASC 715", as part of the recodification initiative. For purposes of this testimony, we continue to use the traditional FAS 87/106 terminology to minimize confusion.

return on assets realized in the pension trust funds and the *discount rate* assumption used to calculate the present value of future payments to employees. These factors are not subject to cost-control strategies by National Grid or the Company and render the expense calculation highly susceptible to market conditions, thereby defining the magnitude of expense and causing substantial variability in expense over time.

Q. Does the unpredictability of the FAS 87 calculations carry forward to defined contribution plans?

A. No, it does not. The FAS 87 expense calculation pertains only to defined benefit plans and is not applicable to defined contribution plans. National Grid's opportunity to influence (and reduce) its costs associated with retirement benefits for employees exists only to the extent that a fundamental change in the plan structure (i.e., the plan provisions) is implemented, which as I explain below, National Grid has accomplished for new non-union hires. The opportunity to control defined benefit costs does not exist in relation to pension benefits that have already been earned by employees. The Company will have to continue to record on its books the cost associated with these past promises, until such time that all employees who participated in the Company's historical defined benefit plans have their full benefits paid from the Company.

Q. What type of structure is National Grid using to provide pension benefits to its employees?

A. Historically, National Grid used a traditional defined benefit plan structure to provide retirement benefits to both union and non-union employees, consistent with utility industry practice across the U.S. In 2002, National Grid transitioned to a hybrid structure utilizing a cash balance pension model for non-union employees. The traditional defined benefit plan was closed to new non-union employees starting after July 14, 2002. All new non-union employees joining National Grid after July 14, 2002 were eligible to participate in a cash balance pension plan, which is market competitive, but involves less cost than the traditional final average pay plan utilized by National Grid in the past. For the cash balance pension plan, National Grid's contribution takes the form of pay credits ranging from 4-8 percent of an employee's annual salary. In a cash balance plan, employees are not directing the investment, and therefore, gains and losses in the pension trust funds continue to be a factor in the annual expense calculation.

As of January 1, 2011, the defined benefit plan was closed to new non-union hires. All new non-union employees will now participate in a defined contribution plan, with the annual contribution required of National Grid based on an individual's age and service, but generally falling into the range of 4-8 percent of an individual's salary. Union employees continue to participate in a defined benefit plan, although National Grid has commenced the process to transition future union employees to the defined contribution model, which requires negotiation with the Company's collective bargaining units. Employees who retire from the Company in the future, but were hired prior to 2011, will

receive benefits from either the traditional defined benefit plan or the cash balance plan, as appropriate to the employee's specific circumstance.

Q. Is the situation similar in relation to OPEB and the calculation of expense under FAS 106?

A. Yes, relatively speaking. Similar to other companies, National Grid has gone through a number of changes with respect to other post-retirement benefits. Historically, National Grid provided the full financial support of retiree medical benefits to eligible retirees, consistent with industry standards. Over time, as standards have changed, National Grid has reduced its level of financial support that comes and now requires retirees to contribute toward the cost of these benefits. However, National Grid and the Company remain obligated to meet the commitments made to employees over their tenure in whatever form the employee was promised.

Q. Would you provide an overview of the changes that have occurred in relation to OPEB?

A. Prior to 1991, National Grid paid for 100 percent of the retiree medical and life insurance costs for eligible retirees. For those employees who became eligible for retiree medical coverage after 1990, they are required to contribute toward the cost of retiree medical coverage if they had less than 30 years of service at retirement. Over time, National Grid required new retirees to share more in the cost of retiree medical coverage. For example, non-union employees hired after July 1, 1992 who later became eligible for retiree

medical coverage are required to pay at least half of the cost for post-65 retiree medical coverage and pay a similar, pre-65, co-payment as current active employees.

The most recent change has been for non-union employees hired after 2011. For this group who later become eligible for retiree medical benefits, National Grid and the Company will pay a maximum of 50 percent of pre-65 medical coverage and, for post-65 medical benefits, will simply arrange for access to medical coverage. This means that retirees will need to pay 100 percent of the post-65 costs if they decide to join the retiree medical program and take advantage of the group premium rates. For new union employees, National Grid and the Company will pay a nominal amount for post-65 medical coverage ($4.50 per month for each year of service for single participants and $9.00 per month for each year of service for married participants). For pre-65 medical coverage, union retirees will pay the same co-payment as active union employees.

Q. How does National Grid's plans compare to other utility company plans?

A. In September 2008, Aon Hewitt conducted a study for National Grid comparing the pension and OPEB benefits offered by National Grid to new, non-union hires to the benefits offered to non-union hires by 15 other utility companies. This study determined that the value of National Grid's defined benefit pension plan was below the average value of the other 15 utility companies (89 percent of the average value for the other 15 utility companies). The value of National Grid's OPEB plan was above the average value of the OPEB plans for the other 15 utility companies (112 percent of average of the

other 15 utility companies). However, since the results of the study were produced, National Grid has changed its OPEB plan and significantly reduced the employer portion of the cost for new hires. As stated above, for non-union employees hired after 2011, and who later become eligible for post-retirement medical benefits, National Grid has limited its responsibility to the provision of medical coverage for employees over the age of 65 (without any employer contribution) and a 50-percent maximum employer contribution to medical coverage for retirees under the age of 65.

IV. Derivation of Pension Expense

Q. What are the rules and regulations that govern the derivation of expense in relation to defined benefit plans?

A. As I mentioned previously, the derivation of pension expense is governed by FAS 87 (and FAS 106 for OPEB). FAS 87 delineates the specific components of the expense calculation, while also prescribing certain parameters for the measurement of plan assets and obligations as part of that calculation. One of the main objectives of FAS 87 is to improve the transparency and comparability of reported pension costs from one company to another, and, therefore, FAS 87 is designed to establish a common standard for the actuarial methodology and calculation of expense.

The overall accounting principle underlying FAS 87 is that benefits are earned while an employee is working, and, therefore, the expense associated with those benefits should be incurred during an employee's working career. For purposes of calculating the expense,

benefits that are expected to be paid to the employee during retirement are "discounted" back to the measurement date using a discount-rate assumption to determine the present value of plan obligations. For pension plans, this present value is referred to as the Projected Benefit Obligation or "PBO."

Q. What are the specific elements of the expense calculation required by FAS 87?

A. Under FAS 87, the calculation of annual expense is defined as the "Net Periodic Benefit Cost/Income" for a specific period, which is usually a company's fiscal year. The Net Periodic Benefit Cost/Income is calculated using the following formula:

Net Periodic Benefit Cost =	
	Service Cost
Plus:	Interest Cost
Less:	Expected Return on Assets
Plus:	Amortization of Unamortized Items:
	Prior Service Cost (Credit)
	Actuarial (Gains) and Losses

The Service Cost is the cost of additional benefits earned by employees participating in the plan during the upcoming fiscal year. The amount of Service Cost represents the present value, or discounted value, of the additional benefits earned. For National Grid's non-union FAS 87 pension costs, this reflects benefits earned for non-union employees

hired prior to January 1, 2011 only. As described previously, the defined benefit pension plan was closed for non-union employees hired January 1, 2011 and later, so there is no Service Cost for that group of employees included for the proposed PAM.

The Interest Cost represents the interest on the past service obligation. Specifically, the interest cost for FAS 87 pension expense is the *increase* in the "Projected Benefit Obligation" or "PBO" due to the passage of time. Because the PBO is a present valued amount, determined as of the beginning of the fiscal year, the interest cost represents the interest on the PBO for that year. For example, if the PBO at the start of the year was $1,000 using a 5 percent discount rate assumption, then the PBO would grow to $1,050 by the end of the year due to the passage of time (excluding any adjustments due to service cost and benefit payments). Under this example, the interest cost is $50. Also, the interest cost calculation is adjusted to reflect the expected benefit payments to be made during the fiscal year for which the calculation is being made.

The Expected Return on Assets ("EROA") is the investment return expected to be earned on assets during the fiscal year and is based on the long-term return on assets assumption. In any one year, it represents the expected rate of return times plan assets, plus a return on the estimated contributions to the plan, less the return associated with anticipated benefits to be paid during the year. This component of expense serves as a reduction in expense. So the more a plan is funded, the lower expense will be.

The Amortization components of the calculation include the Prior Service Cost and Actuarial (Gains) and Losses. The *Prior Service Cost* is the change in PBO resulting from changes in the structure of pension benefits provided to employees. Changes in the structure of pension benefits (such as the transition from a traditional defined benefit plan to a cash balance plan) are referred to as "plan amendments" and there may be multiple "layers" of prior service costs resulting from multiple amendments over time. Prior service costs are amortized over the average remaining service period of employees.

The *Actuarial Gains and Losses* are the changes in PBO or assets resulting from experience which differs from that assumed within the calculation of expense. The gains and losses are also the product of changes in PBO resulting from plan assumption changes. Actuarial Gains/Losses are amortized over the average remaining service period of employees. Common examples of actuarial gains and losses are changes in the discount rate assumption and investment returns on plan assets that are greater or less than expected. FAS 87 allows for amortization of prior service costs and actuarial gains/losses because those changes can be substantial and an amortization allows employers to avoid having to recognize such large changes in a single fiscal year.

Q. Are there any other components of pension cost in the Company's proposal?

A. Yes. Narragansett Electric's pension costs include the amortization of a regulatory liability that was established when the Company was acquired by National Grid in 2000. This regulatory liability represented the amount of net actuarial gains that had not been

recognized on the date of acquisition, but needed to be reflected as an ongoing reduction to pension expense. Similarly, Narragansett Gas', which was acquired in 2006, is amortizing a regulatory asset reflecting actuarial losses that existed at the date of acquisition.

Q. Within the expense calculation, what are the particular elements that drive the variability of annual expense?

A. There are two key elements that drive the magnitude and variability of annual expense for FAS 87 calculations, and neither of these elements is subject to the control of National Grid. These two elements are the actual return on plan assets and the discount rate assumption that is used to calculate the present value of future payments to employees. These two elements are reviewed and subject to change each year when pension cost is calculated. However, neither of these key elements is subject to the control of National Grid.

Q. On what basis do you conclude that the actual return on plan assets is not subject to the control of National Grid?

A. As described previously, a component of pension costs is the expected return on assets. In any one year, it represents the expected rate of return times plan assets, plus a return on the estimated contributions to the plan, less the return associated with anticipated benefits to be paid during the year. However, the actual return on assets will differ up or down from the amount of expected returns, sometimes significantly. National Grid's

pension trust funds are invested in various financial securities and future asset returns are a function of the financial market place. Therefore, when financial markets experience up or down swings, the value of pension assets is unavoidably affected in the same manner. National Grid does not have control over how the economy and financial markets move from year to year.

Furthermore, investment risk and market volatility cannot be avoided through an investment strategy that is highly conservative without immediately increasing costs to customers. National Grid could make the decision to move its pension investments completely out of the equity market and into fixed-income, which would reduce the variability of asset returns. However, an investment change of this type would result in an increase in future pension expense because the expected return on assets assumption would need to be lowered as a result of the investment shift to fixed income. Thus, while a change in investment strategy to reduce equity investments would lessen the variability of asset returns, this change would result in an immediate and significant increase of FAS 87 expense for customers. To put some context around this, pension costs are calculated with a long-term expected return on assets assumption of 7.25 percent. If National Grid were to change its investment mix to a more conservative investment portfolio that reduced the long-term return assumption by 1.0 percent, pension and OPEB costs for the New England plans during the fiscal year ended March 31, 2012 would have increased by approximately $17.6 million (a portion of which would be reflected in pension and OPEB costs for the Company's electric and gas businesses).

Q. How is the EROA assumption selected? Does the EROA change frequently?

A. The EROA assumption is determined based upon the investment mix of the pension trust. The overall EROA assumption is a weighted average of each asset class and the corresponding long term expected return for that asset class. Because this is a long-term assumption, the overall EROA assumption is not expected to change much from year to year, although the assumption is reviewed each year. Because the long-term expected return for equities is higher than the long-term expected return for fixed-income securities, the greater the amount of pension assets that an employer invests into equities, the higher the EROA assumption. However, by investing more into equities, the employer also takes on more investment risk, which in turn leads to greater variability in future asset returns. It should be noted that effective March 31, 2012, the EROA assumption was reduced from 7.75 percent to 7.25 percent due to a change in the long-term capital market outlook.

Q. On what basis do you conclude that the discount rate assumption is not under the control of National Grid?

A. As the administrator of its defined benefit plans, National Grid "selects" the discount rate assumption each year. However, National Grid does not have the discretion to select any discount rate that it likes for the purpose of calculating annual pension expense as required by U.S. generally accepted accounting principles. The discount rate assumption must be updated at least annually and is used to determine PBO and the annual interest cost component of pension expense. Unlike all other assumptions used to determine

pension costs, which are all long-term assumptions, the discount rate assumption is the only assumption that is changed frequently (i.e., at least annually). FAS 87 contains requirements that govern the selection of the discount rate assumption. Specifically, FAS 87 requires the use of a discount rate that represents the rate at which obligations to employees could effectively be settled on the measurement date (i.e., the date the discount rate is selected). FAS 87 further requires that, in identifying this rate, employers must rely on rates of return currently available in the marketplace for high-quality fixed-income investments, which means that the discount rate must be based on specific fixed income (bonds) available in the marketplace as of the measurement date, which for National Grid is the fiscal year-end of March 31 of each year. In 1993, the Securities Exchange Commission clarified the meaning of "high quality fixed income investments" to be securities that receive one of the two highest ratings given by a recognized rating agency (e.g., Aa or higher bonds rated by Moody's). This requirement substantially constrains the discount rate that National Grid may properly use for its pension expense calculation because it ties the selection of the discount rate to corporate bond yields available in the marketplace as of March 31, which are rates that are fully outside the control of National Grid.

Moreover, given that the discount rate assumption has a substantial impact on the annual pension expense level, the annual re-selection of the discount rate is closely scrutinized by National Grid's independent auditors. Independent auditors must confirm that employers have a specific methodology in place for selection of the discount rate

assumption, and one which is fully consistent with the financial accounting standards requirements. As a result, there is no material level of latitude that is afforded to National Grid in relation to this element of the expense calculation.

Q. Are there other assumptions that must be made, which can affect the calculation of expense?

A. Yes. Other variables factor into the expense calculation including projections of compensation increases, retirement age, withdrawal rates, mortality, medical trend increase (retiree medical plans), medical claim costs (retiree medical plans), participation rates, and disability rates. However, these assumptions are not typically changed each year and thus do not have a similar impact on expense variability as the discount rate assumption and asset returns. Changes to these assumptions generally have a much smaller effect on expense compared to the discount rate and EROA assumptions.

Q. What is the process for establishing assumptions?

A. Each year-end, National Grid reviews the plan assumptions with its actuary to determine whether any changes should be made. The process for selecting the discount rate assumption and expected return on asset assumption was outlined earlier. Other assumptions considered by National Grid are market data, plan experience, and company changes to determine whether any adjustment should be made.

Q. What is the annual valuation?

A. The annual valuation is the process of updating the census data for plan participants, updating assets, and updating assumptions in order to re-measure plan obligations, determine the plan's funded status, and to calculate the annual FAS 87 expense. As part of updating the census data, a significant number of data checks are performed to ensure the data received from National Grid reconciles to the previous year. Examples of data checks are making sure there are no missing records, benefit amounts, pay and/or dates.

Q. Are there funding requirements that may also have an impact on the magnitude and variability of pension expense?

A. There is an entirely separate set of rules that pertain to the funding of pension plans, and FAS 87 has no bearing on the determination of funding requirements. Prior to 2006, funding requirements were established by Employee Retirement Income Security Act. In 2006, the U.S. Congress passed the Pension Protection Act of 2006 ("PPA"), which establishes the minimum required and maximum deductible contribution levels for respective pension plans. Employers have the choice to contribute at any level between the minimum and maximum amounts. In general, the minimum required contribution is equal to the present value of the additional benefits earned during the plan year, plus, a seven-year amortization of any funding shortfall (i.e., plan obligations less the value of plan assets). Also, the funding rules put forth certain restrictions and filing requirements if a plan becomes less than 80 percent funded. And if a plan becomes less than 60 percent funded, the plan cannot provide any further benefit accruals to employees. It

should be noted that the PPA applies only to pension plans and does not establish funding requirements for OPEB plans.

Q. Are benefits paid directly from National Grid to retirees?

A. National Grid has established trust funds to pay for retiree benefits. The use of trust funds is required for the qualified pension plans, and National Grid must contribute at least the annual minimum required contribution amount as set forth under the Pension Protection Act of 2006. Although there are no required minimum contribution amounts in relation to OPEB, National Grid has also established Voluntary Employee Benefit Association ("VEBA") trust funds to fund its OPEB obligations (National Grid's VEBAs were established pursuant to Internal Revenue Code Section 501(c)(9)).

Q. What roles do actuaries play in the process to calculate pension expense, from a general perspective?

A. Actuaries assist with the annual valuation of the pension plans. In that regard, two separate pension valuations are performed each year for the National Grid plans. Specifically, a funding valuation (governed by the Pension Protection Act rules) and an expense valuation (governed by the FASB rules) are completed by each plan's actuary (the annual expense valuation was described previously). Among other things, the funding valuation determines the funded status of the plan, the minimum required contribution, and the maximum deductible contribution. The actuary uses the funding results to report specific information within the annual IRS Form 5500 filing and must

certify the information is accurate and that each assumption used is reasonable. The expense valuation also determines the funded status of the plan as well as the expense or income that must be reported on the employer's financial statement. Because each of these valuations is overseen by different governing bodies, the results for funding and expense inevitably differ. Actuaries also assist in other areas such as with the design of plans, non-discrimination testing of plans, and union negotiations.

Q. If Company employees are participating in a consolidated pension plan, how is pension expense determined for the Company?

A. Because annual expense under FAS 87 is calculated at the plan level (i.e., the consolidated level), National Grid must apportion the annual expense attributable to the Company and other National Grid affiliates. This calculation is different for each component of expense. For example, because the service cost is determined separately for each individual employee participating in the plan, each company's service cost represents the sum of the individual service costs for employees of that company. By comparison, interest cost is apportioned by first determining the plan's PBO among each company (plan obligation is determined separately for each individual employee) and then calculating the interest associated with the obligations of each respective company. The expected return on assets is allocated in proportion to each company's overall share of the PBO because plan assets are not tracked separately by company. The amortization of prior service costs is determined and tracked by company. Lastly, as is the case with

the expected return on assets, the amortization of actuarial gains and losses are apportioned in proportion to each company's share of the PBO.

V. Basis for the Proposed PAM

Q. In your opinion, why is this mechanism warranted?

A. In my opinion, the Company's proposed PAM is warranted for two main reasons. First, the actual cost of pension and OPEB is not known during the working years of an employee and for many years after an employee retires. Thus, the exercise of projecting what the actual cost will be in the future is a prolonged process (occurring over many years prior to the employee's retirement and post-working life), during which there are limited opportunities for the Company to affect the cost calculation. Second, during this time, there is a high degree of certainty that market conditions will change, thereby driving variability in the expense that must be realized by the Company for financial reporting purposes. Such market conditions leave the Company with little flexibility to control its annual expense beyond the implementation of long-term structure changes in how pension benefits are provided to employees, which National Grid has done. My understanding of the ratemaking process is that, without the PAM in place, the rate year expense level would be locked into base distribution rates as part of the cost of service. This approach may be reasonable where financial markets are very stable over relatively long periods of time. However, in the past 10 years, National Grid has experienced a high degree of market variability, and this variability may very well continue for the foreseeable future. The implementation of the PAM will ensure that the Company is

given a reasonable opportunity to recover the cost of its pension/OPEB plans, without putting customers in the position of supporting a fixed amount in rates that may or may not be a reasonable representation of the Company's expense level in any given year. Furthermore, customers are exposed to the risk of compensating the Company at a level that is higher than actual pension or OPEB expense should market conditions improve and subsequent costs are lower.

Q. Is it your understanding that the PAM would collect all of the Company's costs associated with pension/OPEB plans?

A. No, that is not the case. The PAM is designed to recover the Company's annual expense, as calculated in accordance with FAS 87 and FAS 106. The annual expense derived through the FAS 87 and FAS 106 calculations pertains *only* to the Company's historical defined benefit plans. As I explained above, National Grid has restructured its non-union pension plans and the costs of the defined contribution plans do not fall within the ambit of the FAS 87 and FAS 106 expense calculation. Contributions made during a fiscal year in relation to the defined contribution plans are treated as a current cost and are expensed on the Company's books in the year the contributions are made. These costs are far less variable and are fully subject to the Company's control. Therefore, these costs are reasonable and appropriately recovered through base rates, consistent with the Commission's ratemaking principles. It is only the more volatile expense, associated with the historical pension/OPEB benefits that would be subject to recovery through the PAM.

Q. On what basis are you concluding that FAS 87 and FAS 106 expense is characterized by a relatively high degree of variability?

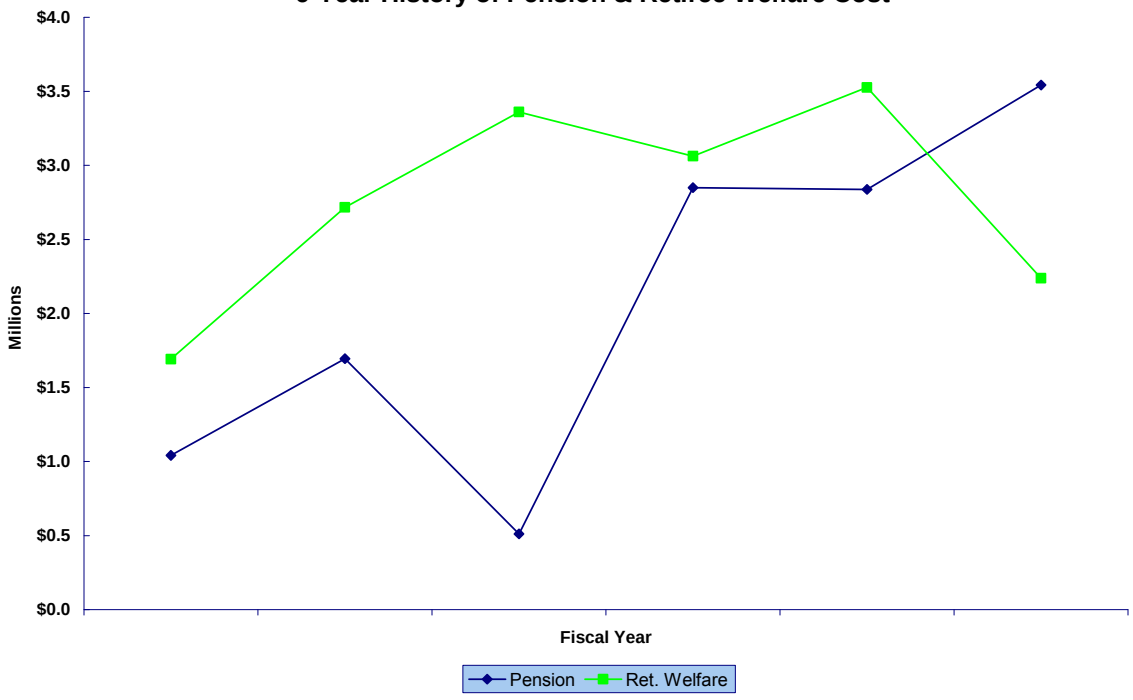
A. The chart below plots the Company's actual FAS 87 and FAS 106 expense associated with the defined benefit plans for union and non-union retirees. Please note that the impact of any one-time accelerated charges associated with early retirement programs, curtailments, and settlements are excluded from this analysis. Including these types of charges would show even greater variability of expense from year to year.

National Grid USA - Narragansett Electric Plans
10 Year History of Pension & Retiree Welfare Cost

Period	Narragansett Electric Pension Expense	Percentage Change	Narragansett Electric Retiree Welfare Expense	Percentage Change
4/2011-3/2012	9,104,049	1.31%	6,498,986	-22.32%
4/2010-3/2011	8,985,932	26.94%	8,366,164	9.67%
4/2009-3/2010	7,078,680	290.02%	7,628,505	24.61%
4/2008-3/2009	1,814,954	-53.60%	6,122,023	-2.73%
4/2007-3/2008	3,911,731	-8.41%	6,293,760	-14.20%
4/2006-3/2007	4,270,741	-6.85%	7,335,430	-1.87%
4/2005-3/2006	4,584,827	17.67%	7,474,854	8.60%
4/2004-3/2005	3,896,420	14.04%	6,882,712	-40.36%
4/2003-3/2004	3,416,678	-213.89%	11,540,387	157.66%
4/2002-3/2003	-2,999,871	-22.59%	4,478,969	111.03%
4/2001-3/2002	-3,875,381		2,122,383	

1

National Grid USA - Narragansett Gas Plans
6-Year History of Pension & Retiree Welfare Cost



*Note: Narragansett Gas was acquired by National Grid during 2006

2

National Grid USA - Narragansett Gas Plans
10 Year History of Pension & Retiree Welfare Cost

Period	Narragansett Electric Pension Expense	Percentage Change	Narragansett Electric Retiree Welfare Expense	Percentage Change
4/2011-3/2012	3,542,396	24.86%	2,238,218	-36.52%
4/2010-3/2011	2,837,015	-0.41%	3,526,141	15.13%
4/2009-3/2010	2,848,690	456.97%	3,062,618	-8.86%
4/2008-3/2009	511,465	-69.82%	3,360,420	23.72%
4/2007-3/2008	1,694,446	62.70%	2,716,112	60.61%
4/2006-3/2007	1,041,425		1,691,148	

As demonstrated by the data listed above, FAS 87 pension expense has ranged from approximately $3.9 million of income (in fiscal year 2002) to approximately $9.1 million of expense (in fiscal year 2012) for the Company.

Currently, FAS 87 expense is at the highest level ever, which is a status that may or may not continue over the next few years. Given the substantial magnitude of this expense, including an average level of FAS 87 expense in rates may have the effect of locking in substantial under-recovery of this expense, which is not consistent with accepted ratemaking principles. By comparison, implementation of the PAM will provide the Company with a reasonable opportunity to recover the cost of this significant expense, while precluding a situation where a relatively high amount is locked into base rates, but the expense reduces from that level after the setting of rates.

In addition, it should be noted that the FAS 87 and FAS 106 accounting calculations favor a well-funded plan, meaning that annual expense is less, all else being equal, where

a plan is well-funded. The Company has established a practice of contributing the full amount of any expense amounts that are recovered from customers through the PAM that is currently in effect for the gas operations to the pension funds. With the extension of the PAM to electric operations and the impact of the Infrastructure, Safety and Reliability capital reconciliation mechanism allowing for recovery of FAS 87 and FAS 106 expense for electric and gas operations, the Company would continue the practice so that the expense proceeds recovered through the PAM work directly to maintain the funded status of the pension/OPEB plans subject to FAS 87 and FAS 106 expense calculations.

VI. Conclusion

Q. Does this conclude your testimony?

A. Yes, it does.

Testimony of
Evelyn M. Kaye

DIRECT PRE-FILED TESTIMONY

OF

EVELYN M. KAYE

Table of Contents

I. Introduction and Qualifications

Q. Please state your full name, business address and title.

A. My name is Evelyn M. Kaye. My business address is 300 Erie Boulevard West, Syracuse, NY 13202. I am Vice President, Transactions Delivery Centers for National Grid USA Service Company, Inc., a subsidiary of National Grid USA ("National Grid").

Q. Please describe your educational background and professional experience.

A. I received a B.S. in Business Administration from Siena College in 1988 and an M.B.A. from LeMoyne College in 1998. In 1988, I joined Niagara Mohawk Power Corporation, a National Grid subsidiary company acquired in 2002, as a meter reader. I have held various positions in customer service, system design, operations, finance and strategic planning prior to my current position with National Grid.

Q. Please briefly describe your current areas of responsibility for National Grid.

A. As Vice President of the Transactions Delivery Centers ("TDC"), I am responsible for the following company functions in the United States: billing operations, procure-to-pay, payment processing, employee services, and credit and collections.

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

A. No, I have not.

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe how The Narragansett Electric Company (the "Company") manages its uncollectible accounts for electric and gas operations, its proposal for recovery of electric and gas delivery and commodity-related uncollectible accounts expense, and its request for recovery of low-income programs.

III. Uncollectible Accounts Experience

Q. Are you familiar with the Company's experience with regard to uncollectible accounts expense and its efforts to mitigate this expense?

A. Yes. The uncollectible accounts expense incurred by the Company each year is a significant focus of my attention, as are the Company's efforts to mitigate this cost. The Company devotes significant resources to ensure that customers are properly and timely billed for their usage of natural gas and electricity – and that once billed, those amounts are collected in a timely manner. At the same time, the Company must carefully balance its desire to minimize the level of uncollectible accounts with concerns regarding it customers' financial health and

safety, which are reflected to a large extent in the Commission's own customer protection regulations.

Q. Please summarize the Company's uncollectible accounts expense over the past few years.

A. The Company's overall level of uncollectible accounts expense for gas and electric is reflected in the ratio of net write-offs to total revenue. The rate for each year is derived by dividing the Company's net write-offs by its total billed revenues. The net write-offs consist of gross write-offs less recoveries during the year from accounts that were previously written off.

The Company's uncollectible accounts expense over the past few years mirrors the price fluctuations of commodity costs, but on a lagged basis. Gas commodity prices rose significantly for much of the first decade of the millennium. Similarly, electric supply prices, influenced to some degree by the cost of natural gas because the supply is generated largely from gas-firing generating facilities, also rose. This factor combined with an overall increase in demand has had an unfavorable impact on electric uncollectible accounts prior to 2009. Since that time, both electric and gas commodity costs have dipped considerably leading to corresponding reductions in both the uncollectible rate and uncollectible expense.

Q. What has the Company's net write-off experience been in recent years?

A. The rate of normalized net write-offs as a percentage of revenues and the normalized net write-off amounts for the prior three calendar years are as follows:

	Electric Net Writeoffs	Amount
2009	1.51%	$13,701,691
2010	1.22%	$10,698,705
2011	1.32%	$10,618,527
	Gas Net Writeoffs	**Amount**
2009	4.10%	$19,431,198
2010	3.21%	$15,533,796
2011	2.68%	$11,614,777

Schedule EMK-1 shows the derivation of these amounts along with the commodity and delivery specific data.

Q. What do you mean when you refer to the net write off percentages and amounts as being "normalized"?

A. During calendar year 2009, the Company discovered that approximately $6.2 million in final bills to the Company's gas customers did not properly flow to write-off status per system requirements. Some of these amounts were related to write-offs for prior calendar years. These final bills were manually forced into a write-off status during the last quarter of 2009. Of the $6.2 million, the Company determined that approximately $2.2 million should have been written off prior to

2009. Thus, the gas amounts above, along with those reflected in Schedule EMK-1, have been adjusted so that an additional $1.5 million in net write-offs are included within calendar year 2008 and $708 thousand in net write-offs are reflected in calendar year 2007. The Company further concluded that the remaining $4 million of the $6.2 million of gas final bills should have processed to write-off status in the early 2009. Therefore, this $4 million was left within the 2009 data.

Q. Does this mean that the calendar 2009 gas uncollectible rate is lower because of these adjustments?

A. Yes. The $2.2 million in gas net write-offs were appropriately moved to prior periods, lowering the 2009 net write-offs and, therefore, the 2009 net uncollectible rate.

IV. Factors Affecting Uncollectible Accounts Expense

Q. What external factors influence the Company's electric and gas uncollectible rates?

A. The Company's level of uncollectible accounts is affected by several factors, many of which are outside the Company's control. Fluctuating commodity costs and unpredictable weather events greatly contribute to the change in the net-write off amounts. Gas and electric commodity prices have been volatile during most of the last decade -- with Gas Cost Recovery ("GCR") rates peaking at the end of

2008 along with electric supply costs, which reached a high point in the second half of 2008. Since then, commodity costs have gradually decreased. Moreover, Rhode Island has also just come out of a winter (2011 – 2012) that was historically mild. These weather and commodity cost trends are reflected in the write-off levels, but on a lagged basis. Schedule EMK-2 contains a chart which overlaps the GCR rates from the winter periods to the net write-off amounts at the end of the succeeding cut season.

Volatile supply prices are an important element in the unpredictability in the uncollectible rate because they represent a significant portion of a customer's bill. Schedule EMK-2 and Schedule EMK-3 indicate the relationship between GCR rates/electric Standard Offer Service ("SOS") rates and the net write-offs that occur the following cut season. Furthermore, severe or mild weather (such as that experienced this past winter) will cause a rise or dip in the Company's total billed revenue. However, because the Company is still working with customers in arrears from the previous year, the net write-off rate could rise in the near term as the denominator (revenue) declines because of the mild winter. Alternatively, severe weather and higher commodity prices will drive up revenue but the net write off rate could drop next year in 2013 as the amounts eventually written off reflect lower bills from this past mild winter of 2011 – 2012.

Q. Does the Company expect to experience a lower uncollectibles rate going forward?

A. Not necessarily. Although the decline in energy prices may ultimately have a moderating effect on the level of write-offs as I indicated above, the uncollectible rate is also affected by weather and commodity influences on revenue, which in part comprise the denominator within the net write-off rate. Moreover, the Company is cautious that the severity of the current recession, along with the steady unemployment rate that has accompanied it, may continue to counteract any beneficial impact on the Company's uncollectible expense that may result from a recent decline in commodity prices. There is also no guarantee that the recent moderation in commodity prices will continue for a significant period.

Q. Are there any other external factors that affect the Company's ability to mitigate the level of write-offs it has experienced?

A. Yes. Certainly, the economic environment in Rhode Island has an impact on the level of collections achieved by the Company in any given year. The effect of the recession in Rhode Island and throughout the country creates significant upward pressure on the level of uncollectible accounts. The Company faces a particular challenge in Rhode Island because the unemployment rate locally is far worse than the national average. Schedule EMK-4 illustrates the unemployment rate in Rhode Island (as indicated by the data from the US Bureau of Labor Statistics). The severe spike in the unemployment rate within this exhibit for the last three

years is fairly evident. The national unemployment rate for 2011 was 8.5 percent compared with Rhode Island unemployment rates that hovered around 11 percent. With the substantially high and steady unemployment levels that Rhode Island has experienced, the reality is that even middle income families may have a difficult time paying their utility bills.

The Company's commercial and industrial customer service representatives have also seen clear evidence that the weak economy is negatively affecting business customers. A number of the more significant business customers in the Company's service area have reduced operations or closed facilities. One can reasonably conclude from this that more businesses than usual will be operating close to the edge of financial survival, and therefore will have a difficult time meeting their financial obligations, including utility bills.

Other factors outside the Company's control, besides those previously discussed, that can influence the uncollectible rate are: rising gasoline and health-care costs; the regulatory environment; and Low Income Home Energy Assistance Program ("LIHEAP") availability as well as the level of other government assistance designed to help alleviate economic hardship.

Q. Can the Company elaborate on how the regulatory environment can affect uncollectible accounts?

A. Certainly. As stated earlier, the Company has always looked to strike that balance between minimizing costs to customers – by minimizing uncollectible accounts via effective collection efforts and strategies – and showing concern for customers' financial health and safety. The Company is extremely sensitive to the fact that electric and gas service is a public necessity and that public-interest considerations must be taken into account in relation to service initiation, shut-off and restoration requirements. As an example, in the face of the devastation caused by Tropical Storm Irene in August 2011 and the October 2011 snow storm, the Company agreed to suspend outbound calling and field collection activities throughout the Company's service area. These events delayed action on overdue accounts, thereby increasing the Company's accounts receivable. The timing of these events pushed these higher receivables into the moratorium period on winter cuts. When field collection action resumes in the spring, the Company expects to experience higher write-offs than it would have experienced had the events not occurred and the accounts had been addressed in a more timely manner. Similarly, the Company's collection activities in the prior year were affected by the extended winter protection period for termination of electric and gas services out to May 1 from the traditional period of November 1 through April 15. This also increased the Company's accounts receivable.

Q. Please explain how the winter shut-off protection periods affected the level of write-offs.

A. Extending the winter protection period for the 2008-2009 moratorium season had at least two significant effects on the Company's level of electric and gas write-offs. First, it limited the collection activities that the Company could undertake which, over the long-run, reduced the effectiveness of the Company's collections efforts and tended to increase the level of write-offs. Second, an extension of the winter protections allows account balances to grow to greater levels than they normally would have been. In turn, this results in higher write-off balances later in the year.

Q. Please explain how LIHEAP and the availability of other government assistance can influence uncollectible accounts.

A. The amount of funds accessible by the Company's customers for LIHEAP is subject to Congressional approval each year. The availability of LIHEAP contingency grants can be particularly volatile each year. As an example, for the 2011-2012 LIHEAP season, the amount of grant dollars allocated for Rhode Island customers was 25 percent less than that for the preceding winter of 2010-2011. Fortunately, this lack of funding was partially offset by lower electric and gas bills due to the mild winter of 2011-2012.

The availability of other types of federal and state assistance allows customers to more effectively manage their household budgets. If these funds or programs are

curtailed, choices have to be made that could affect the payment of a customer's utility bills.

Q. Will the January 1, 2012 implementation of the LIHEAP Enhancement Plan Charge mitigate the Company's uncollectible experience?

A. All other things being equal, the funds generated from this charge will benefit customers who the Office of Energy Resources determines, through its processes, are eligible for LIHEAP assistance grants, although other factors such as the level of federal LIHEAP funding have the potential to counteract the anticipated benefit.

Q. Are there any other regulatory issues that could influence the Company's uncollectible accounts expense?

A. Currently, there is a proposal to promulgate an enhanced gas marketing program in Rhode Island. It remains to be seen how this will impact uncollectible accounts expense, but there is a possibility that the gas marketers will offer their services to the Company's better paying customers. This could adversely impact the Company's uncollectible rate.

V. <u>Overview Of Collections Process</u>

Q. Please describe how the Company manages its collections process and seeks to minimize its uncollectible accounts expense.

A. The Company uses a full suite of collection activities and strategies from outbound calls to field visits and, ultimately, service termination for non-payment. To determine the appropriate collection strategy for each customer risk group, the Company takes a sophisticated, flexible approach, rather than following a one-size-fits-all approach. The most widely used strategy is the Portfolio Management Package ("PMP"), which analyzes and scores each customer's past payment behavior. Using PMP, the Company develops a tailored treatment plan for each customer. Other strategies to collect receivables on accounts with outstanding arrears include: increased review and support for accounts coded as elderly or handicapped; the new "Lockbox Program," which ensures accurate collection and payment information; and increased field visits to multi-family homes where the Company cannot access meters for service terminations. After exhausting these strategies, the Company will file a lien against delinquent customers to mitigate uncollectible accounts expenses.

Q. Please describe the PMP.

A. In the PMP, the Company evaluates the account and customer characteristics of each customer that is in arrears and scores the account using a behavioral scoring model. The output from the model assists the Company in determining the appropriate collection actions based on the customer's past payment behavior. Customers are divided into five risk groups, with each group being assigned a treatment path determined to be the most likely to be successful in the most cost-

effective manner. In prioritizing the accounts in the portfolio, the Company seeks to identify lower risk customers that will likely self-cure and higher risk customers that are likely to require more assertive treatment pathways. That way, an appropriate response is put in place for a customer who is late for the first time, as opposed to one who has paid late on many occasions, or for a smaller account than for a larger account. There are many factors that influence how the Company responds to address a given arrearage, but the process attempts to gear the response to the specific circumstances of the individual customer. This process of analyzing/scoring accounts and determining a collection strategy geared to that account is repeated each month, with priorities being set and follow-up steps determined. The approach attempts to employ the most cost-effective steps are taken to address the Company's overall collections portfolio.

In addition to the specific steps in the collections process, the Company strives to communicate to its customers all the programs that are available to assist lower income customers with paying their bills. This assistance is particularly important in the current economic conditions because there are many customers who are newly unemployed and are unfamiliar with the assistance programs that are available. In addition, the Company's collection strategies are continually reviewed using a "champion/challenger" methodology. The preferred collection approach for a given customer risk group is referred to as the "champion." To test whether a particular champion strategy is in fact the most effective approach,

periodically a portion of the accounts with particular risk attributes are selected and a different approach (or "challenger") is applied. The results are reviewed at the end of the quarter, and, if the challenger approach proves more effective in generating collections, it is adopted more broadly.

Q. Please describe the results of the PMP strategy in mitigating uncollectible expenses since 2009.

A. At the inception of the PMP strategy, which was first applied to electric accounts in June 2009, the behavioral scoring and subsequent collection activities resulted in lower delinquencies. The impact of decreasing delinquent accounts, however, was at its greatest when PMP was first implemented. Over time, the effect of PMP on arrears stabilized. Although National Grid does not have statistics specific to Rhode Island, National Grid has found that electric accounts across the U.S. operation, which were sixty days overdue, have decreased roughly six percent since March 2009.

Q. Please describe changes in accounts coded as elderly or handicapped to avoid service termination.

A. In an effort to mitigate uncollectible accounts expense, the Company has increased monitoring efforts for accounts coded as elderly or handicapped with outstanding arrears. In contrast to past practice, the Company filed termination petitions for these accounts during non-moratorium months when terminations

could be executed. Now, the Company avoids terminations at the end of the moratorium by notifying the Division of Public Utilities and Carriers (the "Division") throughout the year, requesting that service be terminated for non-payment. The increased termination petition filings provide necessary attention to protected large-balance accounts while pre-petition procedures encourage customer action to address the outstanding arrears. In most cases, the customer avoids termination if he or she enrolls in a payment arrangement with the Company. In 2011, the Company filed 238 electric and gas service termination petitions for accounts coded as elderly or handicapped with the Division. With increased monitoring and ramped up engagement efforts, roughly 50 percent of customers involved in the petitions began a payment plan. As a result, the Company provided continued service for 124 of the 238 petitioned accounts.

Q. Please describe the "Lockbox Program."

A. Beginning in September 2010, the Company implemented the Lockbox Program for its electric and gas customers. The Lockbox Program is aimed at reducing administrative costs when a customer submits a bad check. Using a third party vendor, the Company identifies customers who have had at least two returned checks in the past year. These customers are then coded as "Cash Only Customers." If these identified customers attempt to submit a check, the Company immediately rejects the payment at the "lockbox" and notifies the customer that payment has not been accepted. This process reduces instances of

kiting, meaning notification from a bank that a check payment has been returned weeks after having posted the payment. The Lockbox Program minimizes interruption to normal collection treatment and reduces the need for manual intervention for collection or payment processing purposes. In the infancy of this program, for the 12 months ended March 2012, 747 check payments of electric and gas customers were rejected at the lockbox. Benefits of this program included avoided processing costs, avoided uncollected bounced check fees, and a small amount of additional collections from April 2011 through March 2012 of at least $150,000 for both electric and gas customers.

Q. Please describe efforts to mitigate uncollectible accounts expense when the Company cannot access the customer's electric meter.

A. The Company designed new measures to mitigate uncollectible accounts expense from electric customers living in multi-family homes where Company field representatives can neither successfully contact the customer nor access the meters. When the Company is unable to gain access to terminate service to a unit(s) for non-payment, the Company will post the building with a letter, giving the delinquent customer(s) ten days to respond. The Company implemented this practice, which is in compliance with the Commission's termination rules, in 2011. In 2011, 314 buildings receiving electric service were posted. Customer response to the posting resulted in 102 payments totaling $157,864. It is

important to note that this practice was implemented after the 2011 cut season began and therefore is not reflective of a full year of experience.

Q. Please describe other strategies that the Company employs to mitigate uncollectible accounts expense.

A. Part of the Company's account management practice consists of its outbound calling strategy. Combinations of automated self servicing interactive voice messaging and live agent direct calls are employed to contact delinquent customers. Call campaigns for gas and electric customers include but are not limited to: early reminder calls; defaulted payment agreement calls; defaulted collection arrangement; residential disconnect notice; post-disconnect notice; and final bills.

Q. Is the Company engaged in any other activity to mitigate uncollectible expense?

A. After exhausting the collection strategies described above, the Company will file a lien against a delinquent customer if either the customer's electric or gas balance is above $5,000. Since 2009, the Company began the pre-lien process on 467 accounts, with only 36 cases (7.7 percent) progressing to a lien filing. The Company began tracking the effectiveness of this process in 2010.

Q. Will the Company explore other strategies to collect on accounts with arrears?

A. Yes. First, the Company plans to refine its service termination procedures for serious illness customers to further identify core sensitive populations. Serious illness customers are protected from service termination for one full-year. The Company is taking steps to create guidelines that clearly distinguish seriously ill customers from handicapped customers, allowing the Company to tailor the protection period based on need. Second, similar to the initiatives of the Company's affiliates in other states, the Company plans to require deposits for electric and gas short-term residential customers with lease terms of less than one year. Again, any of these enhanced collection practices will be accomplished in full compliance with Commission termination rules.

VI. Proposal for Recovery of Uncollectible Accounts Expense

Q. What is the Company's proposal for the recovery of its delivery and commodity-related uncollectible accounts expense?

A. Net write-offs arise from the inability to collect both delivery and commodity accounts receivables. The Company proposes to recover forecasted uncollectible accounts expenses associated with its delivery revenues in base distribution rates (for electric) and base delivery rates (for gas). The Company proposes to recover delivery revenues at the three-year aggregate net write-off rate of 1.35 percent of

revenue for electric and 3.35 percent of revenue for gas for the reasons discussed below.

Furthermore, the Company is proposing to recover uncollectible accounts expenses associated with commodity revenues by initially setting the uncollectible rate equal to the proposed net write-off rates of 1.35 percent for electric and 3.35 percent for gas and defer and reconcile any differences between the Company's actual net write-offs associated with commodity revenues and the revenue generated by applying the uncollectible rate to commodity and commodity-related administrative expense revenue.

A. <u>Proposal for Recovery of Delivery-Related Uncollectible Accounts Expense</u>

Q. In Docket RIPUC No. 4065, The Narragansett Electric Company, d/b/a National Grid Application for Approval of Change in Electric Base Distribution Rates (the "2009 Electric Rate Case") and Docket RIPUC No. 3943, Application for Rate Change of Narragansett Electric d/b/a National Grid (the "2008 Gas Rate Case"), the uncollectible rates were determined using the five-year aggregate rate. Why are you proposing a three-year aggregate rate in this case?

A. As Schedule EMK-1 illustrates, the Company's net write-off experience in the thirty-six months ending in December 2011 differs substantially from the

Company's net write-off experience in either of the two preceding twelve-month periods ending December 2008 and December 2007. The three-year aggregate rate is more indicative of the rate year expense because this period is coincident with the severe recession in Rhode Island discussed above. Furthermore, using a three-year aggregate rate normalizes the impact associated with the variation in weather as well as the fluctuation in commodity prices. Here, the revolving write-off amount using the three-year aggregate rate is $35,018,924 for electric and $46,579,771 for gas. These net-write off amounts are indicated in Schedule EMK-1. Because of the mild winter in New England this year, as net write-offs continue to climb in the near term, the revenue base (the denominator) will gradually lessen, thereby forcing up the rate after the test year. Because it is not known when this trend could reverse, the Company believes it is in the best interest of customers and the Company to apply a three-year look at the uncollectible rate.

B. Proposal for Recovery of Commodity-Related Uncollectible Accounts Expense

Q. Please describe the Company's proposal for recovery of commodity-related uncollectible accounts expense.

A. The Company proposes a fully reconciling mechanism for commodity-related bad debt to recover its commodity-related uncollectible accounts expense. A fully reconciling mechanism protects the interests of both customers and the Company.

Customers' interests are protected because customers are not required to pay a level of uncollectible accounts expense and commodity-related administrative costs in excess of what the Company actually incurred. The Company's interests are protected because the Company is not required to bear the cost of uncollectible accounts expense and commodity-related administrative costs in excess of the level included in commodity rates when it has no opportunity to earn a profit on that service.

A fully reconciling mechanism will help strike an appropriate balance between the customer protections afforded by the important policies designed to protect various groups of at-risk utility customers and the cost of those policies. Moreover, the proposed commodity-related bad debt rate in addition to the proposed uncollectible accounts expense reconciliation mechanism for both electric and gas are important because of the uncertainty of the economic recovery in Rhode Island.

Q. Would the Company proposal for reconciling net write-offs on commodity revenue undermine the Company's incentives to minimize net write-offs?

A. No. The Company will still be exposed to fluctuations in uncollectible accounts expense associated with the delivery portion of customer bills. Thus, the Company will continue to have every incentive to take whatever prudent steps are necessary to reduce its uncollectible accounts expenses in order to reduce the

portion attributable to distribution/delivery rates. In addition, the Company is implementing the Behavioral Scoring Program and the PMP described above for its gas customers. These programs, along with the Company's full suite of collection strategies, will continue to mitigate net write-offs and the net write-off rate going forward.

Q. How does Company propose to effectuate this reconciliation of its commodity-related uncollectible account expense?

A. The Company proposes to reconcile changes in the net write off rate as they relate to commodity revenue on an annual basis based upon the relevant year's actual net write offs during the year and the total revenue billed during the same year. Please see the testimonies of Company witness Leary and Company witness Lloyd for a full explanation of the mechanism proposed for reconciling commodity-related bad debt.

VII. Programs for Low-Income Customers

Q. Please summarize the Company's programs to assist low-income customers with paying their electricity and gas bills.

A. The Company strives to make its low-income customers aware of the programs that are available to them in managing their services, which in turn helps minimize the Company's uncollectible accounts expenses. The options available to eligible customers may include, but are not limited to, low-income rates,

arrears management programs, fuel funds, the low-income heating assistance program, and fuel assistance.

Q. You've indicated that the Company is concerned about the ability of low-income customers to pay their electric and gas bills. Is the Company making any particular proposals in this case to augment existing programs that benefit these customers?

A. Yes. The Company is requesting the recovery of the cost of two Consumer Advocate positions, serving the low-income customers of Rhode Island. In the Company's 2009 Electric Rate Case, the Company made a similar request; however, the Commission denied the request because of confusion that the services that would have been provided by the Consumer Advocates would be the same as the services provided by the state's Community Action Program ("CAP") agencies. The Company is again requesting these positions because there are several key services provided by the Consumer Advocates that a CAP agency would not typically perform.

Q. What services do the Consumer Advocates provide that a CAP agency would not typically perform?

A. By working one-on-one with customers, Consumer Advocates have the ability to quickly identify if a protection should be placed on an account and offer any appropriate service from which the customer would benefit. Consumer

Advocates work mainly with elderly, low-income, disabled, and medical customers. Accordingly, Consumer Advocates are available to make home visits to our homebound customers. Depending on the circumstances, Consumer Advocates would offer customers information regarding Company services such as: balanced billing, third party notification, large-print billing, Braille billing, bill extensions, energy savings tips, and low-income rates. Consumer Advocates may also refer customers to apply for fuel fund assistance or the federal LIHEAP funds, and help customers with the application, if necessary. Additional information regarding the proposed Consumer Advocate positions is provided in Mr. Laflamme's testimony describing the Company's proposed revenue requirement.

Q. In addition to providing low-income customers with arrearage management support, please describe other functions of the Consumer Advocates?

A. Consumer Advocates are present at various locations to enhance the Company's visibility with customers and partners and to provide one-on-one assistance to customers in need. Consumer Advocates would work at various locations, such as job fairs and other unemployment locations. When large companies foresee layoffs, the Consumer Advocates provide information to assist the unemployed. Consumer Advocates represent the Company at major community events by distributing brochures and pamphlets about our programs and services. Consumer Advocates also reach out to area schools to provide programs to

children and parents. Children will be provided information on how their actions affect our environment and their communities. Additionally, Consumer Advocates work closely with food pantries, free healthcare clinics, and houses of worship to reach customers who do not ordinarily contact the Company when the need arises. Furthermore, Consumer Advocates will be responsible for developing strong relationships with the CAP agencies as well as regulatory offices in order to improve implementation of the Company's low-income discount and other public benefit programs.

VIII. Conclusion

Q. Does that conclude your testimony?

A. Yes, it does.

Schedules of
Evelyn M. Kaye

Index of Schedules

Schedule EMK-1

Charge Off Data

Narragansett Electric Company
Net Charge-offs as a Percentage of Revenues
For the Twelve Months Ended December 31

Year	Net Charge-offs (a)	Total Revenues (b)	Charge Off Rate (c)
2009	$13,701,691	$906,112,250	1.51%
2010	$10,698,705	$879,874,473	1.22%
2011	$10,618,527	$802,881,950	1.32%
Three Year Average	$35,018,924	$2,588,868,673	1.35%

Page 2 of 4, Column (d)
Form 1, Page 300, Line (14) Line 26 less balances in A/Cs 451000, 454000, 454011, 456035, 456040, 456070 and 456505.
2008 adjusted for late entry posted after December 2008 and not reflected in Form 1
Column (a) ÷ Column (b)

Narragansett Electric Company
Net Charge-Offs
For the Twelve Months Ended December 31

	Beginning Balance FERC 144 (a)	Adjustments to Reserve FERC 904 (b)	Ending Balance FERC 144 (c)	Net Charge Offs (d)
2009	$10,122,821	$16,853,612	$13,274,742	$13,701,691
2010	$13,274,742	$11,045,414	$13,621,451	$10,698,705
2011	$13,621,451	$10,512,219	$13,515,143	$10,618,527

Narragansett Electric—Electric Div bal sht less Bad Debt Exp - Misc Billing (a/c 144.007)
Form 1, Page 322, Column (b), Line (162) less Bad Debt Exp - Misc Billing
Narragansett Electric—Electric Div bal sht less Bad Debt Exp - Misc Billing (a/c 144.007)
Column (a) + Column (b) - Column (c)

Narragansett Electric Company—Gas Division
Net Charge-offs as a Percentage of Revenues
For the Twelve Months Ended December 31

	Year	Net Charge-offs (a)	Total Revenues (b)	Charge Off Rate (c)
(1)	2009	$19,431,198	$447,952,657	4.34%
(2)	2010	$15,515,379	$401,863,767	3.86%
(3)	2011	$11,623,740	$378,977,027	3.07%
(4)	Three Year Average	$46,570,316	$1,228,793,451	3.79%

(a) Page 4 of 4, Column (f)
(b) Income Stmt, Sales of Gas (a/c 480 and 481) plus Revenues-Transportation of Gas of Others (a/c 489.3)
(c) Column (a) ÷ Column (b)

Narragansett Electric Company—Gas Division
Net Charge-Offs
For the Twelve Months Ended December 31

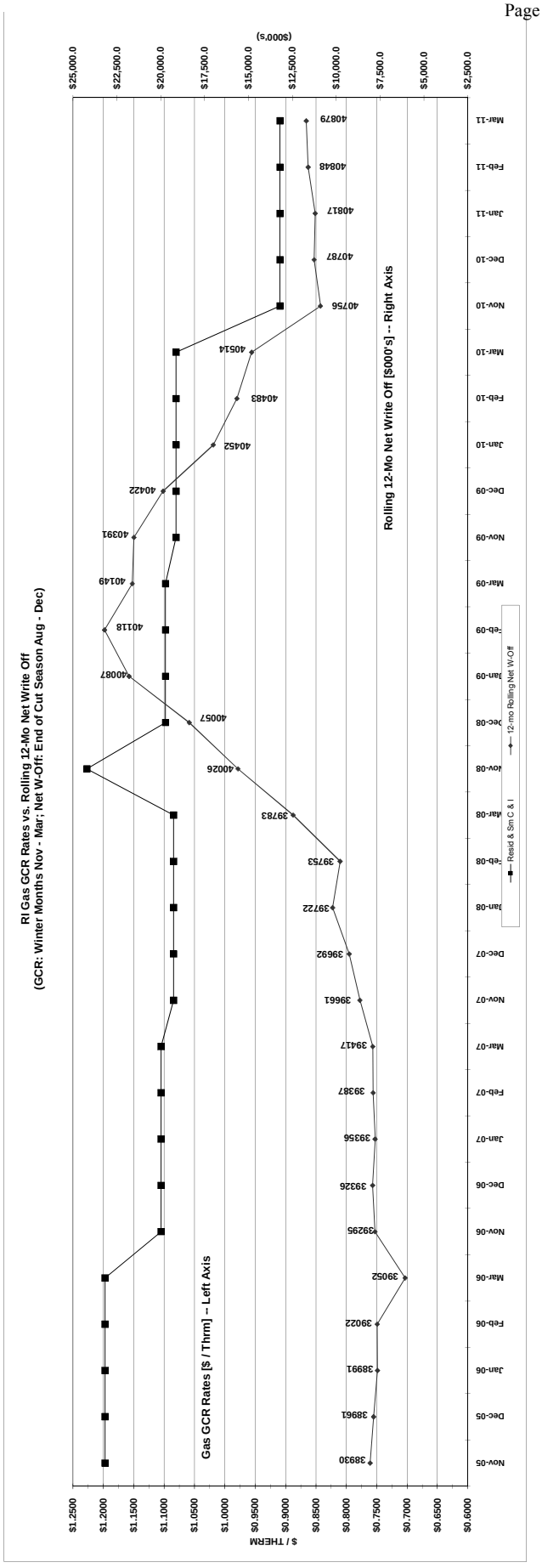
		Beginning Bal. Accum Prov. Uncollectible Accts FERC 144 (a)	Normalizing Adjustment to FERC 144 (b)	Norm Beg Bal. Accum Prov. Uncollectible Accts FERC 144 (c)	Uncollectible Accounts FERC 904 (d)	Ending Bal. Accum Prov. Uncollectible Accts FERC 144 (e)	Net Charge Offs (f)
(1)	2007	$8,223,038	$707,791	$8,930,829	$9,807,257	$9,406,323	$9,331,763
(2)	2008	$9,406,323	$1,521,926	$10,928,249	$12,829,979	$11,232,025	$12,526,203
(3)	2009	$11,232,025	($2,229,716)	$9,002,308	$28,621,053	$18,192,164	$19,431,198
(4)	2010	$18,192,164	$0	$18,192,164	$17,219,031	$19,895,816	$15,515,379
(5)	2011	$19,895,816	$0	$19,895,816	$10,734,160	$19,006,237	$11,623,740

(a) Narragansett Electric—Gas Div bal sht less Accum Bad Debt-Non-Gas (a/c 144.005) and Bad Debt Exp - Misc Billing (a/c 144.007)
(b) Calendar Yr 2007-2009 Write-off Adjustments
(c) Column (a) + Column (b)
(d) Narragansett Electric—Gas Div income statement
(e) Narragansett Electric—Gas Div bal sht less Accum Bad Debt-Non-Gas (a/c 144.005) and Bad Debt Exp - Misc Billing (a/c 144.007)
(f) Column (c) + Column (d) - Column (e)

Schedule EMK-2

Gas GCR Rates v. Rolling 12-Month Net Write-Offs

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule EMK-2
Page 1 of 1

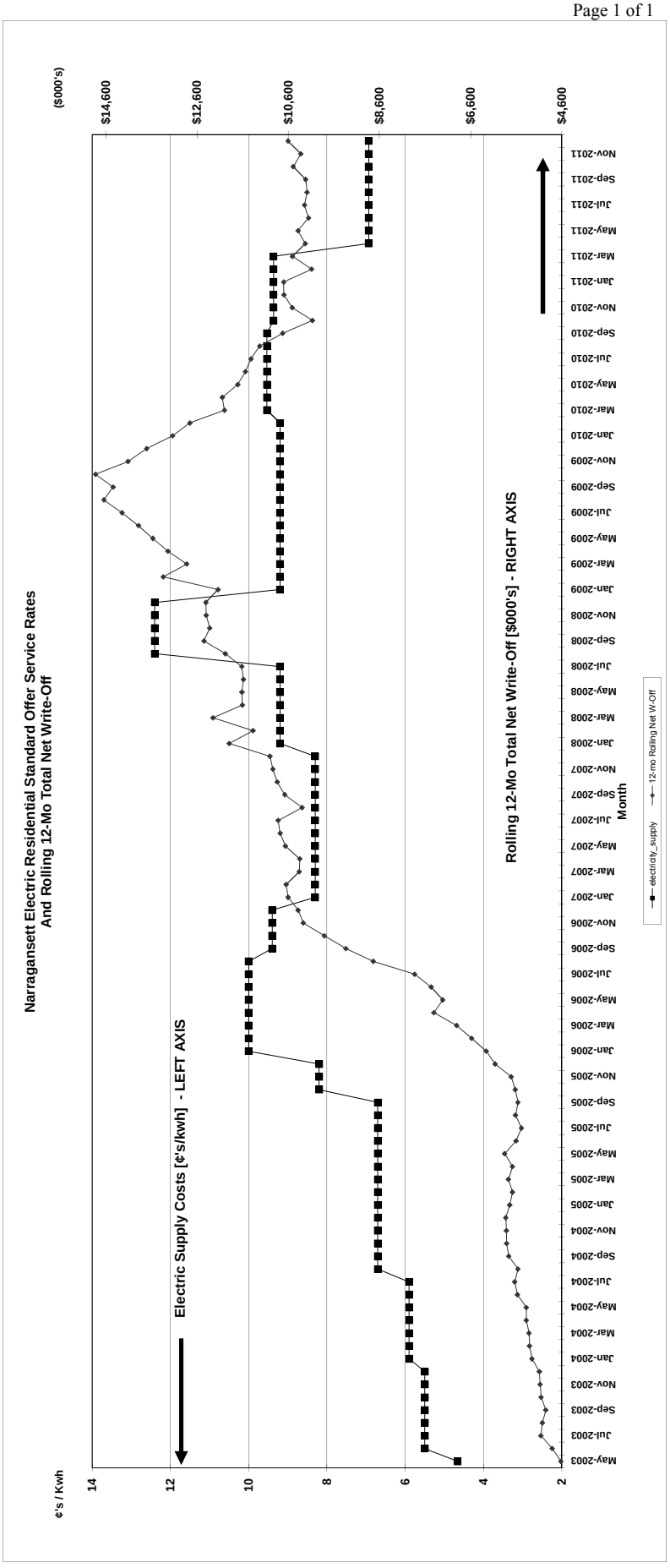


Schedule EMK-3

Schedule EMK-3

Residential Standard Offer Service Rates v. Rolling 12-Month Total Net Write-Offs

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule EMK-3
Page 1 of 1



Schedule EMK-4

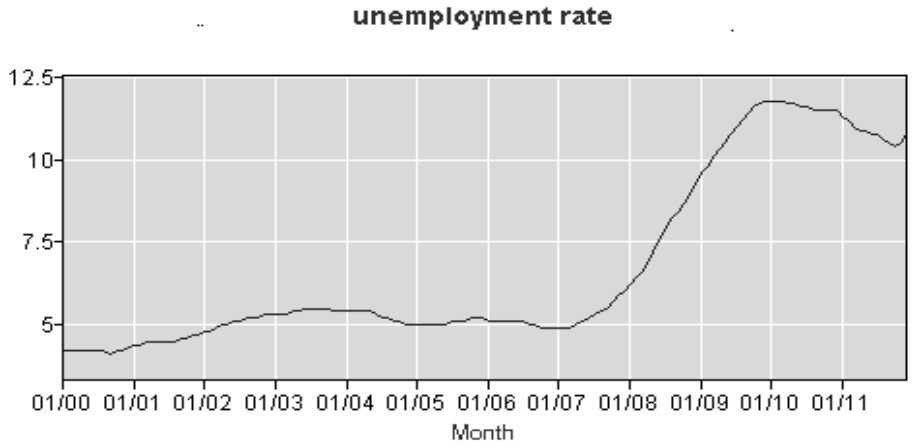
Schedule EMK-4

Unemployment Data

Local Area Unemployment Statistics
Original Data Value

Series Id: LASST44000003
Seasonally Adjusted
Area: **Rhode Island**
Area Type: Statewide
State/Region/Division: Rhode Island
Years: 2000 to 2011

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2000	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.1	4.2	4.2	4.3	
2001	4.4	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.6	4.6	4.7	4.7	
2002	4.8	4.8	4.9	5.0	5.0	5.1	5.1	5.2	5.2	5.2	5.3	5.3	
2003	5.3	5.3	5.3	5.4	5.4	5.5	5.5	5.5	5.5	5.5	5.4	5.4	
2004	5.4	5.4	5.4	5.4	5.4	5.3	5.2	5.2	5.1	5.1	5.0	5.0	
2005	5.0	5.0	5.0	5.0	5.0	5.0	5.1	5.1	5.1	5.2	5.2	5.2	
2006	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.0	5.0	4.9	4.9	4.9	
2007	4.9	4.9	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.7	5.9	6.0	
2008	6.2	6.4	6.6	6.9	7.2	7.6	7.9	8.2	8.4	8.7	9.0	9.3	
2009	9.6	9.8	10.1	10.3	10.5	10.8	11.0	11.2	11.4	11.6	11.7	11.8	
2010	11.8	11.8	11.8	11.7	11.7	11.6	11.6	11.5	11.5	11.5	11.5	11.5	
2011	11.3	11.2	11.0	10.9	10.9	10.8	10.8	10.6	10.5	10.4	10.5	10.8	**10.8**
National 2011 Annual Avg.													**8.9**



Source: Bureau of Labor Statistics
Generated on: January 31, 2012 (11:00:24 AM)

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule EMK-4
Page 1 of 1

Testimony of
Michael R. Hrycin

PRE-FILED DIRECT TESTIMONY

OF

MICHAEL R. HRYCIN

Table of Contents

I. Introduction and Qualifications

Q. Please state your name and business address.

A. My name is Michael R. Hrycin. My business address is 280 Melrose Street, Providence, Rhode Island 02907.

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

A. I am employed by The Narragansett Electric Company d/b/a National Grid (the "Company") as Director, Overhead Lines, Rhode Island in relation to the Company's electric distribution business. My current duties include oversight of the maintenance and construction work for all overhead infrastructure, including distribution and sub-transmission facilities, in the State of Rhode Island.

Q. Please describe your educational background and business experience.

A. I earned a Bachelors of Science degree in electrical engineering from Northeastern University in Boston, Massachusetts in 1989. I joined Newport Electric Corporation ("Newport Electric") in Newport, Rhode Island in 1989. In 1990, Newport Electric was acquired by Eastern Utilities Associates ("EUA"), and after the acquisition, I held the position of Distribution Engineer and Underground Supervisor, as well as a series of successively responsible positions in the electric distribution business operated by EUA. In 2000, EUA was acquired by New England Electric System ("NEES"), and I remained with NEES through its subsequent acquisition by National Grid USA. In 2006, I was the Lead Underground Supervisor in Providence, Rhode Island, and Manager of Overhead in

other areas of the system within Rhode Island. In 2007, I became Director of Overhead for New England South, with responsibility for overhead maintenance and construction for the distribution and sub-transmission distribution systems in Rhode Island and southeastern Massachusetts. In 2011, I was named to my current position.

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

A. No, I have not. This is the first time that I have testified in a regulatory proceeding.

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain the reasons that the Commission should allow Narragansett Electric to recover the cost of adding 19 new electrical worker positions to Narragansett Electric's current staffing complement. These 19 new positions are necessary to assure that there are a sufficient number of trained and qualified electrical workers available in the future to maintain a safe and reliable system. The new electrical workers will satisfy the minimum staffing requirements included in the currently effective union contract with Local 310 BUW Council/UWUA AFL-CIO ("Local 310"). For the next four years, these new employees will be training to meet the qualifications for electrical workers used in maintaining the electric system and conducting storm response efforts.

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

A. This proceeding is a ratemaking proceeding for the gas and electric distribution operations of The Narragansett Electric Company, which together represent the entirety of National Grid's regulated operations in Rhode Island, as the associated direct parent company. In this case, we will refer to the regulated entity as the "Company," where the reference is to both gas and electric distribution operations on a collective basis. Where there is a need to refer to the "stand-alone" or individual operations of The Narragansett Electric Company, Narragansett Electric will use the terms "Narragansett Electric" or "Narragansett Gas." Where Narragansett Electric is referring to "National Grid USA", it will use the term "National Grid"; where Narragansett Electric is referring to "National Grid plc," it will use that precise term.

III. Minimum Staffing Requirement

Q. Please discuss the related terms of Narragansett Electric's agreement with the union.

A. On May 12, 2007, Narragansett Electric executed a collective bargaining agreement with Local 310. The agreement required Narragansett Electric to achieve minimum staffing requirements for overhead, underground and substation crews. In 2009, as part of the Narragansett Electric's last rate case, Narragansett Electric requested recovery of the cost of these new workers, which were to be added by the end of the contract on May 11, 2011. Narragansett Electric's request was denied by the Commission based on the

impression that these positions would replace outside contractors, thereby enabling a reduction in the cost of using outside crews.

In May 2010, following the Commission's Order in Docket 4065, Narragansett Electric entered into discussions with Local 310 to obtain additional time to meet the contract obligations relating to the minimum staffing requirements. Narragansett Electric was able to execute a Memorandum of Understanding ("MOU") with Local 310, which extended the minimum staffing level requirement to May 11, 2013. Pursuant to the MOU, Narragansett Electric agreed to hire and train 19 additional electrical employees to work on overhead, underground and substation facilities by that date. The important point is that these employees will be trainees, and will not be hired as rated electrical workers. Therefore, the new workers will not supplant outside contractor resources.

Q. Please discuss the minimum staffing requirement with Local 310.

A. Under Article V, Paragraph F, Guaranteed Staffing and Use of Contractors, Section 1 of the collective bargaining agreement dated May 12, 2007 – May 11, 2011 between National Grid and Local 310, there are minimum staffing levels in Rhode Island for electrical workers. Through the MOU, Narragansett Electric agreed to increase the number of electrical workers before May 11, 2013 to satisfy the minimum staffing requirement of its collective bargaining agreement. At the end of four years, these trainees will be permanent additions to the highly trained electrical worker complement, providing a work force fully trained and familiar with the distribution system in Rhode

Island. These in-house resources will be available, in conjunction with outside contractors, to respond to system outages particularly in relation to weather-related outages, which can impact large portions of the distribution system, as we have recently experienced.

IV. Company Proposal

Q. Please identify the costs included in Narragansett Electric's rate request for these workforce additions.

A. The amount of salary and benefits related to union workforce additions the Company is seeking in this filing is approximately $1.8 million annually, as supported by the revenue requirement analysis presented in this proceeding by Company Witness Laflamme.

Q. Is it appropriate to include these costs in rates?

A. Yes. Narragansett Electric currently has a complement of 195 in-house electrical workers. These 19 additional hires are needed to maintain adequate staffing levels over time, taking into account the fact that qualified electrical workers need time on staff to obtain the proper training and experience, and the fact that Narragansett Electric will experience attrition in its workforce. These costs are also known and measurable because Narragansett Electric is contractually obligated to hire these new employees before the end of the rate year and will be paid wages and benefits as they gain the necessary qualifications. As trainees, the new employees will not replace outside contractor resources.

Q. Are there other reasons which support these hires?

A. Yes. Training new electrical workers is critical to ensure that system operations are maintained by local workers familiar with the local system requirement and to limit the need to hire outside contractors to supplement the existing workforce. Approximately 30 percent of Narragansett Electric's unionized workforce is eligible for retirement within the next five years, based on a retirement age of 60. If workers retired between ages 55-60, the percent could rise up to 50 percent. Thus, it is critical for Narragansett Electric to hire and begin the training process in order to maintain the number of qualified workers necessary to maintain a safe and reliable electric distribution system to serve its electric customers.

Q. Is this issue unique to National Grid's Rhode Island operations?

A. No. The issue of the aging workforce is not a challenge unique to National Grid. According to a U.S. Department of Labor report, *Identifying and Addressing Workforce Challenges in America's Energy Industry 4 (2007)*, 500,000 energy industry workers are expected to retire over the next 5 to 10 years, which represents a turnover rate of 50 percent. The U.S. Department of Labor states that, "[p]erhaps the most complex and pressing challenge facing the energy industry is the retirement of incumbent workers. The average age of workers currently employed in the energy industry is near 50, and the average age at which most workers retire is 55. Within the next 5 to 10 years, many companies will need to replace a huge portion of their workforce…"

A task force commissioned by the National Commission on Energy Policy ("NCEP") further found that in view of the retirements over the next decade, the electric power industry will need to expand hiring and training programs just to maintain the level of qualified workers required to operate existing facilities. In its 2009 report, the NCEP stated that new workers will be needed to fill as many as one-third of the nation's 400,000 current electric power jobs by 2013.

Q. Please describe the training process of electrical workers.

A. The training process is a process that occurs over a period of approximately four years. According to Occupational Safety and Health Administration ("OSHA") regulations, all employees working on or near energized lines and equipment must be meet specific requirement to perform related activities. As defined by 29 C.F.R. 1910.269, a qualified electrical worker is a, "person who through training and experience with electrical circuits and equipment has demonstrated the necessary knowledge and skills to perform work on or near energized facilities at voltage levels exceeding 600 volts. Qualified Electrical Workers shall be able to: (1) recognize exposed energized parts; (2) determine the nominal voltage of exposed energized parts; (3) know the minimum approach distances for the voltages exposed; (4) know the precautionary techniques and personal protective equipment required when working on or near exposed energized parts of electric equipment; and (5) understand and be able to recognize all other hazards and potential hazards of working on and around high voltage equipment whether or not energized parts are exposed."

To ensure compliance with OSHA's regulations, Narragansett Electric has developed a comprehensive training program that focuses on safety and utility best practices. Each stage of class room and on the job training allows the apprentice to perform additional technical duties. However, to become a fully qualified electrical worker, he or she must participate in this process for least 48 months. Therefore, it is critical for Narragansett Electric to plan ahead for an adequate amount of time in order to have adequate staffing to maintain a reliable electric system.

Q. How does the addition of local trained electrical workers enhance the reliability of Narragansett Electric's electric distribution system?

A. Narragansett Electric needs to have an adequate complement of trained and qualified electrical workers dedicated to its operations and this is the reason that Narragansett Electric has committed to the contractual requirement of certain minimum staffing levels. External contractors are a valuable resource, particularly in relation to storm response efforts. However, it remains necessary for Narragansett Electric to maintain a stable, sufficiently trained and qualified local workforce that has direct knowledge and experience with Narragansett Electric's system. This in-house capability is critical to maintaining the safety and reliability of service to customers. A total increase of 19 electrical workers through 2013 would provide the additional staffing necessary to achieve that goal.

Q. Please describe the size and scope of Narragansett Electric's electric system.

A. Narragansett Electric delivers electricity to approximately 476,000 customers in a service area that encompasses approximately 1,076 square miles in 38 cities and towns. To provide this service, Narragansett Electric owns and maintains 5,283 miles of overhead and 1,117 miles of underground distribution and sub-transmission circuit in a network that includes 99 sub-transmission lines and 388 distribution feeders. Narragansett Electric relies on 67 substations that house 133 power transformers and 836 substation circuit breakers to deliver power to its customers. Narragansett Electric's electric delivery assets also include 280,740 distribution poles, 4,812 manholes and 64,290 overhead (pole-mounted) and underground (pad mounted or in vaults) transformers.

Q. Please describe the factors that affect the reliability performance of Narragansett Electric's electric system.

A. Reliability performance of the distribution system primarily depends on the stresses placed on the network from weather conditions and the ability of the system to tolerate those stresses. For 2011, excluding major storm day exemptions, nearly 75 percent of the customer minutes interrupted result from: deteriorated equipment (25 percent), trees (25 percent), third-party damage, which includes motor-vehicle accidents and vandalism (13 percent), sub-transmission events (five percent), reliability issues with substations (four percent) and lightning (three percent).[1] Restoration of power in relation to these types of outages requires the work of qualified electrical workers. It is, therefore, critical that

[1] For reference, the six leading causes of outages for 2011 with storms included are as follows: tree-related outages were 50 percent; unknown causes were 18 percent, sub-transmission issues were 14 percent, transmission outages were 11 percent; deteriorated equipment caused three percent; and intentional outages accounted for one percent of outages (load shedding, emergency repair, maintenance and similar).

Narragansett Electric remain vigilant by having the appropriate electrical worker staffing levels.

Q. Why doesn't Narragansett Electric hire outside contractors to assist in maintaining reliable electric service rather than increasing staffing?

A. Narragansett Electric needs to have an adequate complement of trained and qualified electrical workers dedicated to its operations, and this is the reason that Narragansett Electric has committed to the contractual requirement of certain minimum staffing levels. Although outside contractors generally perform well with oversight by Narragansett Electric, a stable local workforce, knowledgeable and experienced with respect to Narragansett Electric's system, is critical to providing reliable service to customers. A total increase of 19 electrical workers through 2013 would provide the additional staffing necessary to achieve that goal.

Q. Will the additional electrical workers displace any contractors which Narragansett Electric has engaged?

A. No, they will not. A point that was not clear in Docket 4065 is that only "rated" electrical workers are capable of replacing outside contractors in performing construction work on Narragansett Electric's electric distribution system. The employees who will be hired to meet the minimum staffing requirements are qualified trainees entering Narragansett Electric as apprentices. It will take four years of training before these employees will become rated, and therefore eligible to perform construction work or to replace external

crews doing that work. During the training period, the functionality of these workers is limited to activities requiring lesser technical capability. I will also note that the test year in this case is calendar year ("CY") 2011. In CY 2011, Narragansett Electric made minimal use of outside contractor crews to perform work on the Rhode Island system, so that the addition of these workers would not have the impact of reducing outside contractor crews, even if the workers were in a position to do so.

V. Conclusion

Q. Does this conclude your direct testimony?

A. Yes, it does.

Testimony of
Jeffrey P. Martin

PRE-FILED DIRECT TESTIMONY

OF

JEFFREY P. MARTIN

Table of Contents

I. Introduction and Qualifications

Q. Please state your name and business address.

A. My name is Jeffrey P. Martin. My business address is 300 Erie Boulevard West, Syracuse NY 13202-4201.

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

A. I am employed by National Grid USA Service Company, Inc., a subsidiary of National Grid USA ("National Grid"), and currently hold the position of Director, Billing Operations.

Q. Please briefly describe your educational background.

A I received a B.S. in Information Systems Management from State University College at Buffalo in 1988. I also received two technical training certifications in database system support.

Q. What is your professional background?

A. Prior to joining National Grid, I worked as a Database Analyst for United Technologies Carrier Corporation in Syracuse, New York where I was responsible for cross-department support of mainframe and distributed application databases. I joined Niagara Mohawk Power Corporation ("Niagara Mohawk") in 1994 as an IS Database Analyst. In 1996, I joined the Andersen Consulting Customer system conversion team that successfully implemented Andersen's "Customer/1" customer billing system in early 1998 (the

"Customer Service System" or "CSS"). Following that conversion, I moved to a Billing team lead position, managing a team of both IS and business professionals responsible for all aspects of retail billing through CSS. In 2002, the same year that National Grid acquired Niagara Mohawk, I became the Manager of NY Billing & Systems. In that role, my responsibilities included the Print and Mail department, Retail Choice, and Meter Data Services. In 2006, my team expanded to providing services to the New England electric distribution business, then to the newly acquired Rhode Island gas distribution business, and finally, in 2007, to the legacy KeySpan Corporation operations. During my career with National Grid, I have been involved in several major projects including an early Information Warehouse rollout, three customer system conversions, four Print and Mail operation outsourcings, a complete customer retail bill redesign, Automated Meter Reading ("AMR"), Auto-Complete (also known as Soft Off or Soft Close), several retail choice programs, an ITRON meter reading system conversion, a new bill imaging platform, three online bill presentation solutions, two customer credit card payment implementations, and new energy efficiency on-bill financing programs.

Q. Please state your current areas of responsibility at National Grid.

A. In my current role as Director, Billing Operations, I am responsible for management of New England and New York Billing and Accounts Processing departments.

Q. Have you previously testified before the Rhode Island Public Utilities Commission (the "Commission")?

A. No, I have not previously testified before any regulatory agency. However, in 2008, I served as Co-Convener for a New York Public Service Commission ("NYPSC") Energy Efficiency Portfolio Standard ("EEPS") Sub-Group related to on-bill financing. Prior to that, I spent a significant amount of time working with the NYPSC on retail choice programs and a 2002 Home Energy Fair Practices Act. Currently, I am involved in working groups related to New York's 2011 Power New York Act related to on-bill financing. I have also presented informally on various billing-related topics to the Rhode Island Division of Public Utilities and Carriers and the Commission, the NYPSC Staff, and the New Hampshire Public Utilities Commission.

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe the gas billing system conversion of The Narragansett Electric Company (the "Company") from the Advantage to the CSS platform, which was previously in use by the Company for billing its electric customers, including conversion costs and benefits that the CSS platform is now providing to the Company's gas customers. In addition, I will explain the Company's proposal to establish a billing credit for customers who opt in to the Company's paperless billing program.

Q. How is your testimony organized?

A. First, in Section III, I will discuss the conversion of the gas billing system from Advantage to CSS. This will include a description of the conversion costs and the benefits and enhancements of CSS as compared to Advantage. Next, in Section IV, I will discuss the Company's proposal for continued recovery of the remaining depreciation expense associated with the Advantage system following the conversion to CSS. Finally, in Section V, I will describe the Company's proposal for a paperless billing credit for customers who opt in to the Company's electronic billing service.

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

A. This proceeding is a ratemaking proceeding for the gas and electric distribution operations of The Narragansett Electric Company, which together represent the entirety of National Grid's regulated operations in Rhode Island, as the associated direct parent company. In this case, we will refer to the regulated entity as the "Company," where the reference is to both gas and electric distribution operations on a collective basis. Where there is a need to refer to the "stand-alone" or individual operations of The Narragansett Electric Company, the Company will use the terms "Narragansett Electric" or "Narragansett Gas." Where the Company is referring to "National Grid USA", it will use the term "National Grid"; where the Company is referring to "National Grid plc," it will use that precise term.

III. Advantage Conversion to CSS

Q. Please describe the Company's rationale for converting its existing gas billing system from Advantage to CSS.

A. Prior to the conversion, which occurred on January 23, 2012, gas customers were billed using two different systems. Approximately 260,000 sales and monthly balanced transportation gas accounts were managed in the Advantage/Banner system, which was a carryover from the Company's acquisition of the Rhode Island gas distribution business of Southern Union Company in 2006, and approximately 800 daily balanced transportation gas accounts were managed in the Local Distribution Company Manager ("LDCM") system, which was also a carryover system. Both systems were over twelve years old, lacked any significant upgrades, and were beyond vendor support, which has resulted in multiple adverse impacts for the Company and its customers.

Q. Please elaborate regarding these adverse impacts for the Company and its customers.

A. Over the past several years, the Advantage system has experienced several significant system issues that have required detailed mitigation plans. In addition, the Company had to resolve many smaller-scale issues in the areas of billing, bill calculation, bill print, budget billing, cash processing, collections, financials, and service orders. The Advantage and LDCM systems lacked certain functionality, and duplicate efforts were required to implement regulatory requirements across multiple customer systems, adding additional time and costs.

Q. Please explain the billing system options that the Company considered to address the Advantage/Banner and LDCM system problems you have described.

A. The Company reviewed three options, including conversion to the CSS. The first option was to upgrade the existing Advantage platform and fully replace the LDCM gas transportation billing system, which could not be upgraded because the vendor no longer existed. This option added significant cost with little improvement in the services provided to the Company's gas customers. In addition, this option did not support the Company's business efficiency initiatives or its strategy to consolidate onto a single application, nor did it allow for the provision of like services to both electric and gas customers. A second option the Company considered was a conversion to a new, enterprise-wide customer system. This option would have required conversion of the entire National Grid billing operations in order to realize benefits and synergies. The added cost to the Company for this option outweighed the enhanced features that could be provided by such newer systems at this point in time, and the Company decided not to pursue a billing conversion as part of an enterprise-wide system conversion. After an extensive review, the Company chose to convert its gas customer billing system to the CSS application for several reasons: (i) it provides increased functionality and a common customer experience for both gas and electric customers; (ii) it reduces risks related to the then-current systems; (iii) it reduces on-going support costs by adopting a common customer platform for the Company; and (iv) it leverages National Grid's CSS implementation for the Company's electric business, along with the Company's affiliated electric distribution operations in New England, at a cost-effective price point.

Q. When did the conversion from Advantage to CSS take place?

A. The conversion to CSS went "live" on January 23, 2012.

Q. What is the total conversion cost associated with CSS?

A. The total project costs are $14.7 million broken down as follows:

Description	$ in Millions
IS Labor Costs	$5.425
Non-IS Labor Costs	$5.312
Interfaces Labor Costs	$1.896
Data Conversion Labor Costs	$2.094
Total Project Costs	**$14.727**

Q. How do these costs compare to the other options?

A. The costs to upgrade the Advantage system and replace the LDCM system were estimated to be approximately $4.7 million. On balance, the CSS solution has a higher up-front cost; however, it provides enduring operational savings and customer service benefits that cannot otherwise be achieved without consolidation of the two systems. These operational savings include reduced IS support labor, infrastructure, and software vendor maintenance costs totaling approximately $1.2 million annually, and an estimated $1.7 million every third year for necessary vendor version upgrades.

Q. How do the costs of the CSS conversion compare to similar conversions?

A. The cost of the Advantage to CSS conversion project was $14.7 million, which equates to approximately $57 per customer when shared by 260,000 customers. Comparatively, customer information system ("CIS") conversions can cost between $20 and $110 per customer depending upon the number of utility customers served by the system; the extent to which the expertise of system-integration consultants is needed to accomplish the conversion; and the degree of change that is involved in transitioning to the "new" system. In relation to the Advantage conversion, the total cost was relatively low (given the functionality achieved), but the cost per customer is around the median for comparable projects because the number of customers involved was also relatively small. The total cost was relatively low as a result of: (i) the fact that the Company did not buy a new CIS, additional hardware, or other support software; (ii) the Company limited its use of system integration consultants; (iii) the Company did not utilize costly purpose-built project facilities; (iv) Company system users already had experience on CSS, thus limiting internal training and change management; and (v) changes to the existing CSS were kept to a minimum.

Q. Are there any operating savings above test-year levels that the Company will realize with CSS versus Advantage?

A. The primary goal of the Advantage to CSS conversion was to (i) eliminate the risks associated with the Advantage and LDCM systems, which could no longer be supported by their respective vendors, and (ii) avoid future upgrade or replacement costs that would

have been necessary. The operational savings of $1.2 million referenced above includes the elimination of payments for software maintenance (approximately $220,000 per year) on the Advantage system. With the conversion came a common platform with consistent functions for electric and gas customers. There is an opportunity for further operating savings by using this commonality and consistency to consolidate billing, payment, and other customer care functions in the future.

Q. Please describe the amortization schedule for CSS.

A. The Company is proposing eight (8) years for amortization of the CSS conversion. The Company believes this is a reasonable timeframe that is in line with the expected useful life of the CSS system.

Q. Are there any differences in system support and maintenance costs between Advantage and CSS as a result of the conversion?

A. In recent years, support costs for the Advantage and LDCM systems have been minimal given an expectation that those systems would eventually be replaced. The primary goal of the conversion was to eliminate risks associated with the Advantage and LDCM systems and to avoid the future upgrade or replacement costs that would have been necessary. The Company expects that having a common and consistent platform for its electric and gas businesses will help control costs and provides additional functionality to allow for future change.

Q. Are there immediate additional benefits for customers as a result of the CSS conversion? Please explain.

A. Yes. There will be no delay in posting fifty (50) to seventy (70) "unprocessable" monthly payments where customers currently combine both accounts into one envelope. In addition, gas customers will have additional electronic billing, payment, and other self-service options. Customers whose payments are returned due to insufficient funds will have their utility accounts charged back more quickly, and customers receiving LIHEAP benefits will have accounts credited more timely due to efficiencies with CSS.

Q. With the conversion to CSS, is there the potential for combining gas and electric accounts into a single bill?

A. Yes. CSS creates a platform for potential future consolidation of billing and customer care functions for gas and electric customers. Thus, in the future should the Commission approve or otherwise request the Company to implement a combined bill option, gas and electric customers would have a single account with both services managed together. This would allow for greater customer convenience, with gas and electric customers receiving a single monthly bill and having the ability to make a single monthly payment. It would also provide the Company the opportunity for operational cost savings with respect to paper, envelopes, printing, payment processing, inbound and outbound telephone calls, and accounts processing.

IV. Remaining Depreciation of Advantage

Q. What is the current unamortized amount of the Advantage system?

A. As of the January 23, 2012 conversion to the CSS system, there was approximately $4 million of Advantage system costs still to be amortized through August 2017.

Q. What is the Company's proposal relative to that remaining unamortized amount?

A. After the conversion to CSS, the Advantage system has and will remain in "read only" mode for the foreseeable future. This is standard procedure after a billing system conversion and allows for easy access to pre-converted customer account data. It is likely that the Advantage system will remain in this "read only" mode for the duration of its remaining amortization period. The Company proposes that the current remaining amount continue to be depreciated over the course of the remaining amortization period.

V. Paperless Billing Credit

Q. What is the paperless billing service that is currently available to the Company's customers?

A. The Company currently provides an electronic billing service or "paperless billing" for those customers who request to "opt in" to the service. Currently 12 percent of the Company's gas and electric customers have opted in to electronic paperless billing. The Company also makes available electronic bill images on its web site for all customers regardless of whether they opt to "go paperless."

Q. How does paperless billing work?

A. A customer who opts in to the paperless billing service receives a monthly online bill notice via email instead of receiving a traditional paper bill through the U.S. mail. The customer is able to view, print, or save the electronic bill. Customers can also choose to view and pay their bill through several online banking institutions. The Company cooperates with those institutions to make its bill images available.

Q. What are the advantages of paperless billing?

A. Electronic billing services are extremely efficient in terms of transaction processing speed and cost when compared to traditional paper-based delivery. These electronic services are also beneficial to the environment, especially in terms of saved bill stock and envelopes. Importantly, paperless billing service provides savings by eliminating costs of paper, envelopes, postage, and handling.

Q. What is the estimated customer savings associated with paperless billing service?

A. The current per-bill monthly savings is approximately $0.33. This savings figure is calculated by first determining the various costs of producing and delivering a paper bill (paper, envelopes, postage, print, insert) and the costs of a paperless bill (web service costs, data delivery, and online banking third party service costs). The difference between these two sets of costs is the paperless bill savings. Costs of both paper and paperless bills can vary such as when postage and paper and envelope prices change and when online banking enrollments change as a percentage of the total.

Q. What is the current treatment of savings from paperless electronic billing in rates?

A. Savings that result from customers opting for paperless electronic billing are currently captured in base rates and are spread across all of the Company's customers. Electric customers would benefit in base rates by those costs saved through electric paperless bills while gas customers would benefit in base rates for gas paperless bills.

Q. How is the Company proposing to treat those savings going forward?

A. As a means to encourage more customers to opt in to paperless billing, the Company is proposing to provide those customers with a credit on their monthly bill, which will reflect the average per bill cost savings realized by the Company by eliminating a paper bill. The program is intended to provide customers with advantages such as quicker delivery, ease of storage and retrieval, and delivery to other locations such as online banking sites. Customers that opt for paperless billing would directly benefit from the resulting savings by receiving a bill credit equal to the difference between a paper and a paperless bill. Thus, the cost of paper-based billing to all customers initially would be reflected in base rates, and the element of revenue associated with the recovery of that cost would be reduced by the paperless billing credits given to customers who opt in to the service.

Q. What is the rationale for providing such a credit?

A. Since the savings realized from paperless billing are directly attributable to the customers who opt in to the service, it is appropriate to pass those savings back to those customers.

Moreover, bill credits will act as an incentive to encourage customers to opt in to paperless billing and, thus, reduce costs and promote the environmental benefits of reduced bill stock and envelopes.

Q. Would this be a mandatory program?

A. No. The program is intended to provide cost and revenue neutral alternatives to customers who desire this service.

Q. What evidence is there that customers desire this service?

A. JD Power survey results indicate customers who participate in paperless billing (and use other online services) tend to display the highest levels of satisfaction. Because this is not a mandatory program, customers who have the desire for this service, by definition, will be the ones who subscribe to it.

Q. Would the credit appear on the customer bill?

A. Yes. The new paperless credit would appear as a separate line item within the Delivery Services section of the bill.

Q. Would existing paperless billing customers be eligible to receive the credit, or will the credit only be applicable to new paperless billing customers?

A. Under the Company's proposal, all paperless billing customers, existing and new, would receive the paperless billing credit.

Q. How would the Company notify customers of the paperless billing option?

A. Customers would be notified via bill messages, Company web site messages, voice response unit (VRU) messaging, and potentially other existing communication tools.

Q. Would the Company incur any costs associated with this proposal?

A. No. Beyond the one-time cost of adding the new line item to the bill, this existing program will not create additional cost.

Q. Would the Company require customers to commit to a minimum stay on the paperless electronic billing service?

A. No. Customers will have the ability to opt in or out of the program as they wish.

VI. Conclusion

Q. Does this conclude your testimony?

A. Yes, it does.

PRE-FILED DIRECT TESTIMONY

OF

ALFRED P. MORRISSEY

Table of Contents

I. Introduction and Qualifications

Q. Please state your name and business address.

A. My name is Alfred P. Morrissey and my business address is 40 Sylvan Road, Waltham, Massachusetts 02451.

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

A. I am employed by National Grid USA Service Company, Inc. as Economist in the Analytics, Modeling and Forecasting Department.

Q. Please describe your educational background.

A. I graduated from the University of Massachusetts at Amherst in 1978 with a Bachelor of Arts degree in Economics. In 1981, I received a Master of Arts degree in Economics and in 1984, a Doctor of Philosophy degree in Economics, both from the University of Notre Dame. My dissertation, An Econometric Analysis of Home Energy Expenditures and Need, won the Economics Department's "Joan Robinson Award" as the best Economics doctoral dissertation in 1984. While at Notre Dame, I taught courses in economics and statistics.

Q. Please describe your business experience.

A. I have worked in the electric utility industry in the area of load forecasting and analysis for 28 years. From 1983 to 1988, I worked as an Energy Analyst in the System Planning Department of the American Electric Power ("AEP") Service Corporation in Columbus, Ohio. While at AEP, I developed energy and demand forecasts for several of AEP's

largest operating companies. I also coauthored an article, published in IEEE Transactions on Power Systems (1988) describing a method of forecasting the multiplier effects of a new industrial plant (or a plant closing) on local employment and electric load. I also taught evening courses in microeconomics and macroeconomics at the Ohio State University. In 1988, I resigned my position at AEP and joined the EUA Service Corporation in West Bridgewater, Massachusetts as a Load Forecast Analyst. There I was responsible for developing and supporting all short- and long-term load forecasts produced at Eastern Utilities Associates ("EUA"), including directing the load forecasting efforts of other members of the Load Forecasting Section. In 1990, I was promoted to Senior Analyst and, in 1997, I was promoted to Supervisor of Load Forecasting. In 2000, I accepted the position of Principal Analyst at National Grid following its merger with EUA. I developed energy sales and revenue forecasts for all of National Grid's New England electric distribution companies; annual peak demand forecasts for the New England electric distribution companies and 26 electric load areas; and energy sales and peak load forecasts for National Grid's Upstate New York electric distribution business. In 2011, my title was changed to Economist and my responsibilities changed to support not only electric load forecasting but also gas load forecasting.

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

A. I am a member of the NE-ISO Load Forecasting Committee (past Chair), the NYISO Load Forecasting Task Force, the Edison Electric Institute ("EEI") Load Forecasting

Group, the EEI Economic Policy Advisory Group and the New England Economic Partnership (past Board Member).

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

A. Yes. In 2009, I submitted testimony in Docket RIPUC No. 4065, The Narragansett Electric Company, d/b/a National Grid Application for Approval of Change in Electric Base Distribution Rates (the "2009 Electric Rate Case") on behalf of Narragansett Electric. In 2004, I testified before the Commission in Docket 3617. In 1991, I submitted testimony in Docket 2016 before the Commission on behalf of the Blackstone Valley Electric Company. In 1992, I submitted testimony in Docket 2036 on behalf of the Newport Electric Corporation. In 2011, I testified before the Massachusetts Department of Public Utilities Energy Facilities Siting Board on behalf of the Massachusetts Electric Company, an affiliate of the Company. In 2010, I submitted testimony in support of the load forecast in the electric rate case for Niagara Mohawk Power Corporation, an affiliate of the Company.

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. I present the Company's forecast of gigawatthour ("gWh") sales, customer counts, and megawatt demand, which are used in the projection of revenue, in the Company's fully allocated cost of service study and for rate design.

Q. How is your testimony organized?

A. My testimony is organized into four sections. The first section is a general introduction. The second section explains the purpose of this testimony. The third section describes the Company's gWh sales forecast, and the fourth section describes the Company's peak load forecast.

Q. Are there any schedules accompanying your testimony?

A. Yes. Included with my testimony are the following Schedules:

Schedule APM-1	The Narragansett Electric Company GWh Sales Forecast With DSM, Actual and Forecast GWh Sales by Revenue Class, 1990 - 2014
Schedule APM-2	The Narragansett Electric Company GWh Sales Forecast With DSM, Weather-Normalized and Forecast GWh Sales by Revenue Class, 1990-2014
Schedule APM-3	The Narragansett Electric Company GWh Sales Forecast, Rhode Island Economic/Demographic Variables, 1990-2014
Schedule APM-4	The Narragansett Electric Company GWh Sales Forecast, Weather and Other Explanatory Variables, 1990-2014
Schedule APM-5	The Narragansett Electric Company Customer Forecast, Actual and Forecast Customer Counts by Revenue Class, 1990-2014
Schedule APM-6	The Narragansett Electric Company GWh Sales Forecast, Historical and Forecast Energy Efficiency (EE) Savings on Energy, 1990-2014
Schedule APM-6A	The Narragansett Electric Company GWh Sales Forecast, Impact of Energy Efficiency (EE)

Schedule APM-7 The Narragansett Electric Company Monthly Peak Demand Forecast With DSM, Historical and Forecast Monthly Demands (MW)

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

A. This proceeding is a ratemaking proceeding for the gas and electric distribution operations of The Narragansett Electric Company, which together represent the entirety of National Grid's regulated operations in Rhode Island, as the associated direct parent company. In this case, we will refer to the regulated entity as the "Company," where the reference is to both gas and electric distribution operations on a collective basis. Where there is a need to refer to the "stand-alone" or individual operations of The Narragansett Electric Company, the Company will use the terms "Narragansett Electric" or "Narragansett Gas." Where the Company is referring to "National Grid USA", it will use the term "National Grid"; where the Company is referring to "National Grid plc," it will use that precise term.

III. Gigawatthour Sales Forecast

Q. Would you please describe how the Company forecasts gWh sales?

A. The Company forecasts gWh sales using econometric models that relate sales by class of service to local economic conditions, weather, electricity price, days billed and other explanatory variables. The models predict future gWh sales based on forecasts of the explanatory variables. Forecasts of economic conditions are provided by Moody's

Analytics. Weather is assumed to be normal during the forecast. Electricity prices are held constant. The number of days billed are taken from the meter reading schedule.

The econometric forecast of gWh sales assumes a continuation of the energy efficiency savings and trends achieved over the historical estimation period for the models. These savings and trends are embedded in the historic, metered load data used to construct the econometric models, and they carry forward into the forecast at approximately the historic rate of 0.4 percent per year. Additional savings from energy efficiency programs planned over the forecast horizon, beyond the 0.4 percent per year saved over the historical period, are subtracted from the forecast. This lowers the forecast of rate year gWh sales by 95 gWh, or 1.2 percent.

Q. Would you please summarize the forecast of the Company's gWh sales?

A. The sales forecast is summarized in Schedule APM-1 along with historical sales data for the period 1990-2011. Schedule APM-2 shows the forecast compared to weather-normalized sales data for the historical period. After falling 0.6 percent in 2011, total gWh sales are expected to rise 0.9 percent in 2012 as economic conditions improve. In 2013 and 2014, the economic recovery is expected to strengthen, but the impact on gWh sales growth is muted by expected increases in energy efficiency savings above the historic rate. Overall, gWh sales are expected to grow 1.0 percent and 1.1 percent, respectively, in 2013 and 2014. For the rate year—that is, the twelve-month period ending January 2014—total gWh sales are expected to be 7,858 gWh, which is 2.5 percent higher than actual 2011 test year gWh sales. This is equivalent to annualized

growth of 1.2 percent between the test year and the rate year. Note that from 2006 to 2011, the Company's gWh sales declined at an average rate of 0.2 percent per year, reflecting the regional economic slowdown and severe 2008-2009 recession. The increase in gWh sales over the forecast period reflects Moody's projected economic rebound.

Q. Would you please summarize the economic assumptions behind the forecast?

A. The economic forecast is summarized on Schedule APM-3 along with historical data for the period 1990-2011. The source is Moody's January 2012 forecast of the Rhode Island economy. Moody's forecast assumes Rhode Island's economic recovery will continue and gradually strengthen, but that growth will be below the U.S. average through 2014. Rhode Island employment is expected to show no growth overall in 2012 as a decline in manufacturing employment which began in the second half of 2011 is expected to continue into 2012. While non-manufacturing employment is forecast to grow slightly in 2012, manufacturing employment is expected to fall 1.1 percent. However, both manufacturing and non-manufacturing employment rebound sharply in 2013 and 2014. Overall, Rhode Island employment is expected to rise at an average annual rate of 0.8 percent between the test year and the rate year after falling at an average annual rate of 1.3 percent from 2006 to 2011. Real personal income is expected to average growth of 1.2 percent annually between the test year and the rate year compared to a 0.4 percent average annual increase from 2006 to 20011. Real gross state product growth is expected to average growth of 3.9 percent per year over the forecast period after rising only 0.2 percent per year over the last five years, from 2006 to 2011. Growth in both

population and the number of households is expected to be higher over the forecast period than during the historical period. These are all key drivers to the rate year gWh forecast.

Q. Is Moody's Analytics a well known forecasting service?

A. Yes. Moody's Analytics is a leading, independent economic research and forecasting firm with over 500 clients in 50 countries. Clients include the largest commercial and investment banks, money mangers, insurance companies and other financial institutions; state governments; various branches of the federal government; and leading firms in each major U.S. industry. Moody's economic outlook tends to be in line with that of other reputable forecasting sources, such as the Blue Chip Consensus Forecast, Global Insight and the New England Economic Partnership.

Q. What classes of service are forecast and what explanatory variables are used to drive the forecasts?

A. Forecasts are developed for the Company's residential, commercial, industrial, and streetlighting classes of service. For the residential class, the explanatory variables are real income per capita, heating degree days ("HDD"), cooling degree days ("CDD") and the number of days billed. For the commercial class, explanatory variables include HDD, CDD, real commercial output, commercial employment and number of days billed. For the industrial kWh sales model, the explanatory variables are manufacturing employment, electricity price, CDD and number of days billed. For residential customer counts, the explanatory variable is the number of households. For commercial customer counts, the

explanatory variable is commercial employment. For industrial customer counts the explanatory variable is manufacturing employment. The number of streetlighting customers was assumed constant over the forecast period.

Q. Can you please summarize the weather variables and other explanatory variables used in the forecasts?

A. Annual weather and other explanatory variables are summarized on Schedule APM-4 for the period 1990-2014. The weather variables are CDD and HDD. The other explanatory variables are the number of days billed and real electricity price.

Q. How are "normal" CDD and HDD calculated in the forecast?

A. Normal CDD and HDD are calculated as the 2002-2011 ten-year average for the National Weather Service's Providence, Rhode Island weather station.

Q. How are the number of days billed calculated and forecast?

A. The number of days billed refers to the number of days between meter readings when customer gWh data is collected. The number of days billed are calculated directly from the Company's meter reading schedule which extends into the future. The meter reading schedule is dependent upon the number of non-holiday weekdays which varies from month to month and even year to year. All else constant, a given percentage increase in the number days billed can be expected to increase gWh sales volumes by the same percentage amount. However, there is very little difference between the number of days billed in the rate year compared to the historic test year. On a monthly basis, the billing

day impacts can be well over five percent in absolute magnitude so 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.

Q. How is the real price of electricity forecast?

A. Future values of nominal electricity price are held constant at the last historical value and deflated using Moody's forecast of the Consumer Price Index. This implies constant nominal electricity prices over the forecast period but falling real prices.

Q. Can you please summarize the forecast of energy efficiency ("EE") savings and how they are used to adjust the econometric forecast of gWh sales?

A. Schedule APM-6 shows actual and forecasted EE savings by customer class for the 1990-2014 period and for the rate year. Also shown are the corresponding gWh sales levels and annual EE savings as a percent of gWh sales. This indicates that total EE savings on energy reached an all time high of 10.6 percent of total gWh sales in the 2011 historical test year. This proportion is expected to grow to 12.5 percent of total sales in the rate year. Schedule APM-6A shows the EE adjustment to the econometric forecast results to account for this. The adjustment is equal to the difference between forecasted EE savings and the average annual savings amounts achieved over the historic estimation period. The difference, which totals 95.239 gWh or 1.2 percent of total gWh sales in the rate year, is subtracted from the econometric sales forecast results. This yields the final forecast of rate year gWh sales shown on Schedules APM-1 and APM-2 of 7,858 gWh. This is the gWh amount used to calculate revenue in the rate year.

Q. What is the source of the EE estimates used to adjust the gWh sales forecast?

A. Annual gWh savings due to EE for the historical and forecast period are calculated by the Company's Energy Efficiency Department based on EE programs in place, their life cycle and EE programs planned by the Company for 2011 and 2012. The planned EE savings amounts are from the Company's 2012-2014 Energy Efficiency and System Reliability Procurement Plan.

Q. How are the annual EE savings amounts for the Residential and Business programs allocated to months and revenue classes?

A. Annual EE savings adjustments are allocated equally to all months. The Residential program savings are assigned to the residential revenue class, while the Business energy savings are allocated to the commercial and industrial revenue classes based on their share in the sum of commercial and industrial sales.

Q. What is the source of the historical data used to develop the econometric forecast of gWh sales and customer counts?

A. Monthly historical gWh sales and customer counts are taken from the Company's billing system. Historical weather variables are calculated from the National Oceanic and Atmospheric Administration (NOAA), Providence, Rhode Island weather station. This data is converted to revenue month HDD and CDD. To accomplish this, daily HDD and CDD are calculated and matched up with the Company's explicit meter reading schedule. Daily HDD and CDD are then summed across each of the twenty meter reading cycles, that is, the days between meter reading dates.

Historical values of the monthly economic/demographic variables are provided by Moody's along with the forecast values under subscription services. Historical electricity prices are calculated from billing system data as total revenue, including commodity, divided by total kWh. This result is then divided by the Consumer Price Index, provided by Moody's Analytics. Since a significant portion of total industrial revenue from the billing system does not include the commodity revenue, residential electric price is used as a proxy for industrial price.

Q. Dr. Morrissey, would you please explain how the econometric forecast of gWh sales and customer counts for the Company's classes of service was developed?

A. The three relevant areas of econometric regression analysis are model specification, model estimation and forecasting. Specification involved using economic theory to identify a set of equations to model the relationship between energy sales and various appropriate causal factors or explanatory variables. Estimation involved the choice of the proper statistical method to derive values of the coefficients in the equations. Forecasting was accomplished by using the estimated equations along with future values of the explanatory variables.

Q. What estimation technique was used to model gWh sales and customer counts?

A. The models were estimated using ordinary least squares. The Yule-Walker method was used to correct for first order autocorrelation if its presence was indicated by the value of the Durbin-Watson statistic.

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

A. The models were estimated using the monthly data for the period January 1990 through December 2011.

Q. How were residential gWh sales modeled?

A. Residential sales accounted for 40 percent of 2011 gWh sales. Residential sales were specified as a use per customer model. That is, total monthly residential sales were divided by the number of residential customers and regressed against the explanatory variables. A separate econometric model was used to forecast the number of residential customers. The total residential sales forecast was taken as the product of the kWh use per customer forecast and the customer forecast.

Explanatory variables in the residential kWh use per customer model were real per capita income, revenue month HDD and CDD and the monthly number of days billed. Theoretically, the real price of electricity could also affect household electricity demand. However, this variable was found to be statistically insignificant in the regression analysis.

For the residential customer model, the explanatory variable was the number of Rhode Island households.

Q. Could you please summarize the forecast of residential sales and customer counts?

A. The residential sales forecast is summarized in Schedules APM-1 and APM-2. After growing 0.9 percent on a weather-adjusted basis in 2011, residential sales are forecast to average growth of only 0.4 percent per year between the test year and the rate year, despite improvement in the economic drivers to the forecast. The reason is that the Company's expanded energy efficiency efforts reduce residential gWh sales growth by 0.5 percent per year.

The customer forecast is summarized on Schedule APM-5. Based on Moody's forecast of the number of Rhode Island households, the number of residential customers is expected to increase 0.9 percent between the test year and the rate year. This amounts to a 0.4 percent average annual increase. Over the last five years (i.e., from 2006 to 2011), the number of residential customers increased by only 0.2 percent per year.

Q. How were commercial gWh sales and customer counts modeled?

A. Commercial sales accounted for 47 percent of total 2011 gWh sales. Commercial sales were modeled as a function of commercial employment, commercial output, revenue month HDD and CDD and the number of days billed per month. Besides these determinants of commercial energy demand, an indicator variable for the shoulder month of October was included as an explanatory variable. This was to account for seasonality not fully captured by the weather variables. Finally, historical indicator variables were constructed to account for disruptions in the timing of monthly customer gWh billings that occurred in 2008 when the Company implemented a new billing system.

For the commercial customer count model, the explanatory variable was commercial employment.

Q. Please summarize the econometric forecast of commercial gWh sales and customer counts.

A. This is shown on Schedules APM-1 and APM-2. Commercial gWh sales are forecast to rise 2.5 percent per year between the test year and the rate year on a weather-adjusted basis after showing no increase in 2011. The projected rebound is based on Moody's forecast of a rebound in commercial employment and output, particularly in 2013. The Company's expanded energy efficiency initiatives reduce the commercial sales forecast by 0.8 percent per year, as shown in Schedule APM-6A.

The number of commercial customers is expected to increase 1.9 percent per year between the test year and the rate year based on Moody's forecast of commercial employment.

Q. How were industrial gWh sales and customer counts modeled?

A. Industrial sales made up 12 percent of total 2011 gWh sales. Industrial sales were modeled as a function of manufacturing employment, real electricity price, revenue month CDD, monthly billing days and historical indicator variables. The historical indicator variables were to account for months when large customers were not billed or received bills for more than one month. The econometric forecast of industrial gWh sales

was adjusted downward by 0.3 percent per year to account for the Company's expanded energy efficiency initiatives.

For the industrial customer count model, the explanatory variable was manufacturing employment.

Q. Please summarize the econometric forecast of industrial gWh sales and customer counts.

A. This is shown on Schedules APM-1 and APM-2. Industrial gWh sales are forecast to decline 1.4 percent per year between the test year and the rate year on a weather-normalized basis due mainly to a 2.7 percent drop in 2012 associated with Moody's projected decline in manufacturing employment. Both industrial gWh sales and manufacturing employment have been steadily declining since 1990. This is illustrated in Schedules APM-1 and APM-3, respectively.

The number of industrial customers is forecast to increase 1.0 percent per year between the test year and the rate year based on Moody's forecast of local manufacturing employment in those years.

Q. How were streetlighting gWh sales and customer counts modeled?

A. Streetlighting sales accounted for less than one percent of 2011 gWh sales. There is no significant trend in the level of streetlighting sales over time. A regression analysis relating streetlighting sales to the number of hours of daylight per month was used to

predict their monthly pattern. The forecasted number of streetlighting customers was held constant at its last historical value.

Q. Please summarize the streetlighting gWh sales and customer count forecast.

A. Both streetlighting gWh sales and customer counts are forecast to remain constant at 2011 levels through 2014.

Q. How was the forecast of gWh sales and customer counts by *rate class* derived from the econometric forecast of gWh sales and customer counts by *revenue class*?

A. The revenue class gWh sales and customer forecasts described above were allocated to rate classes based on each rate class's share in total revenue class growth predicted over the historical period. To accomplish this, separate regression equations were estimated for each rate class/revenue class combination. The regressions related monthly rate class gWh sales to a linear time trend and predicted rate class gWh for each month of the forecast period. Predicted rate class gWh were summed to the revenue classes. Each rate class's share in total predicted revenue class gWh growth was used to allocate the econometric forecast of revenue class gWh sales to the rate classes. The same methodology was used to allocate the customer forecast to rate classes.

IV. Peak Load Forecast

Q. How were the Company's peak MW demands forecast?

A. Monthly peak demands coincident with the Company peak were forecast for four power supply areas ("PSAs") that make up the Company's service area. The PSA demand forecasts were then summed to yield the Company's monthly peak demand forecast.

Individual PSA demands were forecast from econometric models relating monthly peaks to local employment and population, peak day temperature variables and monthly indicator variables. The four PSAs were Providence, Western Rhode Island, Blackstone Valley (the former Blackstone Valley Electric Company service area) and Newport (the former Newport Electric Corporation service area). There was a separate model for each PSA. Historical and forecast local employment and population were provided by Moody's Economy.com. Moody's January 2011 forecast was used for the peak load forecast. The PSA forecasts were driven by Rhode Island employment and population. Peak day temperature values were calculated from NOAA's Providence weather station. The forecast assumed normal weather. The historic estimation period for the peak load models was January 1995 through October 2010.

Q. What was the source of the historical peak demand data?

A. Monthly PSA MW demands coincident with the Company peak were provided by the Company's distribution planning engineers. The sum of the PSA demands were reconciled with monthly Company peaks collected by the Meter Data Services department and reported to the ISO-NE for wholesale power billing.

Q. Please summarize the Company's peak MW demand forecast.

A. The forecast is summarized in Schedule APM-7. The forecast anticipates that average monthly peaks will rise 2.7 percent between the test year and the rate year.

V. Conclusion

Q. Does this conclude your direct testimony?

A. Yes.

Schedules of
Alfred P. Morrissey

Index of Schedules

Schedule APM-1

Schedule APM-1

The Narragansett Electric Company GWh Sales Forecast With DSM, Actual and Forecast GWh Sales by Revenue Class, 1990-2014

The Narragansett Electric Company GWh Sales Forecast with DSM
Actual and Forecast GWh Sales by Revenue Class, 1990-201

Year	Residential	Growth Rate	Commercial	Growth Rate	Industrial	Growth Rate	Street Lighting	Growth Rate	Total	Growth Rate
1990	2,356.228		2,589.119		1,360.680		75.574		6,381.601	
1991	2,347.734	-0.4%	2,575.753	-0.5%	1,366.442	0.4%	73.434	-2.8%	6,363.362	-0.3%
1992	2,340.824	-0.3%	2,590.136	0.6%	1,351.413	-1.1%	71.581	-2.5%	6,353.954	-0.1%
1993	2,389.009	2.1%	2,641.179	2.0%	1,411.043	4.4%	67.477	-5.7%	6,508.709	2.4%
1994	2,432.946	1.8%	2,660.848	0.7%	1,370.570	-2.9%	66.129	-2.0%	6,530.493	0.3%
1995	2,415.416	-0.7%	2,684.213	0.9%	1,346.135	-1.8%	64.031	-3.2%	6,509.796	-0.3%
1996	2,464.049	2.0%	2,711.490	1.0%	1,346.375	0.0%	62.157	-2.9%	6,584.071	1.1%
1997	2,457.700	-0.3%	2,749.704	1.4%	1,383.470	2.8%	61.324	-1.3%	6,652.199	1.0%
1998	2,501.090	1.8%	2,839.409	3.3%	1,428.162	3.2%	61.387	0.1%	6,830.048	2.7%
1999	2,634.557	5.3%	2,962.778	4.3%	1,414.073	-1.0%	61.915	0.9%	7,073.324	3.6%
2000	2,607.698	-1.0%	3,089.688	4.3%	1,406.947	-0.5%	61.693	-0.4%	7,166.026	1.3%
2001	2,690.006	3.2%	3,231.227	4.6%	1,357.889	-3.5%	62.074	0.6%	7,341.196	2.4%
2002	2,800.123	4.1%	3,327.314	3.0%	1,325.874	-2.4%	62.304	0.4%	7,515.614	2.4%
2003	2,956.222	5.6%	3,418.260	2.7%	1,256.555	-5.2%	63.054	1.2%	7,694.092	2.4%
2004	2,972.254	0.5%	3,489.108	2.1%	1,297.438	3.3%	63.480	0.7%	7,822.280	1.7%
2005	3,130.546	5.3%	3,580.945	2.6%	1,210.959	-6.7%	62.886	-0.9%	7,985.335	2.1%
2006	2,993.125	-4.4%	3,534.610	-1.3%	1,141.426	-5.7%	63.169	0.5%	7,732.329	-3.2%
2007	3,074.863	2.7%	3,625.716	2.6%	1,116.802	-2.2%	62.274	-1.4%	7,879.655	1.9%
2008	3,019.446	-1.8%	3,609.685	-0.4%	1,036.156	-7.2%	64.336	3.3%	7,729.624	-1.9%
2009	2,927.388	-3.0%	3,580.214	-0.8%	923.143	-10.9%	63.850	-0.8%	7,494.594	-3.0%
2010	3,114.619	6.4%	3,649.057	1.9%	934.959	1.3%	53.253	-16.6%	7,751.887	3.4%
2011 (Test Year)	3,105.700	-0.3%	3,639.567	-0.3%	902.161	-3.5%	60.113	12.9%	7,707.541	-0.6%
Forecast										
2012	3,097.960	-0.2%	3,737.934	2.7%	875.189	-3.0%	63.977	6.4%	7,775.060	0.9%
2013	3,113.237	0.5%	3,803.042	1.7%	873.644	-0.2%	63.977	0.0%	7,853.901	1.0%
2014	3,127.469	0.5%	3,877.735	2.0%	869.071	-0.5%	63.977	0.0%	7,938.253	1.1%
Total Growth - Test Year to Rate Year										
Rate Year (1)	3,113.433	0.2%	3,807.848	4.6%	873.161	-3.2%	63.977	6.4%	7,858.419	2.0%
Compound Annual Growth Rates										
1990-2011 21 -year		1.3%		1.6%		-1.9%		-1.1%		0.9%
2001-2011 10-Year		1.4%		1.2%		-4.0%		-0.3%		0.5%
2006-2011 5-Year		0.7%		0.6%		-4.6%		-1.0%		-0.1%
Test Year to Rate Year		0.1%		2.2%		-1.6%		3.0%		0.9%

(1) Rate Year is 12 month period ending January 31, 2014

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. _____
Schedule APM-1
Page 1 of 1

Schedule APM-2

Schedule APM-2

The Narragansett Electric Company GWh Sales Forecast With DSM, Weather-Normalized and Forecast GWh Sales by Revenue Class, 1990-2014

The Narragansett Electric Company GWh Sales Forecast with DSM
Weather-Normalized and Forecast GWh Sales by Revenue Class, 1990-2014

Year	Residential	Growth Rate	Commercial	Growth Rate	Industrial	Growth Rate	Street Lighting	Growth Rate	Total	Growth Rate
1990	2,367.481		2,582.545		1,358.650		75.574		6,384.250	
1991	2,353.798	-0.6%	2,547.039	-1.4%	1,359.381	0.1%	73.434	-2.8%	6,333.651	-0.8%
1992	2,385.629	1.4%	2,623.502	3.0%	1,358.316	-0.1%	71.581	-2.5%	6,439.028	1.7%
1993	2,356.343	-1.2%	2,607.358	-0.6%	1,404.960	3.4%	67.477	-5.7%	6,436.138	0.0%
1994	2,455.866	4.2%	2,663.899	2.2%	1,371.473	-2.4%	66.129	-2.0%	6,557.367	1.9%
1995	2,427.007	-1.2%	2,665.836	0.1%	1,341.963	-2.2%	64.031	-3.2%	6,498.837	-0.9%
1996	2,503.344	3.1%	2,726.085	2.3%	1,350.319	0.6%	62.157	-2.9%	6,641.906	2.2%
1997	2,494.796	-0.3%	2,749.637	0.9%	1,383.671	2.5%	61.324	-1.3%	6,689.428	0.7%
1998	2,573.369	3.1%	2,838.717	3.2%	1,426.251	3.1%	61.387	0.1%	6,899.724	3.1%
1999	2,612.619	1.5%	2,933.210	3.3%	1,401.703	-1.7%	61.915	0.9%	7,009.447	1.6%
2000	2,638.494	1.0%	3,117.478	6.3%	1,411.621	0.7%	61.693	-0.4%	7,229.287	3.1%
2001	2,682.266	1.7%	3,212.826	3.1%	1,355.136	-4.0%	62.074	0.6%	7,312.302	1.1%
2002	2,730.358	1.8%	3,285.124	2.3%	1,315.639	-2.9%	62.304	0.4%	7,393.425	1.1%
2003	2,847.733	4.3%	3,408.321	3.8%	1,248.428	-5.1%	63.054	1.2%	7,567.537	2.4%
2004	2,955.009	3.8%	3,475.171	2.0%	1,297.285	3.9%	63.480	0.7%	7,790.944	3.0%
2005	3,012.742	2.0%	3,528.750	1.5%	1,198.328	-7.6%	62.886	-0.9%	7,802.706	0.2%
2006	3,005.718	-0.2%	3,550.791	0.6%	1,138.189	-5.0%	63.169	0.5%	7,757.866	-0.6%
2007	3,044.158	1.3%	3,597.028	1.3%	1,110.901	-2.4%	62.274	-1.4%	7,814.361	0.7%
2008	3,017.852	-0.9%	3,615.830	0.5%	1,032.532	-7.1%	64.336	3.3%	7,730.550	-1.1%
2009	2,978.922	-1.3%	3,624.900	0.3%	929.129	-10.0%	63.850	-0.8%	7,596.801	-1.7%
2010	3,058.463	2.7%	3,619.982	-0.1%	922.511	-0.7%	53.253	-16.6%	7,654.209	0.8%
2011 (Test Year)	3,087.080	0.9%	3,619.957	0.0%	899.371	-2.5%	60.113	12.9%	7,666.522	0.2%
Forecast										
2012	3,097.960	0.4%	3,737.934	3.3%	875.189	-2.7%	63.977	6.4%	7,775.060	1.4%
2013	3,113.237	0.5%	3,803.042	1.7%	873.644	-0.2%	63.977	0.0%	7,853.901	1.0%
2014	3,127.469	0.5%	3,877.735	2.0%	869.071	-0.5%	63.977	0.0%	7,938.253	1.1%
Total Growth - Test Year to Rate Year										
Rate Year (1)	3,113.433	0.9%	3,807.848	5.2%	873.161	-2.9%	63.977	6.4%	7,858.419	2.5%
Compound Annual Growth Rates										
1990-2011 21 -year		1.3%		1.6%		-1.9%		-1.1%		0.9%
2001-2011 10-Year		1.4%		1.2%		-4.0%		-0.3%		0.5%
2006-2011 5-Year		0.5%		0.4%		-4.6%		-1.0%		-0.2%
Test Year to Rate Year		0.4%		2.5%		-1.4%		3.0%		1.2%

(1) Rate Year is 12 month period ending January 31, 2014

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. _____
Schedule APM-2
Page 1 of 1

Schedule APM-3

The Narragansett Electric Company GWh Sales Forecast, Rhode Island Economic/Demographic Variables, 1990-2014

The Narragansett Electric Company GWh Sales Forecast
Rhode Island Economic/Demographic Variables, 1990-201

Year	Total Employment (000"s)	Growth Rate	Non Manufacturing Employment (000"s)	Growth Rate	Manufacturing Employment (000"s)	Growth Rate	Real Personal Income (mill. $2005)	Growth Rate	Gross State Product (bill. $2000)	Growth Rate	Population (000"s)	Growth Rate	Number of Households (000"s)	Growth Rate
1990	454.263		359.029		95.234		$27,627		$31.048		1,006.2		378.922	
1991	424.232	-6.6%	336.692	-6.2%	87.540	-8.1%	$27,002	-2.3%	$29.933	-3.6%	1,010.6	0.4%	381.945	0.8%
1992	423.920	-0.1%	339.180	0.7%	84.740	-3.2%	$27,382	1.4%	$30.371	1.5%	1,012.8	0.2%	383.958	0.5%
1993	429.826	1.4%	346.310	2.1%	83.516	-1.4%	$27,866	1.8%	$30.708	1.1%	1,015.1	0.2%	386.205	0.6%
1994	434.174	1.0%	351.592	1.5%	82.583	-1.1%	$28,084	0.8%	$30.982	0.9%	1,016.0	0.1%	387.828	0.4%
1995	439.071	1.1%	358.678	2.0%	80.393	-2.7%	$28,947	3.1%	$31.784	2.6%	1,017.3	0.1%	389.532	0.4%
1996	440.786	0.4%	363.371	1.3%	77.415	-3.7%	$29,578	2.2%	$32.329	1.7%	1,021.1	0.4%	392.350	0.7%
1997	450.076	2.1%	373.842	2.9%	76.233	-1.5%	$30,749	4.0%	$34.377	6.3%	1,025.6	0.4%	395.398	0.8%
1998	457.895	1.7%	383.105	2.5%	74.790	-1.9%	$32,215	4.8%	$35.137	2.2%	1,031.6	0.6%	398.988	0.9%
1999	465.393	1.6%	393.286	2.7%	72.107	-3.6%	$32,931	2.2%	$36.269	3.2%	1,040.9	0.9%	403.938	1.2%
2000	476.893	2.5%	405.651	3.1%	71.241	-1.2%	$34,491	4.7%	$38.357	5.8%	1,050.7	0.9%	409.311	1.3%
2001	478.550	0.3%	410.751	1.3%	67.800	-4.8%	$36,032	4.5%	$39.775	3.7%	1,058.0	0.7%	412.347	0.7%
2002	479.495	0.2%	417.187	1.6%	62.308	-8.1%	$36,951	2.5%	$41.415	4.1%	1,066.5	0.8%	416.212	0.9%
2003	484.267	1.0%	425.551	2.0%	58.716	-5.8%	$37,889	2.5%	$43.129	4.1%	1,072.1	0.5%	418.650	0.6%
2004	488.426	0.9%	431.493	1.4%	56.933	-3.0%	$38,697	2.1%	$44.361	2.9%	1,074.3	0.2%	420.254	0.4%
2005	491.082	0.5%	436.141	1.1%	54.941	-3.5%	$38,570	-0.3%	$44.169	-0.4%	1,068.1	-0.6%	417.956	-0.5%
2006	493.349	0.5%	440.599	1.0%	52.749	-4.0%	$39,583	2.6%	$44.956	1.8%	1,062.6	-0.5%	416.263	-0.4%
2007	492.754	-0.1%	441.980	0.3%	50.775	-3.7%	$40,440	2.2%	$44.522	-1.0%	1,058.3	-0.4%	414.786	-0.4%
2008	481.964	-2.2%	433.989	-1.8%	47.975	-5.5%	$40,501	0.2%	$43.628	-2.0%	1,056.6	-0.2%	414.538	-0.1%
2009	460.440	-4.5%	418.716	-3.5%	41.724	-13.0%	$39,287	-3.0%	$42.834	-1.8%	1,055.5	-0.1%	414.456	0.0%
2010	458.783	-0.4%	418.475	-0.1%	40.308	-3.4%	$39,888	1.5%	$44.013	2.8%	1,054.8	-0.1%	414.501	0.0%
2011 (Test Year)	460.998	0.5%	420.391	0.5%	40.607	0.7%	$40,413	1.3%	$45.439	3.2%	1,056.4	0.2%	415.467	0.2%
Forecast														
2012	460.793	0.0%	420.623	0.1%	40.170	-1.1%	$40,577	0.4%	$47.268	4.0%	1,059.5	0.3%	415.619	0.0%
2013	466.735	1.3%	426.411	1.4%	40.324	0.4%	$41,264	1.7%	$48.946	3.6%	1,062.7	0.3%	416.127	0.1%
2014	480.392	2.9%	439.746	3.1%	40.647	0.8%	$42,407	2.8%	$51.064	4.3%	1,066.1	0.3%	417.605	0.4%
Total Growth - Test Year to Rate Year														
Rate Year (1)	468.445	1.6%	428.094	1.8%	40.351	-0.6%	$41,416	2.5%	$49.255	8.4%	1,063.2	0.6%	416.314	0.2%
Compound Annual Growth Rates														
1990-2011 21 -year		0.1%		0.8%		-4.0%		1.8%		1.8%		0.2%		0.4%
2001-2011 10-Year		-0.4%		0.2%		-5.0%		1.2%		1.3%		0.0%		0.1%
2006-2011 5-Year		-1.3%		-0.9%		-5.1%		0.4%		0.2%		-0.1%		0.0%
Test Year to Rate Year		0.8%		0.9%		-0.3%		1.2%		3.9%		0.3%		0.1%

(1) Rate Year is 12 month period ending January 31, 2014

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. _____
Schedule APM-3
Page 1 of 1

Schedule APM-4

The Narragansett Electric Company GWh Sales Forecast, Weather and Other Explanatory Variables, 1990-2014

The Narragansett Electric Company GWh Sales Forecast
Weather and Other Explanatory Variables, 1990-2014

Year	CDD	Growth Rate	HDD	Growth Rate	Number of Days Billed	Growth Rate	Real Electricity Price (Cents/KWh)	Growth Rate
1990	710.5		5,376.2		364.6		15.0	
1991	851.7	19.9%	5,064.4	-5.8%	365.5	0.2%	16.4	9.1%
1992	506.3	-40.6%	5,904.4	16.6%	366.7	0.3%	16.3	-0.8%
1993	835.0	64.9%	5,783.5	-2.0%	365.2	-0.4%	15.8	-3.1%
1994	658.6	-21.1%	5,792.3	0.2%	365.2	0.0%	15.4	-2.2%
1995	786.4	19.4%	5,460.5	-5.7%	364.1	-0.3%	15.1	-2.1%
1996	580.8	-26.1%	6,093.9	11.6%	368.1	1.1%	15.4	1.9%
1997	672.8	15.8%	5,753.0	-5.6%	365.1	-0.8%	15.3	-0.6%
1998	723.0	7.5%	5,010.0	-12.9%	365.4	0.1%	13.1	-14.2%
1999	872.5	20.7%	5,165.2	3.1%	365.1	-0.1%	12.5	-4.8%
2000	585.9	-32.9%	5,565.7	7.8%	362.7	-0.7%	12.3	-2.0%
2001	747.8	27.6%	5,480.1	-1.5%	365.3	0.7%	14.6	19.1%
2002	927.2	24.0%	5,515.9	0.7%	365.3	0.0%	12.0	-17.5%
2003	766.6	-17.3%	6,253.0	13.4%	365.6	0.1%	12.3	2.0%
2004	691.7	-9.8%	5,940.2	-5.0%	366.7	0.3%	13.0	5.5%
2005	997.3	44.2%	6,058.3	2.0%	363.8	-0.8%	13.4	3.6%
2006	812.3	-18.6%	5,243.0	-13.5%	364.0	0.1%	15.7	17.0%
2007	881.0	8.5%	5,472.5	4.4%	364.3	0.1%	14.0	-10.9%
2008	818.5	-7.1%	5,363.3	-2.0%	365.3	0.3%	15.5	10.3%
2009	565.5	-30.9%	5,716.5	6.6%	365.6	0.1%	14.9	-3.4%
2010	1,032.6	82.6%	5,139.9	-10.1%	365.2	-0.1%	14.9	0.0%
2011 (Test Year)	874.5	-15.3%	5,555.5	8.1%	365.3	0.0%	12.9	-13.4%
Forecast								
2012	836.7	-4.3%	5,625.8	1.3%	365.7	0.1%	12.9	0.0%
2013	836.7	0.0%	5,625.8	0.0%	365.4	-0.1%	12.9	0.0%
2014	836.7	0.0%	5,625.8	0.0%	365.4	0.0%	12.9	0.0%
Total Growth - Test Year to Rate Year								
Rate Year (1)	836.7	-4.3%	5,625.8	1.3%	365.4	0.0%	12.9	0.0%
Compound Annual Growth Rates								
1990-2011 21 -year		1.0%		0.2%		0.0%		-0.7%
2001-2011 10-Year		1.6%		0.1%		0.0%		-1.2%
2006-2011 5-Year		1.5%		1.2%		0.1%		-3.9%
Test Year to Rate Year		-2.1%		0.6%		0.0%		0.0%

(1) Rate Year is 12 month period ending January 31, 2014

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. _____
Schedule APM-4
Page 1 of 1

Schedule APM-5

Schedule APM-5

The Narragansett Electric Company Customer Forecast, Actual and Forecast Customer Counts by Revenue Class, 1990-2014

The Narragansett Electric Company Customer Forecast
Actual and Forecast Customer Counts by Revenue Class, 1990-201

Year	Residential	Growth Rate	Commercial	Growth Rate	Industrial	Growth Rate	Street Llighting	Growth Rate	Total	Growth Rate
1990	381,900		44,485		2,572		1,141		430,098	
1991	384,195	0.6%	44,462	-0.1%	2,514	-2.3%	1,123	-1.5%	432,293	0.5%
1992	386,490	0.6%	44,222	-0.5%	2,495	-0.7%	1,110	-1.2%	434,317	0.5%
1993	389,201	0.7%	44,246	0.1%	2,474	-0.9%	1,061	-4.4%	436,981	0.6%
1994	391,234	0.5%	44,146	-0.2%	2,577	4.2%	1,054	-0.7%	439,011	0.5%
1995	396,293	1.3%	42,876	-2.9%	2,584	0.3%	1,034	-1.8%	442,788	0.9%
1996	398,905	0.7%	43,216	0.8%	2,577	-0.3%	1,018	-1.6%	445,716	0.7%
1997	401,665	0.7%	43,737	1.2%	2,529	-1.9%	1,018	0.0%	448,949	0.7%
1998	404,266	0.6%	45,846	4.8%	2,576	1.8%	1,001	-1.7%	453,688	1.1%
1999	408,191	1.0%	46,972	2.5%	2,556	-0.8%	1,003	0.2%	458,722	1.1%
2000	409,273	0.3%	50,673	7.9%	2,578	0.8%	1,428	42.5%	463,951	1.1%
2001	411,333	0.5%	52,433	3.5%	2,550	-1.1%	1,181	-17.3%	467,496	0.8%
2002	413,819	0.6%	52,819	0.7%	2,473	-3.0%	1,152	-2.4%	470,263	0.6%
2003	416,421	0.6%	53,559	1.4%	2,420	-2.1%	1,160	0.7%	473,561	0.7%
2004	418,366	0.5%	54,160	1.1%	2,364	-2.3%	1,159	-0.2%	476,049	0.5%
2005	421,615	0.8%	54,611	0.8%	2,313	-2.2%	1,162	0.3%	479,700	0.8%
2006	422,888	0.3%	55,172	1.0%	2,222	-3.9%	1,154	-0.7%	481,436	0.4%
2007	424,781	0.4%	55,796	1.1%	2,165	-2.6%	1,146	-0.6%	483,889	0.5%
2008	425,344	0.1%	56,056	0.5%	2,071	-4.3%	1,141	-0.5%	484,613	0.1%
2009	427,209	0.4%	56,333	0.5%	2,037	-1.6%	1,231	7.9%	486,811	0.5%
2010	425,288	-0.4%	56,665	0.6%	2,010	-1.4%	1,145	-6.9%	485,108	-0.3%
2011 (Test Year)	427,484	0.5%	57,478	1.4%	1,993	-0.8%	1,119	-2.3%	488,073	0.6%
Forecast		0.2%		0.8%		-2.2%				0.3%
2012	428,514	0.2%	57,937	0.8%	1,986	-0.3%	1,119	0.0%	489,556	0.3%
2013	431,075	0.6%	59,489	2.7%	2,031	2.2%	1,119	0.0%	493,714	0.8%
2014	432,579	0.3%	61,078	2.7%	2,060	1.5%	1,119	0.0%	496,836	0.6%
Total Growth - Test Year to Rate Year										
Rate Year (1)	431,246	0.9%	59,735	3.9%	2,037	2.2%	1,119	0.0%	494,137	1.2%
Compound Annual Growth Rates										
1990-2011 21 -year		0.5%		1.2%		-1.2%		-0.1%		0.6%
2001-2011 10-Year		0.4%		0.9%		-2.4%		-0.5%		0.4%
2006-2011 5-Year		0.2%		0.8%		-2.2%		-0.6%		0.3%
Test Year to Rate Year		0.4%		1.9%		1.0%		0.0%		0.6%

(1) Rate Year is 12 month period ending January 31, 2014

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. _____
Schedule APM-5
Page 1 of 1

Schedule APM-6

Schedule APM-6

The Narragansett Electric Company GWh Sales Forecast, Historical and Forecast Energy Efficiency (EE) Savings on Energy, 1990-2014

The Narragansett Electric Company GWh Sales Forecast
Historical and Forecast Energy Efficiency (EE) Savings on Energy, 1990-2014

	EE Savings (GWh)			GWh Sales			EE Percent of GWh Sales		
Year	Residential	Business	Total	Residential	Business	Total	Residential	Business	Total
1990	17.389	87.363	104.752	2,356.228	4,025.373	6,381.601	0.7%	2.2%	1.6%
1991	18.556	107.882	126.439	2,347.734	4,015.629	6,363.362	0.8%	2.7%	2.0%
1992	20.740	140.966	161.706	2,340.824	4,013.131	6,353.954	0.9%	3.5%	2.5%
1993	20.519	165.460	185.978	2,389.009	4,119.700	6,508.709	0.9%	4.0%	2.9%
1994	18.353	189.415	207.768	2,432.946	4,097.547	6,530.493	0.8%	4.6%	3.2%
1995	20.494	207.646	228.140	2,415.416	4,094.379	6,509.796	0.8%	5.1%	3.5%
1996	24.102	224.448	248.550	2,464.049	4,120.022	6,584.071	1.0%	5.4%	3.8%
1997	28.646	248.733	277.378	2,457.700	4,194.498	6,652.199	1.2%	5.9%	4.2%
1998	35.036	264.871	299.907	2,501.090	4,328.958	6,830.048	1.4%	6.1%	4.4%
1999	40.474	282.093	322.567	2,634.557	4,438.767	7,073.324	1.5%	6.4%	4.6%
2000	50.903	291.090	341.993	2,607.698	4,558.328	7,166.026	2.0%	6.4%	4.8%
2001	69.812	322.772	392.584	2,690.006	4,651.191	7,341.196	2.6%	6.9%	5.3%
2002	88.902	353.655	442.557	2,800.123	4,715.491	7,515.614	3.2%	7.5%	5.9%
2003	107.137	373.577	480.714	2,956.222	4,737.870	7,694.092	3.6%	7.9%	6.2%
2004	118.274	401.597	519.871	2,972.254	4,850.026	7,822.280	4.0%	8.3%	6.6%
2005	131.753	436.754	568.507	3,130.546	4,854.789	7,985.335	4.2%	9.0%	7.1%
2006	152.657	470.673	623.330	2,993.125	4,739.204	7,732.329	5.1%	9.9%	8.1%
2007	170.787	503.364	674.152	3,074.863	4,804.792	7,879.655	5.6%	10.5%	8.6%
2008	186.742	529.152	715.895	3,019.446	4,710.178	7,729.624	6.2%	11.2%	9.3%
2009	200.433	559.739	760.173	2,927.388	4,567.206	7,494.594	6.8%	12.3%	10.1%
2010	197.309	580.722	778.031	3,114.619	4,637.269	7,751.887	6.3%	12.5%	10.0%
2011 (Test Year)	197.541	616.170	813.712	3,105.700	4,601.841	7,707.541	6.4%	13.4%	10.6%
Forecast									
2012	214.421	662.515	876.936	3,097.960	4,677.100	7,775.060	6.9%	14.2%	11.3%
2013	241.622	727.987	969.609	3,113.237	4,740.664	7,853.901	7.8%	15.4%	12.3%
2014	278.471	807.233	1,085.705	3,127.469	4,810.784	7,938.253	8.9%	16.8%	13.7%
Rate Year (1)	244.693	734.591	979.283	3,113.433	4,744.986	7,858.419	7.9%	15.5%	12.5%

(1) Rate Year is 12 month period ending January 31, 2014
The EE Savings forecast assumes a continuation of historical energy efficiency savings plus additional savings from programs currently planned.

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. _____
Schedule APM-6
Page 1 of 1

Schedule APM-6a

Schedule APM-6a

The Narragansett Electric Company GWh Sales Forecast, Impact of Energy Efficiency (EE)

The Narragansett Electric Company GWh Sales Forecast
Impact of Energy Efficiency (EE)

(A)
GWh Sales Forecast Before EE Adjustment

Year	Residential	Growth Rate	Commercial	Growth Rate	Industrial	Growth Rate	Street Lighting	Growth Rate	Total	Growth Rate
2011 (Test Year)	3,105.700		3,639.567		902.161		60.113		7,707.541	
2012	3,106.260	0.0%	3,760.818	3.3%	875.189	-3.0%	63.977	6.4%	7,806.244	1.3%
2013	3,140.160	1.1%	3,860.898	2.7%	877.242	0.2%	63.977	0.0%	7,942.278	1.7%
2014	3,182.663	1.4%	3,982.821	3.2%	879.504	0.3%	63.977	0.0%	8,108.966	2.1%
Total Growth - Test Year to Rate Year										
Rate Year (1)	3,142.713	1.2%	3,869.640	6.3%	877.328	-2.8%	63.977	6.4%	7,953.658	3.2%
Compound Annual Growth - Test Year to Rate Year										
Test Year to Rate Year		0.6%		3.0%		-1.3%		3.0%		1.5%

(B)
EE Adjustment - GWh

Year	Residential	% of Residential	Commercial	% of Commercial	Industrial	Growth Rate	Street Lighting	Growth Rate	Total	Growth Rate
2011 (Test Year)	0.000		0.000		0.000		0.000		0.000	
2012	8.301	0.3%	22.884	0.6%	0.000	0.0%	0.000	0.0%	31.184	0.4%
2013	26.923	0.9%	57.856	1.5%	3.598	0.4%	0.000	0.0%	88.377	1.1%
2014	55.194	1.7%	105.086	2.6%	10.433	1.2%	0.000	0.0%	170.713	2.1%
Rate Year (1)	29.279	0.9%	61.792	1.6%	4.167	0.5%	0.000	0.0%	95.239	1.2%

(C) = (A) - (B)
GWh Sales After EE Adjustment

Year	Residential	Growth Rate	Commercial	Growth Rate	Industrial	Growth Rate	Street Lighting	Growth Rate	Total	Growth Rate
2011 (Test Year)	3,105.700		3,639.567		902.161		60.113		7,707.541	
2012	3,097.960	-0.2%	3,737.934	2.7%	875.189	-3.0%	63.977	6.4%	7,775.060	0.9%
2013	3,113.237	0.5%	3,803.042	1.7%	873.644	-0.2%	63.977	0.0%	7,853.901	1.0%
2014	3,127.469	0.5%	3,877.735	2.0%	869.071	-0.5%	63.977	0.0%	7,938.253	1.1%
Total Growth - Test Year to Rate Year										
Rate Year (1)	3,113.433	0.2%	3,807.848	4.6%	873.161	-3.2%	63.977	6.4%	7,858.419	2.0%
Compound Annual Growth - Test Year to Rate Year										
Test Year to Rate Year		0.1%		2.2%		-1.6%		3.0%		0.9%

(1) Rate Year is 12 month period ending January 31, 2014

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. _____
Schedule APM-6a
Page 1 of 1

Schedule APM-7

The Narragansett Electric Company Monthly Peak Demand Forecast With DSM, Historical and Forecast Monthly Demands (MW)

The Narragansett Electric Company Monthly Peak Demand Forecast With DSM
Historical and Forecast Monthly Demands (MW

Historical Test Year Ending 2011

Year	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011
Month	1	2	3	4	5	6	7	8	9	10	11	12	Monthly
Date	01/24/11	02/01/11	03/03/11	04/01/11	05/31/11	06/08/11	07/22/11	08/01/11	09/14/11	10/10/11	11/23/11	12/19/11	Average
Hour	19	18	19	11	17	17	16	15	16	20	18	18	
Peak MW	1,315.2	1,256.6	1,176.3	1,035.1	1,295.4	1,565.0	1,908.2	1,645.5	1,370.3	1,096.6	1,119.6	1,230.6	1,334.5

Forecast Rate Year Ending January 2014

Year	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2014	Rate Year
Month	2	3	4	5	6	7	8	9	10	11	12	1	Average
Peak MW	1,243.6	1,279.8	981.1	1,307.3	1,757.3	1,818.0	1,904.4	1,599.2	1,120.8	1,349.4	1,262.2	1,291.3	1,409.5

Growth rate **5.6%**
Annualized Growth Rate **2.7%**

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. _____
Schedule APM-7
Page 1 of 1

PREFILED DIRECT TESTIMONY

OF

A. LEO SILVESTRINI

Table of Contents

I. Introduction and Qualifications

Q. Please state your name and business address.

A. My name is A. Leo Silvestrini, and my business address is 40 Sylvan Road, Waltham, Massachusetts 02451.

Q. What are your position and responsibilities?

A. I am employed by National Grid USA Service Company, Inc. as Manager of Gas Load Forecasting and Analysis for The Narragansett Electric Company d/b/a National Grid (the "Company"). My responsibilities include supervising the development and dissemination of the gas load forecasts for the Company's service territory in Rhode Island.

Q. What is your professional and educational background?

A. I received a Bachelor of Arts Degree in History in 1973 from the State University of New York at Albany and a Master of Arts Degree in Economics from Tufts University in 1976. I also received a certificate from the Northeastern University School of Business Management for the completion of the Management Development Program in 1987. In 1978, I joined Boston Gas Company as an economic analyst in the Rate Department. In 1980, I was promoted to Manager of Rates and Revenue Analysis, and in 1985, to the position of Director of Rates and Economic Analysis. Over the next several years, I held a similar position in Market Planning and Development, Corporate Strategic Planning and Gas Resource Planning, and Rates and Regulatory Affairs. I am currently the

Manager of Gas Load Forecasting and Analysis. I have previously testified before the Massachusetts Department of Public Utilities on the topics of marginal costs, rate design, and cost allocation; the Massachusetts Energy Facilities Siting Board on the topic of gas demand forecasting; and the New Hampshire Public Utilities Commission on the topics of cost of gas recovery and gas demand forecasting.

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 months ending December 31, 2011, and the forecasted revenues for the rate year, the twelve months ending January 31, 2014. The data is also used to design rates. The data presented here include historical data for the twelve months ending December 31, 2011, the test year underlying the Company's filing, and forecast data for the fiscal years ending March 31, 2013 through March 31, 2014. The Company's fiscal year consists of the twelve months ending March 31.

Q. How is your testimony organized?

A. My testimony is organized into three sections. The first section is a general introduction. The second section explains the purpose of this testimony. The third section explains the test-year weather normalization of rate-year gas deliveries as well as the calculation of

adjustments for the projected rate year. The third section also describes how the forecasted customer counts and volumes were determined.

Q. Are there any schedules accompanying your testimony?

A. Yes. Included with my testimony are the following Schedules:

Schedule ALS-1	Normal Degree Days
Schedule ALS-2	Summary of Gas Deliveries
Schedule ALS-3	The Narragansett Electric Company Calendar Year Actual Gas Deliveries by Rate Class in Dth (2005 – 2011)
Schedule ALS-4	The Narragansett Electric Company Fiscal-Year Forecasted Gas Deliveries by Rate Class in Dth (2012 – 2014)
Schedule ALS-5	The Narragansett Electric Company Calendar Year End Number of Customers by Rate Class (2005 – 2011)
Schedule ALS-6	The Narragansett Electric Company Fiscal-Year-End Forecasted Number of Customers by Rate Class (2012 – 2014)
Schedule ALS-7	The Narragansett Electric Company Moody's economy.com Economic and Demographic Data

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

A. This proceeding is a ratemaking proceeding for the gas and electric distribution operations of The Narragansett Electric Company, which together represent the entirety of National Grid's regulated operations in Rhode Island, as the associated direct parent company. In this case, we will refer to the regulated entity as the "Company," where the

reference is to both gas and electric distribution operations on a collective basis. Where there is a need to refer to the "stand-alone" or individual operations of The Narragansett Electric Company, the Company will use the terms "Narragansett Electric" or "Narragansett Gas." Where the Company is referring to "National Grid USA", it will use the term "National Grid"; where the Company is referring to "National Grid plc," it will use that precise term.

III. Development of the Rate-Year Gas Deliveries

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 two categories: adjustments for impacts of weather and adjustments for the forecasts of those deliveries. Adjustments for the impacts of weather recognize the correlation between temperature and gas consumption. In cold weather, customers use more gas; when it is warm, they use less. The weatherization adjustment compensates for the difference in temperatures during the January 1, 2011 through December 31, 2011 test year compared to a historic normal defined as the 10-year period from January 1, 2002 through December 31, 2011. The adjustments for net growth acknowledge the change in numbers of customers and changes in customer usage that are expected to occur between the test year and the end of the rate year (February 1, 2013 through January 31, 2014), which is the first year that the new rates will be in effect.

A. Weather Normalization

Q. What are the historical normal heating degree days used for purposes of weather normalization?

A. The historical normal heating degree days used for purposes of weather normalization are 5,458 (5,490 including the extra day in a leap year). A heating degree day is defined as the positive difference between 65 degrees Fahrenheit and the daily average of the maximum and minimum temperatures for that day. This normal is based on National Oceanic and Atmospheric Administration ("NOAA") National Weather Service ("NWS") reported heating degree days at T.F. Green Airport, Providence, Rhode Island and represents the 10-year average for the period ending December 31, 2011. A breakdown by month with the 10-year average for each day is shown on Schedule ALS-1, page 1. The historic daily heating degree days for each calendar month are presented on pages 2 through 13. For those rate classes that are billed on a revenue-month basis, the heating degree days for the revenue month are compiled using the historical meter reading schedule (the "from" and "to" dates for each billing cycle in the revenue month). The heating degree days based on the revenue month are billing degree days.

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

A. This normal is 16 degree days, or 0.3 percent, colder than the one the Company used previously. The previous normal, determined in Narragansett Gas's 2008 rate case, was 5,442 heating degree days (5,472 including the extra day in a leap year). This standard was based on the 10-year average ending October 31, 2007.

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

A. The first step in the normalization process was to establish a base-load usage or non-weather sensitive level of usage by rate class. The base-load usage is calculated as the lower of the average use per day per customer in either (1) July and August or (2) August and September. This base-load factor is then multiplied by the number of customers and billing days in each month to calculate the monthly base-load usage. The July through September billing period is generally the warmest period of the year and any gas consumption is considered to be for non-heating purposes only. Consumption over and above the base-load level is considered weather sensitive and subject to variation with changes in degree days. For the test-year normalization, the weather-sensitive component was normalized by applying the ratio of the normal billing degree days to actual billing degree days for those rate classes that have their meters read and bills issued on a revenue-month basis. For rate classes that have their meters read and bills issued on a calendar-month basis, the weather sensitive component was normalized by applying the ratio of the normal calendar degree days to actual calendar degree days. 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 / 100 actual degree days * 110 normal degree days = 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 35,206 thousand

dekatherms ("MDth") with actual heating degree days of 5,418, and the weather normalized delivery quantities were 35,241 MDth using normal heating degree days of 5,458. The actual and weather-adjusted test-year volumes are shown on Schedule ALS-2, columns (b) and (d), respectively.

Q. Please describe how you adjusted the normalized test-year volumes to make them consistent with the forecast volumes.

A. The Company derived the forecast volumes from the econometric/statistical models it developed in its forecast methodology that is explained in more detail later in this testimony. It 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 Dth's and degree days that is defined by the estimated coefficient from the model. To make the historical normal Dth that is described above consistent with the forecasted normal Dth, the Company re-normalized the historical volumes by applying the estimated degree day coefficients from the use-per-customer models for the individual rate classes to the difference between actual and normal degree days. The Company used the updated definition of normal degree days (through December 31, 2011) for this calculation.

B. Growth Adjustments

Q. Please provide an overview of the Company's historical deliveries culminating with the test year ending December 31, 2011.

A. In the past seven years, the total annual deliveries to customers across all rate classes peaked in 2005 at 36,056 MDth as shown on Schedule ALS-3. In calendar year 2011, the comparative actual delivery volume was 35,206 MDth, a decrease of 850 MDth or 2.4 percent (141 MDth or -0.2 percent per year). The majority of the decline was in the residential heating class, which experienced a decline in the average use-per-customer of 9 percent over that period. Until recently, higher and more volatile gas prices, and the replacement of older equipment with newer, more efficient equipment have led to increased conservation and the resulting declines in the average residential use per customer. However, this trend has stabilized over the past three years, as gas prices have declined and stabilized. Over the forecast period 2012-2014, deliveries are projected to decrease by 303 MDth per year, an average rate of -0.9 percent as shown on Schedule ALS-4.

Q. Please provide an overview of the Company's historical number of customers culminating with the test year ending December 31, 2011.

A. As shown on Schedule ALS-5, on December 31, 2005, the total customer count for all rate classes was 247,569. The comparable year-end customer count for December 2011 was 250,734, an increase of 3,165 or 1.3 percent. The modest growth in customer counts over this period and the decline in natural gas delivery quantities are consistent with the

long-term economic and demographic trends in Rhode Island. The decline in manufacturing and the weak demographic underpinnings of the state economy have led to a decline in population. As a consequence, the rate of total customer additions has averaged only 528, or 0.2 percent per year between 2005 and 2011. Over the forecast period 2012-2014, as the regional economy recovers from the recent recession customers are projected to increase by 1,103 per year, an average growth rate of 0.4 percent, as shown on Schedule ALS-6.

Q. How were the delivery quantities adjusted to account for growth?

A. The Company adjusted the delivery quantities to account for growth by using the results of its demand forecast methodology, which involves forecasting customer counts and use-per-customer by rate class and multiplying the results of those two forecasts to derive the modeled Dth forecast. It then evaluated the potential impact that the Company-sponsored energy efficiency programs would have on the forecast of delivery quantities and determined that no adjustment was necessary to account for them. The results shown in Schedule ALS-2, columns (e) and (f) indicate that delivery quantities to firm sales and transportation customers in the rate year decline by 820 MDth from the normalized test year to 34,421 MDth in the rate year.

Q. Please describe how you derived the customer count forecasts.

A. The Company derived customer count forecast models as two components. One captures the annual changes in customer counts. The other captures the monthly or seasonal

variation of customer counts over the course of a year. The annual changes are modeled using regression analysis with customer counts as a function of time trends. The monthly variation is modeled by fitting logistic functions which capture the seasonal decline in customer counts that occurs during the summer months and the subsequent increase during the winter months. The monthly results of these logistic models are then reconciled to the results of the annual regression models to establish a monthly pattern over the course of the five-year forecast period. The models were developed individually for each firm sales and transportation rate class.

Q. Please describe how you derived the use-per-customer forecasts.

A. The historical monthly use-per-customer values are obtained 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/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 goodness-of-fit of the equations to the data.

The use-per-customer dependent variable is modeled 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. The monthly fluctuations in use-per-customer are captured by determining monthly

coefficients on degree days further adjusted by monthly "alpha factors," which capture the non-linear relationship between consumption and degree days. The monthly "alpha factors" 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 regression equations. The Company obtained the economic and demographic data used as the independent variables in these equations from Moody's economy.com (vintage February 2011), energy price data from the U.S. Department of Energy, Energy Information Administration ("DOE/EIA"), and the weather data from NOAA/NWS. The use-per-customer models for each rate class and the data used to derive them are described in more detail below.

Q. How then did the Company prepare the Dth delivery forecast?

A. The Company prepared the Dth delivery forecast by multiplying the customer count forecast for each rate class by the corresponding use-per-customer forecast for that rate class. It then adjusted the monthly results of this calculation to improve the distribution of the total annual forecast over the individual months. Upon review of the initial monthly results of its regression models, the Company determined that the monthly distribution of the annual volumes were generally skewed toward the winter heating months and away from the shoulder and non-heating months when compared to recent historical actual experience. To adjust for this anomaly, the Company analyzed the historical ratio of each monthly volume to the total annual volume for each rate class from 2006 to 2011. The Company used the three-year-moving average of the ratio for each month for each class over the 2006 to 2011 period to project the ratio for that month

over the forecast period. The result is a forecast of monthly volumes that is more consistent with the monthly patterns actually experienced in the recent past.

Q. Please explain how the initial forecast was adjusted for additional efficiency gains resulting from the energy efficiency programs sponsored by the Company.

A. The Company did not reduce the results of its statistical forecast models to account for the incremental impact of the energy efficiency programs sponsored by the Company. The energy efficiency programs that the Company analyzed for this forecast were those submitted by the Company in Docket 4209 dated June 15, 2011, the most recent data available at the time the forecast was prepared. The Company would normally subtract any incremental savings from the programs that are not contained in the historical data used to derive the statistical models, because these savings are exogenous to the modeling process. However, when the Company compared the historical amount of savings that gas energy efficiency programs achieved in the past to the future goals of these programs as described in Docket 4209 for the residential and commercial sectors, it determined that the projected savings were not greater than the past savings. Therefore, no incremental savings were subtracted from the model results to account for the impact of the Company's gas energy efficiency programs on the forecasted volumes.

Q. Is this forecast the same that developed for use in the long range supply plan?

A. This forecast is the same as the one the Company filed in its long range supply plan on March 8, 2012. In addition, with the exception of updating for the revised normal degree

day calculation, it is consistent with the forecast used in the Company's most recent Gas Cost Recovery and Local Distribution Adjustment Charge filings.

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

A. Schedule ALS-4 sets forth the annual deliveries by rate class for the fiscal years ending March 31, 2012 through March 31, 2014, including the rate year ending January 31, 2014. Schedule ALS-6 lists the fiscal year-end customer counts. The forecasted natural gas deliveries are projected to decrease by an average of 303 MDth, or -0.9 percent, per year. This compares with the historical average between 2005 and 2011 that declined 141 MDth, or -0.2 percent, per year, as shown on Schedule ALS-3. Between 2011 and 2014, customers are projected to increase by 1,103 or 0.4 percent per year, as shown on Schedule ALS-6, compared to an average of 528, or 0.2 percent, between 2005 and 2011, as shown on Schedule ALS-5.

Q. Please summarize Moody's economic forecast for Rhode Island that drives the economic delivery forecast.

A. As mentioned earlier, the Moody's economic forecast that the Company used for this forecast was issued in February 2010. The data used in the forecast is presented in Schedule ALS-7. The Moody's economic forecast for Rhode Island as measured by the gross metropolitan product ("GMP"), the measure of the value of all goods and services produced in the region, indicates accelerating annual growth of approximately 5.5

percent in 2012 and 2013 before tapering off to 4.5 percent by 2014. Similarly, Moody's forecast for employment ("EMP") indicates annual growth of 2.9 percent in 2012, decreasing to 1.9 percent in 2013 and returning to 2.9 percent in 2014.

1. Residential Heating

Q. How were the Residential Heating customer counts and Dth modeled?

A. The specific models for the Residential Heating class are presented in the Appendix to this testimony. There is a model for the Residential Heating class (rate codes 1247 and 1301). Annual customer counts for the Residential Heating class were modeled as a function of time trends. The monthly variation in customer counts was modeled using logistic functions that capture the seasonal decline in customer counts that occurs during the summer months and the subsequent increase during the winter months. The annual and monthly customer count models were then reconciled to produce the forecast of monthly customer counts through 2014.

Use-per-customer for the Residential Heating class was modeled 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. Base load use-per-customer models for the Residential Heating class were developed on annual data as a function of oil prices. The heating load component of the model captures the annual trend of gas demand for this class as a function of natural gas prices. The Company 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, the Company 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 customer count forecasts and the use-per-customer forecasts were then multiplied together to derive the volume delivery forecast presented in Schedule ALS-4.

2. Residential Non Heating

Q. How were the Residential Non Heating customer counts and Dth modeled?

A. The specific models for the Residential Non Heating class are presented in the Appendix to this testimony. There is a separate model for the Residential Non Heating class (rate codes 1012 and 1101). Annual customer counts for the Residential Heating class were modeled as a function of time trends. The monthly variation in customer counts was modeled using logistic functions that capture the seasonal decline in customer counts that occurs during the summer months and the subsequent increase during the winter months. The annual and monthly customer count models were then reconciled to produce the forecast of monthly customer counts through 2014.

Unlike the Residential Heating class, use-per-customer for the Residential Non Heating class was modeled as only one component—the base load component. Base load use-per-customer models for the Residential Non Heating class were developed on annual

data as a function of population and disposable income. Then, the Company developed an algorithm to allocate 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 customer count forecasts and the use-per-customer forecasts were then multiplied together to derive the volume delivery forecast presented in Schedule ALS-4.

3. Commercial/Industrial Heating

Q. How were the Commercial/Industrial Heating customer counts and Dth modeled?

A. The specific models for the Commercial/Industrial Heating class are presented in the Appendix to this testimony. There are separate models for the Commercial Heating class (rate codes 2107, 2221, 2231, 2237, 3321, 3367, 33EN, 3421, 3496, and 34EN). The customer counts are modeled as a function of time trends.

Similar to the Residential Heating class use-per-customer for the Commercial/Industrial Heating class was modeled 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. The base load use-per-customer models for the Commercial/Industrial Heating class were developed on annual data as a function of retail sales, employment, multifamily housing starts, 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 this class. The Company modeled the annual trend in heating loads as a function of retail sales, employment, natural gas prices and time trends. It should be noted that except for time trends, the same variables were not used for the base load and heating load models for a specific class. The Company 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, the Company 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 regressions.

The results of the customer count forecasts and the use-per-customer forecasts were then multiplied together to derive the volume delivery forecast presented in Schedule ALS-4.

4. Commercial/Industrial Non Heating

Q. How were the Commercial/Industrial Non Heating customer counts and Dth modeled?

A. The specific models for the Commercial/Industrial Non Heating class are presented in the Appendix to this testimony. There are separate models for the Commercial Non Heating classes (rate codes 22EN, 2367, 23EN, 2321, 2496, 24EN, and 2421). Customer counts were modeled as a function of time trends.

Use-per-customer for the Commercial/Industrial Non Heating classes was modeled as a single component. Use-per-customer was modeled on annual data as a function of multifamily housing starts, population, disposable income, oil prices and time trends. Then, the Company developed an algorithm to determine the relationship between monthly consumption and heating degree days for this class to allocate the forecasted annual use per customer to monthly use per customer.

The results of the customer count forecasts and the use-per-customer forecasts were then multiplied together to derive the volume delivery forecast presented in Schedule ALS-4.

IV. Conclusion

Q. Does this conclude your testimony?

A. Yes.

Schedules of
A. Leo Silvestrini

Index of Schedules

Schedule ALS-1

Schedule ALS-1

Normal Degree Days

Daily Average Degree Days Based on 10 Years Ending December 2011

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	30	35	31	19	18	3	0	0	1	5	13	20	
2	33	32	29	18	16	1	0	0	1	6	19	28	
3	33	32	33	19	18	2	0	0	0	6	19	29	
4	31	33	33	21	13	4	0	0	0	5	19	30	
5	30	34	29	20	11	3	0	0	0	7	17	32	
6	31	35	28	21	6	4	0	0	1	9	16	32	
7	32	34	28	20	0	3	0	0	1	7	18	31	
8	32	35	26	20	0	1	1	0	0	6	16	33	
9	33	34	29	19	12	2	0	0	1	5	17	33	
10	35	34	29	17	9	1	0	0	1	6	17	29	
11	34	35	26	18	12	2	0	0	2	7	19	28	
12	31	36	24	16	17	2	0	0	2	9	19	27	
13	31	35	26	16	7	3	0	0	1	9	17	31	
14	34	34	24	14	7	2	0	0	0	11	15	31	
15	39	34	24	13	8	3	0	0	1	12	12	29	
16	40	35	25	15	11	2	0	0	3	11	16	29	
17	40	32	26	15	3	1	0	0	3	13	20	33	
18	36	32	25	11	2	2	0	0	3	12	23	35	
19	36	35	26	11	10	1	0	0	4	13	23	34	
20	36	33	27	10	11	1	0	0	3	13	21	34	
21	40	30	25	13	6	0	0	0	2	13	23	33	
22	40	31	24	14	11	1	0	0	2	15	21	30	
23	40	32	26	13	6	0	0	0	1	17	24	26	
24	40	34	24	10	3	0	0	0	2	16	24	26	
25	39	33	24	13	2	0	0	0	3	15	24	30	
26	39	33	22	12	0	0	0	0	2	13	23	30	
27	39	32	20	11	0	0	0	0	2	13	23	29	
28	36	32	22	12	5	0	0	0	1	15	21	29	
29	36	32	21	11	3	0	0	1	3	19	20	30	
30	35		19	11	0	0	0	0	6	17	20	30	
31	38		21		0		0	0		14		30	
Total	1099	936	796	453	227	44	1	1	52	339	579	931	5458
Total Leap Year	1099	968	796	453	227	44	1	1	52	339	579	931	5490
Dkt 3943	1072	912	800	475	226	49	1	1	55	340	591	920	5442
Difference	27	24	-4	-22	1	-5	0	0	-3	-1	-12	11	16

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 1 of 13

Historic Daily Degree Days

January

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-2011 10 Year Average
1	38	24	26	21	35	21	31	52	32	23	30
2	36	32	33	29	28	23	41	42	39	22	33
3	36	33	22	16	31	26	52	35	45	35	33
4	38	31	20	23	34	17	43	35	38	35	31
5	30	36	29	29	29	11	33	32	41	33	30
6	30	37	36	35	31	6	22	35	37	40	31
7	28	42	44	32	37	17	18	32	33	36	32
8	38	35	45	33	33	16	12	31	39	34	32
9	31	26	56	34	23	27	16	40	42	35	33
10	22	31	57	28	27	33	23	43	45	36	35
11	27	38	50	31	21	35	17	39	42	39	34
12	28	35	36	32	19	21	22	41	38	36	31
13	29	35	37	19	25	18	26	39	41	40	31
14	30	43	58	17	13	27	30	39	36	46	34
15	30	42	61	36	36	25	32	51	30	45	39
16	31	42	61	38	45	31	35	54	29	38	40
17	30	42	40	43	33	46	37	53	31	47	40
18	32	54	34	54	18	35	24	41	29	36	36
19	39	48	43	49	27	26	32	36	31	28	36
20	36	40	48	41	18	39	39	38	28	35	36
21	36	48	44	54	17	44	45	44	30	39	40
22	31	51	40	52	29	40	37	41	33	47	40
23	28	54	48	48	30	36	32	38	33	52	40
24	22	46	52	51	31	33	39	38	34	58	40
25	29	42	55	44	26	42	41	52	17	43	39
26	23	35	50	42	32	56	37	48	24	42	39
27	23	46	45	53	33	47	36	41	29	37	39
28	21	54	41	53	21	30	31	32	37	41	36
29	13	40	43	46	23	41	30	35	49	35	36
30	22	38	46	33	22	42	25	36	51	38	35
31	31	31	45	41	29	37	34	43	43	44	38
Total	918	1231	1345	1157	856	948	972	1256	1106	1195	1099

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 2 of 13

Historic Daily Degree Days
February

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-2011 10 Year Average
1	26	31	42	42	27	35	26	33	38	45	35
2	34	28	37	40	27	31	24	27	39	37	32
3	38	23	33	35	18	36	26	34	35	45	32
4	32	23	28	31	22	44	31	44	36	42	33
5	40	35	34	24	18	50	20	51	36	34	34
6	35	40	33	28	27	45	22	48	41	27	35
7	32	39	28	25	31	46	30	35	41	32	34
8	25	45	42	31	36	43	33	20	38	37	35
9	32	38	31	21	36	42	35	32	33	44	34
10	29	36	23	29	39	41	33	32	33	45	34
11	30	42	32	33	37	40	46	18	29	47	35
12	35	42	37	32	42	35	44	19	33	40	36
13	32	53	29	31	41	44	25	29	36	34	35
14	40	52	28	34	32	36	30	31	32	20	34
15	29	53	42	22	24	46	27	31	29	36	34
16	20	55	43	22	23	42	38	35	32	37	35
17	28	44	40	31	22	36	32	34	32	24	32
18	30	41	35	40	41	36	13	35	26	18	32
19	30	37	30	44	45	47	28	26	26	33	35
20	25	28	32	39	40	29	37	39	25	38	33
21	14	27	26	36	33	25	39	32	30	41	30
22	23	28	26	35	32	31	37	30	26	39	31
23	28	30	27	34	29	37	35	36	29	34	32
24	29	35	33	41	33	38	34	37	24	36	34
25	28	43	31	40	39	31	31	36	22	24	33
26	17	51	28	41	44	32	29	28	29	32	33
27	23	44	27	37	47	31	32	18	30	35	32
28	35	37	22	38	43	26	42	23	30	27	32
29			22				45				32
30											
31											
Total	819	1080	921	936	928	1055	924	893	890	983	968

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 3 of 13

Historic Daily Degree Days
March

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-2011 10 Year Average
1	33	36	17	35	37	31	30	37	23	31	31
2	30	26	15	35	39	25	30	43	22	29	29
3	17	41	19	41	41	23	28	44	29	43	33
4	30	44	21	40	37	28	13	45	29	38	33
5	39	27	24	35	29	34	15	38	26	20	29
6	27	36	16	31	33	50	27	26	20	11	28
7	22	46	22	25	31	49	25	17	20	24	28
8	21	31	32	35	29	44	14	12	15	29	26
9	11	29	33	47	25	46	27	27	19	30	29
10	21	44	31	43	11	29	32	27	23	24	29
11	33	39	24	40	14	21	29	21	23	20	26
12	28	23	25	31	19	23	25	30	20	20	24
13	27	33	29	31	17	18	29	35	23	21	26
14	12	40	34	31	15	11	22	30	18	30	24
15	22	30	18	28	26	17	26	22	24	30	24
16	21	18	30	27	27	33	24	26	19	24	25
17	30	14	36	28	31	32	26	25	19	21	26
18	32	18	35	28	33	34	29	22	10	8	25
19	29	30	35	26	34	31	23	22	11	23	26
20	30	28	35	27	34	26	19	30	9	28	27
21	23	14	23	29	30	34	28	30	11	29	25
22	38	8	36	24	27	20	26	23	17	24	24
23	32	17	36	27	21	17	27	36	19	28	26
24	22	19	25	29	24	22	28	30	16	29	24
25	27	25	18	24	26	23	29	22	13	29	24
26	21	13	15	27	21	25	17	27	23	33	22
27	17	14	12	28	17	7	24	14	32	30	20
28	21	17	25	22	24	14	26	18	28	27	22
29	21	9	24	18	20	21	29	21	16	28	21
30	12	20	27	15	13	16	30	21	14	23	19
31	13	29	24	21	12	21	25	19	18	24	21
Total	762	818	796	928	797	825	782	840	609	808	796

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 4 of 13

Historic Daily Degree Days
April

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-2011 10 Year Average
1	14	30	21	20	8	22	8	28	12	27	19
2	18	21	24	17	8	23	19	18	12	19	18
3	14	25	24	17	19	23	24	13	13	18	19
4	24	31	21	17	23	26	22	17	4	22	21
5	27	31	27	15	29	25	15	14	6	15	20
6	25	27	24	16	23	30	23	20	6	20	21
7	29	32	19	9	19	30	22	21	0	22	20
8	18	33	20	15	19	29	19	25	2	24	20
9	7	30	16	15	21	23	23	20	15	23	19
10	9	24	17	15	18	24	5	17	15	21	17
11	16	26	22	19	16	25	17	23	6	11	18
12	17	13	17	22	12	25	5	26	12	12	16
13	1	16	16	22	7	21	18	22	15	18	16
14	2	20	9	19	11	18	20	18	14	10	14
15	3	4	17	20	6	20	16	17	8	22	13
16	3	0	19	19	9	17	17	19	19	24	15
17	0	29	12	16	13	24	12	11	21	11	15
18	0	24	8	6	7	22	4	5	17	14	11
19	2	18	2	12	4	17	4	16	13	17	11
20	2	15	7	0	5	16	10	20	6	17	10
21	12	15	16	15	15	6	8	13	8	17	13
22	22	19	4	18	20	7	9	12	8	20	14
23	23	17	14	10	16	4	2	14	8	17	13
24	18	20	11	14	17	2	0	9	9	1	10
25	20	19	20	18	9	11	8	9	13	5	13
26	20	15	17	12	17	15	12	0	11	2	12
27	18	9	6	12	13	14	17	5	20	0	11
28	18	6	16	12	15	10	13	0	23	3	12
29	22	1	11	13	16	8	14	11	12	2	11
30	20	10	0	13	12	4	18	14	6	11	11
31											
Total	424	580	457	448	427	541	404	457	334	445	453

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 5 of 13

Historic Daily Degree Days
May

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-2011 10 Year Average
1	14	13	3	11	11	6	18	5	0	14	10
2	18	4	5	14	18	7	16	4	0	11	10
3	14	10	10	15	15	8	18	11	0	9	11
4	10	13	15	17	1	8	13	11	0	9	10
5	11	15	14	16	0	12	11	14	0	15	11
6	7	14	10	18	3	17	6	11	0	10	10
7	4	3	0	20	9	17	0	6	4	7	7
8	6	14	14	17	10	8	0	3	3	6	8
9	12	8	14	13	14	0	12	3	15	5	10
10	2	8	10	7	14	0	9	7	15	11	8
11	7	9	0	12	7	2	12	13	16	9	9
12	13	11	0	9	9	6	17	10	19	11	11
13	19	9	4	13	11	5	7	10	10	9	10
14	12	7	9	10	13	8	7	9	8	13	10
15	11	8	0	8	11	1	8	4	1	8	6
16	4	16	1	10	10	0	11	4	2	15	7
17	0	15	9	8	5	13	3	8	2	14	8
18	18	12	0	10	4	21	2	17	12	8	10
19	17	3	2	9	6	16	10	11	10	3	9
20	16	6	5	11	6	3	11	2	0	3	6
21	16	8	2	14	8	7	6	0	0	3	6
22	11	13	7	12	10	7	11	0	4	11	9
23	7	15	3	14	12	6	6	4	0	8	8
24	0	15	8	17	5	0	3	0	0	0	5
25	9	12	9	19	5	0	2	0	0	0	6
26	10	15	13	14	0	0	0	10	0	1	6
27	0	10	4	7	0	0	0	12	0	0	3
28	0	6	6	0	0	0	5	11	0	0	3
29	0	1	8	0	0	0	3	7	0	0	2
30	0	2	6	1	0	0	0	0	0	0	1
31	0	2	6	6	0	0	0	1	0	0	2
Total	268	297	197	352	217	178	227	208	121	213	227

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 6 of 13

Historic Daily Degree Days
June

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-2011 10 Year Average
1	0	7	12	5	0	0	0	8	0	0	3
2	0	4	0	8	0	0	0	0	0	0	1
3	4	4	1	1	7	1	0	0	0	4	2
4	6	9	5	0	6	4	2	3	0	4	4
5	0	7	5	0	1	0	5	7	0	7	3
6	12	0	11	0	0	3	8	3	0	0	4
7	8	6	6	0	8	5	0	0	0	0	3
8	0	1	0	0	8	0	0	0	2	0	1
9	0	5	0	0	3	3	0	7	5	0	2
10	0	0	0	0	5	0	0	5	3	0	1
11	8	0	2	0	0	0	0	4	4	5	2
12	8	0	4	0	0	0	0	0	2	8	2
13	8	5	3	0	0	7	0	0	0	4	3
14	6	0	1	0	0	6	0	3	0	6	2
15	10	0	0	10	0	2	2	4	0	0	3
16	5	7	0	6	0	1	1	4	0	0	2
17	0	7	0	0	0	0	0	5	0	0	1
18	0	6	0	3	0	0	1	5	0	0	2
19	0	0	0	5	0	0	0	0	0	0	1
20	0	0	1	4	0	0	0	0	0	0	1
21	0	2	0	0	0	0	0	0	0	0	0
22	0	7	0	0	0	0	0	3	0	0	1
23	0	0	0	0	0	1	0	0	0	0	0
24	0	0	0	0	0	0	0	2	0	1	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	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											
Total	75	77	51	42	38	33	19	63	16	39	44

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 7 of 13

Historic Daily Degree Days
July

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-2011 10 Year Average
1	0	0	0	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	0	1	0	0	0	0	0	0	0
8	0	0	0	5	0	0	0	0	0	0	1
9	0	0	0	0	0	0	0	2	0	0	0
10	0	0	0	0	0	0	0	2	0	0	0
11	0	0	0	0	0	0	0	2	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0
13	0	0	1	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	0	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	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	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	2	6	0	0	0	6	0	0	1

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 8 of 13

Historic Daily Degree Days
August

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-2011 10 Year Average
1	0	0	0	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	1	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	0	0	0	0	0	4	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	2	0	0	0	0	0
20	0	0	0	0	0	0	2	0	0	0	0
21	0	0	0	0	0	2	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	2	0	0
25	0	0	1	0	0	0	0	0	0	0	0
26	0	0	2	0	0	0	0	0	0	0	0
27	0	0	0	0	3	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	2	0	0	3	0	0	1
30	0	0	0	0	0	0	0	0	0	0	0
31	2	1	0	0	0	0	0	0	0	0	0
Total	2	1	4	0	5	8	2	3	2	0	1

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 9 of 13

Historic Daily Degree Days
September

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-2011 10 Year Average
1	3	2	0	0	1	0	0	1	0	0	1
2	0	4	0	0	0	0	0	1	0	0	1
3	0	0	0	0	0	0	0	1	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0
5	0	0	3	0	0	0	0	0	0	0	0
6	0	0	4	0	0	0	0	3	0	0	1
7	0	0	0	0	0	0	0	4	0	3	1
8	0	0	0	0	0	0	0	0	0	2	0
9	0	6	0	0	0	0	0	0	0	0	1
10	0	5	0	0	4	0	1	4	0	0	1
11	0	0	0	2	6	0	4	5	1	3	2
12	3	1	2	0	6	0	4	0	6	0	2
13	0	0	0	0	7	2	0	0	3	0	1
14	0	0	3	0	0	1	0	0	0	0	0
15	0	0	4	0	0	4	0	0	3	0	1
16	0	0	0	0	0	7	2	4	6	9	3
17	0	0	0	0	0	7	2	8	0	9	3
18	0	0	2	0	0	7	4	4	3	5	3
19	0	0	10	0	0	6	10	7	1	6	4
20	0	0	6	0	0	0	8	7	1	5	3
21	0	0	2	0	6	0	2	4	5	0	2
22	0	0	0	0	7	0	9	1	0	0	2
23	0	0	0	0	1	0	7	0	0	0	1
24	2	1	1	6	0	0	8	0	0	0	2
25	0	0	2	8	4	0	8	8	0	0	3
26	3	0	0	0	4	0	2	12	0	0	2
27	0	0	1	2	7	0	0	3	2	0	2
28	0	0	1	6	4	0	0	0	0	0	1
29	7	4	9	3	8	0	0	3	0	0	3
30	5	8	7	12	12	4	1	11	0	0	6
31											
Total	23	31	57	39	77	38	72	91	31	42	52

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 10 of 13

Historic Daily Degree Days
October

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-2011 10 Year Average
1	0	11	3	9	6	8	0	15	0	0	5
2	0	12	4	3	5	5	9	14	5	3	6
3	0	17	9	3	4	0	9	3	11	5	6
4	3	13	9	0	0	0	12	1	7	4	5
5	0	15	16	0	5	0	17	6	6	8	7
6	8	17	16	0	11	0	12	8	9	12	9
7	3	16	8	0	9	2	11	1	7	14	7
8	11	7	6	0	12	1	11	9	4	0	6
9	14	2	2	3	4	5	0	9	9	0	5
10	9	6	5	10	2	7	4	10	11	0	6
11	8	5	9	7	9	4	7	14	4	2	7
12	6	8	8	10	1	12	8	18	7	8	9
13	6	5	8	7	17	15	5	16	11	3	9
14	15	11	13	4	17	12	7	20	12	0	11
15	19	7	6	6	17	13	5	25	12	6	12
16	8	12	9	8	16	9	4	24	12	6	11
17	11	16	16	11	16	10	12	22	10	6	13
18	16	17	15	10	2	0	17	22	12	7	12
19	15	25	17	9	7	0	19	20	13	9	13
20	14	23	14	14	10	2	17	16	12	3	13
21	17	8	17	18	16	2	17	9	14	10	13
22	21	18	16	22	19	0	21	4	21	12	15
23	24	26	18	18	15	0	24	11	17	17	17
24	22	26	16	21	17	2	19	7	16	16	16
25	21	23	17	19	16	15	12	10	5	13	15
26	16	8	17	20	18	13	10	12	0	17	13
27	13	4	13	22	21	2	12	19	0	23	13
28	19	12	20	22	9	15	20	13	0	24	15
29	25	6	18	24	16	22	25	17	14	26	19
30	25	14	12	11	14	15	26	16	16	25	17
31	23	13	1	10	11	12	19	5	16	25	14
Total	392	403	358	321	342	203	391	396	293	304	339

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 11 of 13

Historic Daily Degree Days
November

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2001-2010 10 Year Average
1	21	1	14	10	8	7	13	13	23	21	13
2	29	2	18	14	19	17	27	17	24	18	19
3	29	0	17	17	23	18	24	15	25	18	19
4	25	16	23	10	24	16	16	20	19	21	19
5	22	16	16	6	27	19	8	21	11	25	17
6	19	8	17	6	21	18	8	23	17	23	16
7	28	14	14	14	18	22	7	25	22	15	18
8	21	26	19	14	8	28	7	10	23	7	16
9	10	32	29	16	3	24	14	13	13	13	17
10	5	29	33	16	11	27	20	6	18	8	17
11	1	26	21	27	14	28	23	14	19	17	19
12	11	13	26	25	8	28	25	17	14	21	19
13	18	15	30	18	10	17	20	14	12	16	17
14	20	27	30	10	7	19	9	8	18	5	15
15	13	27	19	18	6	11	2	6	14	2	12
16	23	29	25	6	3	24	11	11	13	10	16
17	23	23	25	23	8	27	24	21	8	19	20
18	24	21	16	29	18	26	31	23	17	28	23
19	28	13	11	30	20	27	36	18	27	24	23
20	21	12	23	21	25	30	36	7	24	8	21
21	23	17	21	19	27	21	36	16	28	20	23
22	18	17	19	22	25	11	40	18	16	27	21
23	25	20	24	35	19	30	37	18	10	23	24
24	25	24	17	29	16	36	32	17	22	25	24
25	24	24	15	37	23	26	21	16	30	19	24
26	22	28	30	35	21	15	28	15	23	13	23
27	34	21	27	24	13	16	26	20	29	19	23
28	41	11	16	16	19	25	26	17	29	7	21
29	34	15	21	9	18	21	27	20	27	9	20
30	22	22	23	11	5	28	31	15	27	14	20
31											
Total	659	549	639	567	467	662	665	474	602	495	579

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 12 of 13

Historic Daily Degree Days
December

Day	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2001-2010 10 Year Average
1	33	22	15	21	1	35	14	26	14	23	20
2	34	37	26	26	16	41	22	22	26	25	28
3	40	42	28	31	27	32	29	6	28	25	29
4	42	34	31	36	30	37	22	18	29	24	30
5	41	39	23	38	37	37	30	26	34	17	32
6	36	36	36	34	30	38	36	32	36	10	32
7	40	36	26	39	19	36	37	32	34	13	31
8	30	35	17	38	39	28	46	29	38	25	33
9	43	38	27	34	34	33	29	26	43	25	33
10	37	29	22	36	21	34	12	27	45	25	29
11	34	18	18	33	23	31	25	38	29	32	28
12	28	30	25	33	24	23	17	38	24	30	27
13	29	37	24	45	16	37	38	30	21	28	31
14	21	36	37	47	18	31	31	24	39	27	31
15	24	29	40	44	17	37	12	21	45	18	29
16	32	31	36	24	20	34	22	32	39	18	29
17	39	23	29	32	21	37	32	45	39	28	33
18	36	28	37	36	17	42	30	43	36	42	35
19	31	32	30	36	26	36	40	40	36	35	34
20	14	32	43	37	30	31	47	42	36	29	34
21	25	35	45	39	21	36	38	38	31	20	33
22	23	20	30	37	30	32	44	39	28	14	30
23	26	15	19	25	14	20	44	45	30	25	26
24	28	17	24	23	23	19	25	36	32	37	26
25	30	21	37	25	27	30	22	33	38	35	30
26	32	29	38	19	18	33	34	25	39	29	30
27	34	23	45	29	27	27	21	22	39	25	29
28	34	25	46	30	28	24	12	30	39	22	29
29	31	23	29	18	33	22	28	43	35	37	30
30	34	20	32	25	31	30	30	43	33	24	30
31	23	21	28	34	30	30	45	37	28	27	30
Total	984	893	943	1004	748	993	914	988	1043	794	931

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-1
Page 13 of 13

Schedule ALS-2

Schedule ALS-2

Summary of Gas Deliveries

Line No.	Description (a)	Actual (Jan 11 - Dec 11) (b)	Adjustment (c)	Normal (d)	Proforma Adjustment (e)	Rate Year - Feb 13-Jan 14 (f)
1	**Firm Throughput (Dt)**					
2	Sales Service					
3	Residential Non-Heating	584,108	0	584,108	(59,847)	524,261
4	Low Income Residential Non-Heating	21,714	0	21,714	(4,170)	17,544
5	Residential Heating	15,659,867	(4,081)	15,655,786	(384,508)	15,271,279
6	Low Income Residential Heating	1,728,660	79	1,728,739	96,481	1,825,220
7	Small C&I	2,372,242	(1,280)	2,370,962	106,734	2,477,696
8	Medium C&I	3,148,236	3,298	3,151,533	13,209	3,164,742
9	Large LLF	678,106	802	678,908	45,346	724,254
10	Large HLF	263,332	0	263,332	11,355	274,687
11	Extra Large LLF	44,332	1,623	45,955	(7,356)	38,599
12	Extra Large HLF	198,618	0	198,618	(14,832)	183,786
13	Subtotal Firm Sales	24,699,216	441	24,699,657	(197,589)	24,502,068
14	Transportation Service					
15	Medium C&I	2,002,490	594	2,003,085	77,175	2,080,260
16	Large LLF	1,808,607	15,992	1,824,599	41,028	1,865,627
17	Large HLF	733,149	0	733,149	225,064	958,213
18	Extra Large LLF	975,521	18,062	993,584	(200,630)	792,953
19	Extra Large HLF	4,987,444	0	4,987,444	(765,855)	4,221,589
20	Subtotal Firm Transportation	10,507,212	34,649	10,541,861	(623,219)	9,918,642
21	**Subtotal Firm Sales and Transportation (Dth)**	**35,206,428**	**35,090**	**35,241,518**	**(820,808)**	**34,420,710**
22	Miscellaneous Services					
23	NGV	0	0	0	0	0
24	Gas Lights	3,400	0	3,400	0	3,400
25	Manchester St	17,099	0	17,099	0	17,099
26	Marketers	0	0	0	0	0
27	Subtotal Miscellaneous	20,498	0	20,498	0	20,498
28	**Total Firm Base Quantities (Dth)**	**35,226,926**	**35,090**	**35,262,016**	**(820,808)**	**34,441,208**

Schedule ALS-3

The Narragansett Electric Company Calendar Year Actual Gas Deliveries
by Rate Class in Dth (2005 – 2011)

The Narragansett Electric Company d/b/a National Grid
Calendar Year Actual Gas Deliveries by Rate Class in Dth (2005 - 2011)

	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Residential non-heat (1012)	657,080	622,907	620,472	669,299	744,431	624,831	584,108
Residential non-heat Low Income (1101)	-	-	-	1,415	17,223	22,981	21,714
Residential heat (1247)	18,923,172	16,694,613	17,462,942	17,315,282	16,038,477	15,027,216	15,659,867
Residential heat Low Income (1301)	-	-	-	158,314	1,503,383	1,775,833	1,728,660
C & I small (2107)	2,448,837	2,153,936	2,307,925	2,233,753	2,330,100	2,286,083	2,372,242
C & I medium sales (2237+2231)	4,302,750	3,874,411	3,898,402	3,771,021	3,747,757	3,251,685	3,148,236
C & I medium FT-1 (22EN)	719,993	643,928	666,525	652,285	641,601	736,416	727,957
C & I medium FT-2 (2221)	400,696	382,756	510,283	600,085	660,388	971,197	1,274,533
LLF large sales (3367)	1,449,773	1,323,173	1,253,075	1,165,421	997,949	708,807	678,106
LLF large FT-1 (33EN)	1,020,969	986,924	1,128,094	1,005,574	1,020,430	1,016,632	1,033,548
LLF large FT-2 (3321)	175,779	156,116	288,959	424,693	563,038	695,441	775,059
HLF large sales (2367)	542,176	486,002	427,177	478,730	416,279	315,597	263,332
HLF large FT-1 (23EN)	438,109	415,712	469,015	389,617	456,132	569,290	485,744
HLF large FT-2 (2321)	56,654	66,032	78,676	87,599	124,816	212,137	247,405
LLF XL sales (3496)	212,789	149,225	98,536	194,666	211,687	63,228	44,332
LLF XL FT-1 (34EN)	689,247	550,456	652,110	794,501	597,962	682,460	906,451
LLF XL FT-2 (3421)	6,996	18,428	13,303	11,842	22,176	57,822	69,071
HLF XL sales (2496)	388,605	408,359	370,876	331,633	310,855	236,351	198,618
HLF XL FT-1 (24EN)	3,622,436	3,184,101	3,782,904	4,414,513	4,876,458	4,812,218	4,811,808
HLF XL FT-2 (2421)	-	8,326	23,137	28,073	81,251	104,909	175,636
Total	**36,056,061**	**32,125,405**	**34,052,411**	**34,728,317**	**35,362,392**	**34,171,133**	**35,206,428**
Residential Non-Heat	657,080	622,907	620,472	670,715	761,654	647,811	605,822
Residential Heating	18,923,172	16,694,613	17,462,942	17,473,596	17,541,860	16,803,050	17,388,527
C&I Non-Heat	5,767,973	5,212,460	5,818,310	6,382,450	6,907,391	6,986,918	6,910,501
C&I Heating	10,707,836	9,595,425	10,150,687	10,201,556	10,151,488	9,733,354	10,301,577
Total	**36,056,061**	**32,125,405**	**34,052,411**	**34,728,317**	**35,362,392**	**34,171,133**	**35,206,428**
Annual Change		(3,930,656)	1,927,006	675,906	634,075	(1,191,259)	1,035,295
Average Annual Change							**(141,605)**
Annual Percentage Change		-10.9%	6.0%	2.0%	1.8%	-3.4%	3.0%
Average Annual Percentage Change							**-0.2%**

Schedule ALS-4

The Narragansett Electric Company Fiscal-Year Forecasted Gas Deliveries
by Rate Class in Dth (2012 - 2014)

The Narragansett Electric Company d/b/a National Grid
Fiscal-Year Forecasted Gas Deliveries by Rate Class in Dth (2012 - 2014)

	2012	2013	2014	Rate Year Ending Jan-2014
Residential non-heat (1012)	569,130	542,961	518,137	524,261
Residential non-heat Low Income (1101)	18,742	18,613	17,204	17,544
Residential heat (1247)	15,211,959	15,446,532	15,217,427	15,271,279
Residential heat Low Income (1301)	1,704,962	1,903,737	1,803,300	1,825,220
C & I small (2107)	2,346,765	2,475,177	2,495,559	2,477,696
C & I medium sales (2237+2231)	3,132,258	3,140,232	3,142,917	3,164,742
C & I medium FT-1 (22EN)	746,696	834,710	765,501	780,785
C & I medium FT-2 (2221)	1,194,704	1,263,699	1,326,100	1,299,475
LLF large sales (3367)	654,693	686,262	749,109	724,254
LLF large FT-1 (33EN)	1,079,624	995,011	935,983	952,904
LLF large FT-2 (3321)	863,087	970,803	874,318	912,723
HLF large sales (2367)	271,644	275,708	277,038	274,687
HLF large FT-1 (23EN)	489,487	625,233	644,338	646,199
HLF large FT-2 (2321)	244,443	298,059	313,579	312,015
LLF XL sales (3496)	48,226	39,204	36,877	38,599
LLF XL FT-1 (34EN)	847,606	722,036	664,232	689,302
LLF XL FT-2 (3421)	85,181	119,636	97,634	103,651
HLF XL sales (2496)	180,973	183,061	184,527	183,786
HLF XL FT-1 (24EN)	4,555,815	3,940,386	4,012,388	4,004,285
HLF XL FT-2 (2421)	162,952	199,742	219,799	217,304
Total	**34,408,948**	**34,680,803**	**34,295,965**	**34,420,710**
Residential Non-Heat	587,872	561,574	535,341	541,805
Residential Heating	16,916,921	17,350,269	17,020,727	17,096,499
C&I Non-Heat	6,652,010	6,356,899	6,417,169	6,419,060
C&I Heating	10,252,145	10,412,061	10,322,727	10,363,346
Total	**34,408,948**	**34,680,803**	**34,295,965**	**34,420,710**
Annual Change	(797,480)	271,855	(384,838)	
Average Annual Change			**(303,488)**	
Annual Percentage Change	-2.3%	0.8%	-1.1%	
Average Annual Percentage Change			**-0.9%**	

Schedule ALS-5

Schedule ALS-5

The Narragansett Electric Company Calendar Year End
Number of Customers by Rate Class (2005 – 2011)

The Narragansett Electric Company d/b/a National Grid
Calendar Year End Number of Customers by Rate Class (2005 - 2011)

	2005	2006	2007	2008	2009	2010	2011
Residential non-heat (1012)	33,450	32,638	31,996	31,086	29,581	27,296	26,205
Residential non-heat Low Income (1101)	-	-	-	260	317	321	271
Residential heat (1247)	190,870	192,389	193,904	180,845	177,324	181,706	181,650
Residential heat Low Income (1301)	-	-	-	14,380	19,362	18,301	18,896
C & I small (2107)	18,130	18,213	18,390	18,412	18,582	18,707	18,565
C & I medium sales (2237+2231)	3,763	3,634	3,608	3,541	3,218	2,967	2,958
C & I medium FT-1 (22EN)	412	382	391	405	428	430	430
C & I medium FT-2 (2221)	265	390	427	441	704	924	1,051
LLF large sales (3367)	244	231	201	224	136	130	131
LLF large FT-1 (33EN)	160	171	170	148	145	161	165
LLF large FT-2 (3321)	27	52	77	80	120	134	150
HLF large sales (2367)	85	78	86	83	63	48	46
HLF large FT-1 (23EN)	56	62	63	67	75	69	63
HLF large FT-2 (2321)	12	15	17	18	28	43	41
LLF XL sales (3496)	10	7	7	9	5	2	5
LLF XL FT-1 (34EN)	24	24	28	22	21	24	27
LLF XL FT-2 (3421)	1	1	1	1	4	5	3
HLF XL sales (2496)	20	16	11	14	9	7	6
HLF XL FT-1 (24EN)	40	47	61	60	62	64	65
HLF XL FT-2 (2421)	-	1	2	3	2	8	6
Total	**247,569**	**248,351**	**249,440**	**250,099**	**250,186**	**251,347**	**250,734**
Residential Non-Heat	33,450	32,638	31,996	31,346	29,898	27,617	26,476
Residential Heating	190,870	192,389	193,904	195,225	196,686	200,007	200,546
C&I Non-Heat	625	601	631	650	667	669	657
C&I Heating	22,624	22,723	22,909	22,878	22,935	23,054	23,055
Total	**247,569**	**248,351**	**249,440**	**250,099**	**250,186**	**251,347**	**250,734**
Annual Change		782	1,089	659	87	1,161	(613)
Average Annual Change							**528**
Annual Percentage Change		0.3%	0.4%	0.3%	0.0%	0.5%	-0.2%
Average Annual Percentage Change							**0.2%**

Schedule ALS-6

Schedule ALS-6

The Narragansett Electric Company Fiscal-Year-End Forecasted
Number of Customers by Rate Class (2012 – 2014)

The Narragansett Electric Company d/b/a National Grid
Fiscal-Year-End Forecasted Number of Customers by Rate Class (2012 - 2014)

	2012	2013	2014	Rate Year Ending Jan-2014
Residential non-heat (1012)	26,287	25,424	24,565	24,707
Residential non-heat Low Income (1101)	339	328	317	319
Residential heat (1247)	180,844	182,415	183,998	183,742
Residential heat Low Income (1301)	21,264	21,449	21,635	21,605
C & I small (2107)	18,588	18,585	18,568	18,709
C & I medium sales (2237+2231)	2,848	2,834	2,831	2,832
C & I medium FT-1 (22EN)	428	430	431	431
C & I medium FT-2 (2221)	1,010	1,027	1,034	1,034
LLF large sales (3367)	126	126	126	126
LLF large FT-1 (33EN)	148	149	150	150
LLF large FT-2 (3321)	132	134	135	135
HLF large sales (2367)	46	46	46	47
HLF large FT-1 (23EN)	69	69	69	69
HLF large FT-2 (2321)	44	44	44	44
LLF XL sales (3496)	2	2	2	2
LLF XL FT-1 (34EN)	24	24	24	24
LLF XL FT-2 (3421)	5	5	5	5
HLF XL sales (2496)	6	6	6	6
HLF XL FT-1 (24EN)	50	50	50	50
HLF XL FT-2 (2421)	8	8	8	8
Total	**252,268**	**253,155**	**254,044**	**254,045**
Residential Non-Heat	26,626	25,752	24,882	25,026
Residential Heating	202,108	203,864	205,633	205,347
C&I Non-Heat	651	653	654	655
C&I Heating	22,883	22,886	22,875	23,017
Total	**252,268**	**253,155**	**254,044**	**254,045**
Annual Change	1,534	887	889	
Average Annual Change			**1,103**	
Annual Percentage Change	0.6%	0.4%	0.4%	
Average Annual Percentage Change			**0.4%**	

Schedule APM-7

Schedule ALS-7

The Narragansett Electric Company Moody's economy.com Economic and Demographic Data

The Narragansett Electric Company d/b/a National Grid
Moody's economy.com Economic and Demographic Data
February 2011

Year	FEMF EMPM	FET EMP	FGDPQ GMP	FHHOLDCA HH	FHST1Q HSF	FHSTMFQ HMF	FHSTQ HTT	FLBR UEMR	FLBU UEM	FO
2004	94.31	713.13	61.52	627.14	3,270.16	660.97	3,931.13	5.6%	46.80	81.86
2005	89.46	716.32	63.27	624.29	3,412.28	773.65	4,185.93	5.4%	45.60	128.18
2006	85.80	719.16	66.35	621.85	3,183.83	815.35	3,999.18	5.4%	46.18	118.16
2007	82.00	717.87	67.94	619.78	2,479.74	576.96	3,056.70	5.4%	46.86	187.88
2008	77.35	703.85	68.60	619.10	1,450.02	207.93	1,657.94	7.4%	63.92	125.18
2009	67.43	670.23	68.43	618.20	1,064.03	196.78	1,260.81	11.1%	95.97	192.03
2010	64.73	657.79	69.49	618.06	1,267.72	150.95	1,418.68	11.8%	102.85	203.05
2011	65.11	665.74	72.00	619.27	1,514.59	467.13	1,981.72	11.1%	96.33	198.67
2012	66.55	684.84	75.89	619.80	2,821.14	785.25	3,606.39	10.6%	92.86	182.35
2013	65.98	697.95	80.16	620.44	3,608.07	869.25	4,477.33	9.6%	84.48	192.36
2014	66.21	718.51	83.74	622.90	3,782.89	859.39	4,642.28	7.5%	66.38	201.86
Annual Growth Rates										
2005	-5.1%	0.4%	2.8%	-0.5%	4.3%	17.0%	6.5%	-3.6%	-2.6%	56.6%
2006	-4.1%	0.4%	4.9%	-0.4%	-6.7%	5.4%	-4.5%	-0.2%	1.3%	-7.8%
2007	-4.4%	-0.2%	2.4%	-0.3%	-22.1%	-29.2%	-23.6%	1.2%	1.5%	59.0%
2008	-5.7%	-2.0%	1.0%	-0.1%	-41.5%	-64.0%	-45.8%	36.9%	36.4%	-33.4%
2009	-12.8%	-4.8%	-0.3%	-0.1%	-26.6%	-5.4%	-24.0%	50.2%	50.1%	53.4%
2010	-4.0%	-1.9%	1.6%	0.0%	19.1%	-23.3%	12.5%	6.2%	7.2%	5.7%
2011	0.6%	1.2%	3.6%	0.2%	19.5%	209.5%	39.7%	-6.3%	-6.3%	-2.2%
2012	2.2%	2.9%	5.4%	0.1%	86.3%	68.1%	82.0%	-4.3%	-3.6%	-8.2%
2013	-0.9%	1.9%	5.6%	0.1%	27.9%	10.7%	24.1%	-9.5%	-9.0%	5.5%
2014	0.3%	2.9%	4.5%	0.4%	4.8%	-1.1%	3.7%	-21.5%	-21.4%	4.9%
Compound Annual Growth Rates								AVERAGE		
2006-2011	-5.4%	-1.5%	1.6%	-0.1%	-13.8%	-10.5%	-13.1%	8.71%	15.8%	11.0%
2011-2014	0.6%	2.6%	5.2%	0.2%	35.7%	22.5%	32.8%	9.71%	-11.7%	0.5%

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-7
Page 1 of 2

The Narragansett Electric Company d/b/a National Grid
Moody's economy.com Economic and Demographic Data

Year	FPOP2544Q POP25-44	FPOPCA POP	FRTFSQ RSL	FYHHAVGQ INC	FYPCPIQ PIP	FYPDPI$Q PIDR	Lagged_FO	Lagged_NG	NG	NGdivFO	Pop* DisPersInc
2004	458.46	1,616.87	22.33	88,874.62	34,471.86	50,808.58	128.18	16.95	13.75	0.13	82,151.08
2005	449.52	1,609.68	23.44	92,010.11	35,683.60	50,416.76	118.16	16.54	16.95	0.14	81,154.71
2006	440.53	1,603.83	24.33	97,708.56	37,881.52	51,728.70	187.88	16.22	16.54	0.09	82,964.04
2007	432.65	1,599.50	24.57	102,845.13	39,845.55	52,092.52	125.18	17.00	16.22	0.14	83,321.77
2008	425.99	1,599.31	23.45	106,456.90	41,191.54	52,392.21	192.03	16.43	17.00	0.09	83,791.49
2009	419.18	1,600.64	22.11	106,113.78	40,986.79	53,982.05	203.05	17.34	16.43	0.09	86,405.94
2010	413.66	1,600.08	22.96	109,547.45	42,323.43	54,266.02	198.67	16.21	17.34	0.08	86,829.92
2011	410.02	1,598.90	24.09	114,437.50	44,320.99	54,704.92	182.35	16.14	16.21	0.09	87,467.69
2012	408.83	1,600.88	24.27	118,615.25	45,890.28	54,368.53	192.36	16.87	16.14	0.09	87,037.66
2013	409.68	1,607.75	24.31	124,103.90	47,883.02	54,291.72	201.86	17.47	16.87	0.09	87,287.62
2014	411.17	1,614.23	24.44	127,953.55	49,381.85	53,861.59	211.21	17.82	17.47	0.08	86,944.72
Annual Growth Rates											
2005	-2.0%	-0.4%	5.0%	3.5%	3.5%	-0.8%	-7.8%	-2.4%	23.3%	5.9%	-1.2%
2006	-2.0%	-0.4%	3.8%	6.2%	6.2%	2.6%	59.0%	-1.9%	-2.4%	-38.3%	2.2%
2007	-1.8%	-0.3%	1.0%	5.3%	5.2%	0.7%	-33.4%	4.8%	-1.9%	57.3%	0.4%
2008	-1.5%	0.0%	-4.6%	3.5%	3.4%	0.6%	53.4%	-3.4%	4.8%	-37.0%	0.6%
2009	-1.6%	0.1%	-5.7%	-0.3%	-0.5%	3.0%	5.7%	5.5%	-3.4%	-0.2%	3.1%
2010	-1.3%	0.0%	3.8%	3.2%	3.3%	0.5%	-2.2%	-6.5%	5.5%	-4.5%	0.5%
2011	-0.9%	-0.1%	4.9%	4.5%	4.7%	0.8%	-8.2%	-0.4%	-6.5%	8.5%	0.7%
2012	-0.3%	0.1%	0.8%	3.7%	3.5%	-0.6%	5.5%	4.5%	-0.4%	-0.9%	-0.5%
2013	0.2%	0.4%	0.2%	4.6%	4.3%	-0.1%	4.9%	3.6%	4.5%	-1.3%	0.3%
2014	0.4%	0.4%	0.5%	3.1%	3.1%	-0.8%	4.6%	2.0%	3.6%	-2.5%	-0.4%
Compound Annual G											
2006-2011	-1.4%	-0.1%	-0.2%	3.2%	3.2%	1.1%	-0.6%	-0.1%	-0.4%	0.5%	1.1%
2011-2014	0.1%	0.3%	0.5%	3.8%	3.7%	-0.5%	5.0%	3.3%	2.5%	-1.6%	-0.2%

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
Docket No. R.I.P.U.C. ____
Schedule ALS-7
Page 2 of 2

Appendix of
A. Leo Silvestrini

Appendix ALS

Class Models

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 1012
Model: Customer Counts

GOF R-Square= 0.919765
Model: -98.9628*x + 36661.7
Where: X= time

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	34,321	Jan-11	27,523
Feb-05	34,254	Feb-11	27,292
Mar-05	34,124	Mar-11	27,142
Apr-05	33,996	Apr-11	26,989
May-05	33,921	May-11	26,867
Jun-05	33,780	Jun-11	26,738
Jul-05	33,715	Jul-11	26,647
Aug-05	33,629	Aug-11	26,620
Sep-05	33,610	Sep-11	26,611
Oct-05	33,564	Oct-11	26,520
Nov-05	33,525	Nov-11	26,530
Dec-05	33,450	Dec-11	26,476
Jan-06	33,237	Jan-12	26,879
Feb-06	33,179	Feb-12	26,780
Mar-06	33,032	Mar-12	26,626
Apr-06	32,947	Apr-12	26,449
May-06	32,848	May-12	26,317
Jun-06	32,797	Jun-12	26,194
Jul-06	32,755	Jul-12	26,191
Aug-06	32,688	Aug-12	26,185
Sep-06	32,739	Sep-12	26,174
Oct-06	32,693	Oct-12	26,153
Nov-06	32,658	Nov-12	26,116
Dec-06	32,638	Dec-12	25,982
Jan-07	32,503	Jan-13	25,946
Feb-07	32,315	Feb-13	25,875
Mar-07	32,267	Mar-13	25,752
Apr-07	32,171	Apr-13	25,578
May-07	32,102	May-13	25,420
Jun-07	32,031	Jun-13	25,322
Jul-07	31,973	Jul-13	25,245
Aug-07	31,956	Aug-13	25,243
Sep-07	31,984	Sep-13	25,238
Oct-07	31,991	Oct-13	25,228
Nov-07	31,997	Nov-13	25,201
Dec-07	31,996	Dec-13	25,152
Jan-08	31,899	Jan-14	25,026
Feb-08	31,807	Feb-14	24,975
Mar-08	31,693	Mar-14	24,882
Apr-08	31,568	Apr-14	24,725
May-08	31,460	May-14	24,550
Jun-08	31,350	Jun-14	24,421
Jul-08	31,290	Jul-14	24,308
Aug-08	31,268	Aug-14	24,308
Sep-08	31,264	Sep-14	24,307
Oct-08	31,308	Oct-14	24,306

Year	Year End Customers	Economic Data time
2005	33,450	
2006	32,638	
2007	31,996	
2008	31,346	
2009	29,898	
2010	27,617	
2011	26,476	
2012	25,982	
2013	25,152	
2014	24,244	
2015	23,335	

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 1012
Model: Customer Counts

GOF R-Square= 0.919765
Model: -98.9628*x + 36661.7
Where: X= time

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	31,361	Nov-14	24,287
Dec-08	31,346	Dec-14	24,244
Jan-09	31,244	Jan-15	24,104
Feb-09	30,946	Feb-15	24,066
Mar-09	30,728	Mar-15	23,999
Apr-09	30,571	Apr-15	23,867
May-09	30,443	May-15	23,695
Jun-09	30,271	Jun-15	23,538
Jul-09	30,206	Jul-15	23,447
Aug-09	30,106	Aug-15	23,373
Sep-09	30,044	Sep-15	23,374
Oct-09	30,046	Oct-15	23,378
Nov-09	30,055	Nov-15	23,370
Dec-09	29,898	Dec-15	23,335
Jan-10	29,433	Jan-16	23,278
Feb-10	28,964	Feb-16	23,150
Mar-10	28,796	Mar-16	23,103
Apr-10	28,518	Apr-16	23,001
May-10	28,321	May-16	22,844
Jun-10	28,158	Jun-16	22,670
Jul-10	27,865	Jul-16	22,548
Aug-10	27,818	Aug-16	22,437
Sep-10	27,642	Sep-16	22,440
Oct-10	27,660	Oct-16	22,448
Nov-10	27,715	Nov-16	22,448
Dec-10	27,617	Dec-16	22,424
Jan-11	27,523		

Year	Year End Customers	Economic Data time

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 1012
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0.7778	SSE=	6.57E-08	
Par (X)=P1*X+P2		X=	PopXDisPersInc		
Coefficients	(with	95%	confidence	bounds):	
p1	=	1.36E-07	(6.345e-008	2.088e-007)	
p2	=	-0.008572	(-0.01474,	-0.0024)	

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data PopXDisPersInc	For Monthly Allocation date	HDD
Jan-05	0.07	Jan-11	0.10	2005	0.64	81,154.71	Jan-05	37.32
Feb-05	0.08	Feb-11	0.11	2006	0.62	82,964.04	Feb-05	33.43
Mar-05	0.07	Mar-11	0.09	2007	0.64	83,321.77	Mar-05	29.94
Apr-05	0.06	Apr-11	0.08	2008	0.70	83,791.49	Apr-05	14.93
May-05	0.05	May-11	0.05	2009	0.82	86,405.94	May-05	11.35
Jun-05	0.05	Jun-11	0.05	2010	0.75	86,829.92	Jun-05	1.40
Jul-05	0.04	Jul-11	0.04	2011	0.74	87,467.69	Jul-05	0.19
Aug-05	0.03	Aug-11	0.03	2012	0.70	87,037.66	Aug-05	0.00
Sep-05	0.04	Sep-11	0.04	2013	0.71	87,287.62	Sep-05	1.30
Oct-05	0.04	Oct-11	0.04	2014	0.71	86,944.72	Oct-05	10.35
Nov-05	0.05	Nov-11	0.06	2015	0.71	87,031.33	Nov-05	18.90
Dec-05	0.06	Dec-11	0.07				Dec-05	32.39
Jan-06	0.07	Jan-12	0.09				Jan-06	27.61
Feb-06	0.06	Feb-12	0.10				Feb-06	33.14
Mar-06	0.06	Mar-12	0.09				Mar-06	25.71
Apr-06	0.06	Apr-12	0.07				Apr-06	14.23
May-06	0.06	May-12	0.05				May-06	7.00
Jun-06	0.05	Jun-12	0.04				Jun-06	1.27
Jul-06	0.04	Jul-12	0.04				Jul-06	0.00
Aug-06	0.03	Aug-12	0.03				Aug-06	0.16
Sep-06	0.04	Sep-12	0.03				Sep-06	2.57
Oct-06	0.04	Oct-12	0.04				Oct-06	11.03
Nov-06	0.05	Nov-12	0.05				Nov-06	15.57
Dec-06	0.06	Dec-12	0.07				Dec-06	24.13
Jan-07	0.06	Jan-13	0.10				Jan-07	30.58
Feb-07	0.08	Feb-13	0.10				Feb-07	37.68
Mar-07	0.07	Mar-13	0.09				Mar-07	26.61
Apr-07	0.06	Apr-13	0.07				Apr-07	18.03
May-07	0.05	May-13	0.05				May-07	5.74
Jun-07	0.05	Jun-13	0.04				Jun-07	1.10
Jul-07	0.04	Jul-13	0.03				Jul-07	0.00
Aug-07	0.03	Aug-13	0.03				Aug-07	0.26
Sep-07	0.04	Sep-13	0.03				Sep-07	1.27
Oct-07	0.04	Oct-13	0.04				Oct-07	6.55
Nov-07	0.05	Nov-13	0.05				Nov-07	22.07
Dec-07	0.06	Dec-13	0.07				Dec-07	32.03
Jan-08	0.08	Jan-14	0.09				Jan-08	31.35
Feb-08	0.09	Feb-14	0.10				Feb-08	31.86
Mar-08	0.08	Mar-14	0.09				Mar-08	25.23
Apr-08	0.07	Apr-14	0.07				Apr-08	13.47
May-08	0.06	May-14	0.05				May-08	7.32
Jun-08	0.05	Jun-14	0.04				Jun-08	0.63
Jul-08	0.03	Jul-14	0.03				Jul-08	0.00
Aug-08	0.04	Aug-14	0.03				Aug-08	0.06
Sep-08	0.03	Sep-14	0.03				Sep-08	2.40
Oct-08	0.04	Oct-14	0.04				Oct-08	12.61
Nov-08	0.06	Nov-14	0.05				Nov-08	22.17
Dec-08	0.08	Dec-14	0.07				Dec-08	29.48
Jan-09	0.11	Jan-15	0.09				Jan-09	40.81
Feb-09	0.12	Feb-15	0.10				Feb-09	32.11
Mar-09	0.09	Mar-15	0.09				Mar-09	27.32
Apr-09	0.09	Apr-15	0.07				Apr-09	15.45
May-09	0.06	May-15	0.05				May-09	6.71
Jun-09	0.04	Jun-15	0.04				Jun-09	2.10

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 1012
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0.7778	SSE=	6.57E-08	
Par (X)=P1*X+P2		X=	PopXDisPersInc		
Coefficients	(with	95%	confidence	bounds):	
p1	=	1.36E-07	(6.345e-008	2.088e-007)	
p2	=	-0.008572	(-0.01474,	-0.0024)	

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data PopXDisPersInc	For Monthly Allocation date	HDD
Jul-09	0.05	Jul-15	0.04				Jul-09	0.19
Aug-09	0.04	Aug-15	0.03				Aug-09	0.10
Sep-09	0.04	Sep-15	0.03				Sep-09	3.03
Oct-09	0.04	Oct-15	0.04				Oct-09	12.77
Nov-09	0.06	Nov-15	0.05				Nov-09	15.80
Dec-09	0.08	Dec-15	0.07				Dec-09	31.84
Jan-10	0.12	Jan-16	0.09				Jan-10	35.68
Feb-10	0.11	Feb-16	0.09				Feb-10	31.79
Mar-10	0.09	Mar-16	0.08				Mar-10	19.61
Apr-10	0.07	Apr-16	0.08				Apr-10	11.13
May-10	0.05	May-16	0.05				May-10	3.90
Jun-10	0.04	Jun-16	0.04				Jun-10	0.53
Jul-10	0.04	Jul-16	0.04				Jul-10	0.00
Aug-10	0.03	Aug-16	0.03				Aug-10	0.06
Sep-10	0.03	Sep-16	0.03				Sep-10	1.03
Oct-10	0.04	Oct-16	0.04				Oct-10	9.45
Nov-10	0.05	Nov-16	0.05				Nov-10	20.07
Dec-10	0.08	Dec-16	0.08				Dec-10	33.65
Jan-11	0.10						Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 1247
Model: Customer Counts

GOF R-Square= 0.984296
Model: 155.01*x + 180852
Where: X= time

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	190,126	Jan-11	200,705
Feb-05	190,318	Feb-11	201,070
Mar-05	190,151	Mar-11	200,970
Apr-05	189,105	Apr-11	200,373
May-05	187,757	May-11	198,864
Jun-05	186,183	Jun-11	197,666
Jul-05	185,392	Jul-11	197,144
Aug-05	184,519	Aug-11	196,767
Sep-05	184,974	Sep-11	196,840
Oct-05	186,358	Oct-11	197,556
Nov-05	188,863	Nov-11	199,476
Dec-05	190,870	Dec-11	200,546
Jan-06	191,032	Jan-12	201,827
Feb-06	191,610	Feb-12	201,976
Mar-06	191,513	Mar-12	202,108
Apr-06	190,633	Apr-12	201,170
May-06	189,275	May-12	199,992
Jun-06	188,137	Jun-12	198,704
Jul-06	187,307	Jul-12	198,001
Aug-06	186,745	Aug-12	197,549
Sep-06	187,575	Sep-12	197,868
Oct-06	188,985	Oct-12	199,319
Nov-06	190,988	Nov-12	201,380
Dec-06	192,389	Dec-12	202,845
Jan-07	193,198	Jan-13	203,578
Feb-07	193,367	Feb-13	203,733
Mar-07	193,505	Mar-13	203,864
Apr-07	192,556	Apr-13	202,930
May-07	191,007	May-13	201,755
Jun-07	190,072	Jun-13	200,469
Jul-07	189,224	Jul-13	199,768
Aug-07	188,747	Aug-13	199,318
Sep-07	189,081	Sep-13	199,639
Oct-07	190,389	Oct-13	201,091
Nov-07	192,730	Nov-13	203,151
Dec-07	193,904	Dec-13	204,613
Jan-08	194,327	Jan-14	205,347
Feb-08	194,525	Feb-14	205,503
Mar-08	194,316	Mar-14	205,633
Apr-08	193,500	Apr-14	204,699
May-08	192,470	May-14	203,524
Jun-08	191,410	Jun-14	202,239
Jul-08	190,200	Jul-14	201,540
Aug-08	189,935	Aug-14	201,089
Sep-08	189,947	Sep-14	201,412
Oct-08	191,776	Oct-14	202,862

Year	Year End Customers	Economic Data time
2005	190,870	
2006	192,389	
2007	193,904	
2008	195,225	
2009	196,686	
2010	200,007	
2011	200,546	
2012	202,845	
2013	204,613	
2014	206,382	
2015	208,152	

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 1247
Model: Customer Counts

GOF R-Square= 0.984296
Model: 155.01*x + 180852
Where: X= time

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts				
date		date		Year	Year End Customers	Economic Data time
Nov-08	193,986	Nov-14	204,921			
Dec-08	195,225	Dec-14	206,382			
Jan-09	196,041	Jan-15	207,115			
Feb-09	196,380	Feb-15	207,272			
Mar-09	196,304	Mar-15	207,401			
Apr-09	195,139	Apr-15	206,469			
May-09	194,459	May-15	205,293			
Jun-09	192,812	Jun-15	204,009			
Jul-09	192,550	Jul-15	203,310			
Aug-09	191,975	Aug-15	202,860			
Sep-09	192,054	Sep-15	203,185			
Oct-09	193,982	Oct-15	204,636			
Nov-09	195,208	Nov-15	206,693			
Dec-09	196,686	Dec-15	208,152			
Jan-10	197,467	Jan-16	208,883			
Feb-10	198,382	Feb-16	209,042			
Mar-10	198,776	Mar-16	209,175			
Apr-10	198,142	Apr-16	208,242			
May-10	197,041	May-16	207,067			
Jun-10	195,513	Jun-16	205,785			
Jul-10	194,951	Jul-16	205,086			
Aug-10	194,483	Aug-16	204,642			
Sep-10	194,773	Sep-16	204,964			
Oct-10	196,027	Oct-16	206,415			
Nov-10	198,376	Nov-16	208,469			
Dec-10	200,007	Dec-16	209,926			
Jan-11	200,705					

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 1247
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.7535	SSE=	3.84E-08	
Par (X)=P1*X+P2	X=		FO		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-4.76E-06	(-7.478e-00(	-2.04e-006)	
p2	=	0.00404	(0.003571,	0.004509)	

Slope Model

GOF:	R-Square=	0.2607	SSE=	2.81E-09	
Par (X)=P1*X+P2	X=		NG		
Coefficients	(with	95%	confidence	bounds):	
p1	=	1.59E-05	(-1.085e-00(	4.266e-005)	
p2	=	0.0003472	(-9.632e-00(	0.0007907)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.0006	0.236	0.1977	0.4103	0.2746	0.3864	0.1502	-0.0183	-0.1831	-0.5402	-0.3311	-0.1903

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data FO	Economic Data NG	date	For Monthly Allocation HDD
Jan-05	0.53	Jan-11	0.52	2005	3.31	128.18	16.95	Jan-05	37.32
Feb-05	0.65	Feb-11	0.59	2006	2.89	118.16	16.54	Feb-05	33.43
Mar-05	0.51	Mar-11	0.45	2007	3.01	187.88	16.22	Mar-05	29.94
Apr-05	0.39	Apr-11	0.34	2008	2.97	125.18	17.00	Apr-05	14.93
May-05	0.19	May-11	0.17	2009	2.98	192.03	16.43	May-05	11.35
Jun-05	0.14	Jun-11	0.10	2010	2.81	203.05	17.34	Jun-05	1.40
Jul-05	0.08	Jul-11	0.07	2011	2.88	198.67	16.21	Jul-05	0.19
Aug-05	0.07	Aug-11	0.06	2012	2.85	182.35	16.14	Aug-05	0.00
Sep-05	0.08	Sep-11	0.07	2013	2.79	192.36	16.87	Sep-05	1.30
Oct-05	0.08	Oct-11	0.07	2014	2.74	201.86	17.47	Oct-05	10.35
Nov-05	0.20	Nov-11	0.18	2015	2.75	211.21	17.82	Nov-05	18.90
Dec-05	0.39	Dec-11	0.26					Dec-05	32.39
Jan-06	0.49	Jan-12	0.47					Jan-06	27.61
Feb-06	0.43	Feb-12	0.54					Feb-06	33.14
Mar-06	0.47	Mar-12	0.44					Mar-06	25.71
Apr-06	0.36	Apr-12	0.32					Apr-06	14.23
May-06	0.20	May-12	0.18					May-06	7.00
Jun-06	0.13	Jun-12	0.10					Jun-06	1.27
Jul-06	0.08	Jul-12	0.08					Jul-06	0.00
Aug-06	0.07	Aug-12	0.06					Aug-06	0.16
Sep-06	0.08	Sep-12	0.07					Sep-06	2.57
Oct-06	0.10	Oct-12	0.08					Oct-06	11.03
Nov-06	0.20	Nov-12	0.18					Nov-06	15.57
Dec-06	0.29	Dec-12	0.33					Dec-06	24.13
Jan-07	0.38	Jan-13	0.46					Jan-07	30.58
Feb-07	0.60	Feb-13	0.54					Feb-07	37.68
Mar-07	0.53	Mar-13	0.44					Mar-07	26.61
Apr-07	0.37	Apr-13	0.31					Apr-07	18.03
May-07	0.21	May-13	0.17					May-07	5.74
Jun-07	0.11	Jun-13	0.10					Jun-07	1.10
Jul-07	0.07	Jul-13	0.07					Jul-07	0.00
Aug-07	0.06	Aug-13	0.06					Aug-07	0.26
Sep-07	0.08	Sep-13	0.06					Sep-07	1.27
Oct-07	0.08	Oct-13	0.08					Oct-07	6.55
Nov-07	0.17	Nov-13	0.17					Nov-07	22.07
Dec-07	0.35	Dec-13	0.32					Dec-07	32.03
Jan-08	0.50	Jan-14	0.46					Jan-08	31.35
Feb-08	0.55	Feb-14	0.53					Feb-08	31.86
Mar-08	0.43	Mar-14	0.43					Mar-08	25.23
Apr-08	0.34	Apr-14	0.31					Apr-08	13.47
May-08	0.22	May-14	0.17					May-08	7.32
Jun-08	0.12	Jun-14	0.10					Jun-08	0.63
Jul-08	0.08	Jul-14	0.07					Jul-08	0.00
Aug-08	0.07	Aug-14	0.06					Aug-08	0.06
Sep-08	0.07	Sep-14	0.06					Sep-08	2.40
Oct-08	0.08	Oct-14	0.07					Oct-08	12.61
Nov-08	0.18	Nov-14	0.17					Nov-08	22.17
Dec-08	0.35	Dec-14	0.31					Dec-08	29.48
Jan-09	0.50	Jan-15	0.46					Jan-09	40.81
Feb-09	0.62	Feb-15	0.54					Feb-09	32.11
Mar-09	0.44	Mar-15	0.43					Mar-09	27.32
Apr-09	0.35	Apr-15	0.31					Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 1247
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.7535	SSE=	3.84E-08	
Par (X)=P1*X+P2		X=	FO		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-4.76E-06	(-7.478e-00(	-2.04e-006)	
p2	=	0.00404	(0.003571,	0.004509)	

Slope Model

GOF:	R-Square=	0.2607	SSE=	2.81E-09	
Par (X)=P1*X+P2		X=	NG		
Coefficients	(with	95%	confidence	bounds):	
p1	=	1.59E-05	(-1.085e-00(	4.266e-005)	
p2	=	0.0003472	(-9.632e-00(	0.0007907)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.0006	0.236	0.1977	0.4103	0.2746	0.3864	0.1502	-0.0183	-0.1831	-0.5402	-0.3311	-0.1903

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data FO	Economic Data NG	For Monthly Allocation date	For Monthly Allocation HDD
May-09	0.17	May-15	0.17					May-09	6.71
Jun-09	0.10	Jun-15	0.10					Jun-09	2.10
Jul-09	0.08	Jul-15	0.07					Jul-09	0.19
Aug-09	0.07	Aug-15	0.06					Aug-09	0.10
Sep-09	0.07	Sep-15	0.06					Sep-09	3.03
Oct-09	0.10	Oct-15	0.08					Oct-09	12.77
Nov-09	0.19	Nov-15	0.17					Nov-09	15.80
Dec-09	0.30	Dec-15	0.32					Dec-09	31.84
Jan-10	0.56	Jan-16	0.49					Jan-10	35.68
Feb-10	0.56	Feb-16	0.56					Feb-10	31.79
Mar-10	0.41	Mar-16	0.46					Mar-10	19.61
Apr-10	0.25	Apr-16	0.29					Apr-10	11.13
May-10	0.14	May-16	0.16					May-10	3.90
Jun-10	0.09	Jun-16	0.09					Jun-10	0.53
Jul-10	0.07	Jul-16	0.07					Jul-10	0.00
Aug-10	0.06	Aug-16	0.06					Aug-10	0.06
Sep-10	0.07	Sep-16	0.06					Sep-10	1.03
Oct-10	0.08	Oct-16	0.07					Oct-10	9.45
Nov-10	0.17	Nov-16	0.16					Nov-10	20.07
Dec-10	0.36	Dec-16	0.30					Dec-10	33.65
Jan-11	0.52							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2107
Model: Customer Counts

GOF R-Square= 0.682827
Model: 5.00457*x + 17391
Where: X= time

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	18,025	Jan-11	18,810
Feb-05	18,049	Feb-11	18,805
Mar-05	18,027	Mar-11	18,742
Apr-05	17,841	Apr-11	18,543
May-05	17,668	May-11	18,338
Jun-05	17,521	Jun-11	18,166
Jul-05	17,353	Jul-11	18,070
Aug-05	17,319	Aug-11	17,971
Sep-05	17,428	Sep-11	17,946
Oct-05	17,598	Oct-11	18,061
Nov-05	17,840	Nov-11	18,342
Dec-05	18,130	Dec-11	18,565
Jan-06	18,149	Jan-12	18,719
Feb-06	18,213	Feb-12	18,737
Mar-06	18,170	Mar-12	18,588
Apr-06	18,051	Apr-12	18,464
May-06	17,878	May-12	18,271
Jun-06	17,705	Jun-12	18,084
Jul-06	17,564	Jul-12	17,953
Aug-06	17,504	Aug-12	17,884
Sep-06	17,497	Sep-12	17,990
Oct-06	17,648	Oct-12	18,204
Nov-06	17,912	Nov-12	18,466
Dec-06	18,213	Dec-12	18,656
Jan-07	18,368	Jan-13	18,719
Feb-07	18,382	Feb-13	18,731
Mar-07	18,454	Mar-13	18,585
Apr-07	18,276	Apr-13	18,454
May-07	18,137	May-13	18,264
Jun-07	17,954	Jun-13	18,077
Jul-07	17,771	Jul-13	17,952
Aug-07	17,683	Aug-13	17,884
Sep-07	17,683	Sep-13	17,992
Oct-07	17,735	Oct-13	18,205
Nov-07	18,185	Nov-13	18,450
Dec-07	18,389	Dec-13	18,636
Jan-08	18,467	Jan-14	18,709
Feb-08	18,461	Feb-14	18,717
Mar-08	18,441	Mar-14	18,568
Apr-08	18,295	Apr-14	18,425
May-08	18,154	May-14	18,232
Jun-08	17,948	Jun-14	18,044
Jul-08	17,799	Jul-14	17,919
Aug-08	17,712	Aug-14	17,850
Sep-08	17,665	Sep-14	17,970
Oct-08	17,876	Oct-14	18,192

Year	Year End Customers	Economic Data time
2005	18,130	
2006	18,213	
2007	18,389	
2008	18,411	
2009	18,581	
2010	18,706	
2011	18,565	
2012	18,656	
2013	18,636	
2014	18,594	
2015	18,551	

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2107
Model: Customer Counts

GOF R-Square= 0.682827
Model: 5.00457*x + 17391
Where: X= time

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts	
date		date	
Nov-08	18,182	Nov-14	18,407
Dec-08	18,411	Dec-14	18,594
Jan-09	18,529	Jan-15	18,678
Feb-09	18,523	Feb-15	18,684
Mar-09	18,355	Mar-15	18,551
Apr-09	18,202	Apr-15	18,361
May-09	18,059	May-15	18,188
Jun-09	17,878	Jun-15	18,004
Jul-09	17,772	Jul-15	17,876
Aug-09	17,776	Aug-15	17,811
Sep-09	17,831	Sep-15	17,953
Oct-09	18,092	Oct-15	18,159
Nov-09	18,282	Nov-15	18,364
Dec-09	18,581	Dec-15	18,551
Jan-10	18,651	Jan-16	18,643
Feb-10	18,683	Feb-16	18,657
Mar-10	18,574	Mar-16	18,523
Apr-10	18,378	Apr-16	18,329
May-10	18,182	May-16	18,155
Jun-10	17,984	Jun-16	17,976
Jul-10	17,839	Jul-16	17,850
Aug-10	17,828	Aug-16	17,874
Sep-10	17,833	Sep-16	17,945
Oct-10	18,051	Oct-16	18,135
Nov-10	18,392	Nov-16	18,327
Dec-10	18,706	Dec-16	18,510
Jan-11	18,809		

Year	Year End Customers	Economic Data time

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2017
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.2132	SSE=	2.66E-06	
Par (X)=P1*X+P2		X=	FRTFSQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.0006257	(-0.001826,	0.000575)	
p2	=	0.01911	(-0.008568,	0.04679)	

Slope Model

GOF:	R-Square=	0.247	SSE=	1.65E-08	
Par (X)=P1*X+P2		X=	NG		
Coefficients	(with	95%	confidence	bounds):	
p1	=	3.72E-05	(-2.766e-00:	0.000102)	
p2	=	0.0002727	(-0.0008019	0.001347)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	0.0703	0.2285	0.2477	0.3344	0.0928	0.1761	0.0555	-0.0204	-0.3603	-0.606	-0.4226	-0.2241

	Actual Use Per		Forecasted Use Per		Annual Use Per	Economic Data		For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	FRTFSQ	NG	date	HDD
Jan-05	0.74	Jan-11	0.83	2005	4.54	23.44	16.95	Jan-05	37.32
Feb-05	0.98	Feb-11	0.94	2006	3.94	24.33	16.54	Feb-05	33.43
Mar-05	0.75	Mar-11	0.70	2007	4.19	24.57	16.22	Mar-05	29.94
Apr-05	0.54	Apr-11	0.50	2008	4.01	23.45	17.00	Apr-05	14.93
May-05	0.22	May-11	0.22	2009	4.21	22.11	16.43	May-05	11.35
Jun-05	0.16	Jun-11	0.13	2010	4.07	22.96	17.34	Jun-05	1.40
Jul-05	0.09	Jul-11	0.10	2011	4.23	24.09	16.21	Jul-05	0.19
Aug-05	0.08	Aug-11	0.08	2012	4.38	24.27	16.14	Aug-05	0.00
Sep-05	0.10	Sep-11	0.09	2013	4.40	24.31	16.87	Sep-05	1.30
Oct-05	0.11	Oct-11	0.09	2014	4.51	24.44	17.47	Oct-05	10.35
Nov-05	0.23	Nov-11	0.22	2015	4.51	24.72	17.82	Nov-05	18.90
Dec-05	0.53	Dec-11	0.35					Dec-05	32.39
Jan-06	0.72	Jan-12	0.87					Jan-06	27.61
Feb-06	0.64	Feb-12	0.80					Feb-06	33.14
Mar-06	0.70	Mar-12	0.74					Mar-06	25.71
Apr-06	0.49	Apr-12	0.48					Apr-06	14.23
May-06	0.23	May-12	0.25					May-06	7.00
Jun-06	0.15	Jun-12	0.13					Jun-06	1.27
Jul-06	0.10	Jul-12	0.13					Jul-06	0.00
Aug-06	0.08	Aug-12	0.09					Aug-06	0.16
Sep-06	0.09	Sep-12	0.07					Sep-06	2.57
Oct-06	0.12	Oct-12	0.11					Oct-06	11.03
Nov-06	0.21	Nov-12	0.24					Nov-06	15.57
Dec-06	0.39	Dec-12	0.48					Dec-06	24.13
Jan-07	0.50	Jan-13	0.89					Jan-07	30.58
Feb-07	0.92	Feb-13	0.81					Feb-07	37.68
Mar-07	0.80	Mar-13	0.75					Mar-07	26.61
Apr-07	0.52	Apr-13	0.48					Apr-07	18.03
May-07	0.26	May-13	0.24					May-07	5.74
Jun-07	0.12	Jun-13	0.13					Jun-07	1.10
Jul-07	0.08	Jul-13	0.11					Jul-07	0.00
Aug-07	0.08	Aug-13	0.08					Aug-07	0.26
Sep-07	0.09	Sep-13	0.08					Sep-07	1.27
Oct-07	0.08	Oct-13	0.11					Oct-07	6.55
Nov-07	0.24	Nov-13	0.23					Nov-07	22.07
Dec-07	0.49	Dec-13	0.48					Dec-07	32.03
Jan-08	0.77	Jan-14	0.91					Jan-08	31.35
Feb-08	0.74	Feb-14	0.84					Feb-08	31.86
Mar-08	0.64	Mar-14	0.76					Mar-08	25.23
Apr-08	0.44	Apr-14	0.49					Apr-08	13.47
May-08	0.24	May-14	0.25					May-08	7.32
Jun-08	0.14	Jun-14	0.14					Jun-08	0.63
Jul-08	0.13	Jul-14	0.12					Jul-08	0.00
Aug-08	0.11	Aug-14	0.09					Aug-08	0.06
Sep-08	0.02	Sep-14	0.08					Sep-08	2.40
Oct-08	0.09	Oct-14	0.11					Oct-08	12.61
Nov-08	0.24	Nov-14	0.24					Nov-08	22.17
Dec-08	0.44	Dec-14	0.49					Dec-08	29.48
Jan-09	0.82	Jan-15	0.90					Jan-09	40.81
Feb-09	0.86	Feb-15	0.84					Feb-09	32.11
Mar-09	0.71	Mar-15	0.76					Mar-09	27.32
Apr-09	0.49	Apr-15	0.49					Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2017
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.2132	SSE=	2.66E-06	
Par (X)=P1*X+P2		X=	FRTFSQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.0006257	(-0.001826,	0.000575)	
p2	=	0.01911	(-0.008568,	0.04679)	

Slope Model

GOF:	R-Square=	0.247	SSE=	1.65E-08	
Par (X)=P1*X+P2		X=	NG		
Coefficients	(with	95%	confidence	bounds):	
p1	=	3.72E-05	(-2.766e-00:	0.000102)	
p2	=	0.0002727	(-0.0008019	0.001347)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	0.0703	0.2285	0.2477	0.3344	0.0928	0.1761	0.0555	-0.0204	-0.3603	-0.606	-0.4226	-0.2241

Actual Use Per		Forecasted Use Per		Annual Use Per	Economic Data		For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	FRTFSQ	NG	date	HDD
May-09	0.24	May-15	0.25					May-09	6.71
Jun-09	0.11	Jun-15	0.14					Jun-09	2.10
Jul-09	0.09	Jul-15	0.12					Jul-09	0.19
Aug-09	0.13	Aug-15	0.09					Aug-09	0.10
Sep-09	0.03	Sep-15	0.08					Sep-09	3.03
Oct-09	0.11	Oct-15	0.11					Oct-09	12.77
Nov-09	0.23	Nov-15	0.24					Nov-09	15.80
Dec-09	0.40	Dec-15	0.49					Dec-09	31.84
Jan-10	1.07	Jan-16	0.91					Jan-10	35.68
Feb-10	0.69	Feb-16	0.82					Feb-10	31.79
Mar-10	0.62	Mar-16	0.77					Mar-10	19.61
Apr-10	0.33	Apr-16	0.49					Apr-10	11.13
May-10	0.18	May-16	0.25					May-10	3.90
Jun-10	0.11	Jun-16	0.13					Jun-10	0.53
Jul-10	0.09	Jul-16	0.12					Jul-10	0.00
Aug-10	0.08	Aug-16	0.09					Aug-10	0.06
Sep-10	0.09	Sep-16	0.08					Sep-10	1.03
Oct-10	0.12	Oct-16	0.11					Oct-10	9.45
Nov-10	0.21	Nov-16	0.24					Nov-10	20.07
Dec-10	0.50	Dec-16	0.48					Dec-10	33.65
Jan-11	0.84							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2237
Model: Customer Counts

GOF R-Square= 0.980351
Model: 3635.5-804.296/(1+exp(-0.140966*(t-78.0482)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	3,865	Jan-11	2,959
Feb-05	3,880	Feb-11	2,957
Mar-05	3,883	Mar-11	2,941
Apr-05	3,866	Apr-11	2,916
May-05	3,837	May-11	2,899
Jun-05	3,836	Jun-11	2,884
Jul-05	3,822	Jul-11	2,876
Aug-05	3,720	Aug-11	2,890
Sep-05	3,644	Sep-11	2,896
Oct-05	3,679	Oct-11	2,928
Nov-05	3,721	Nov-11	2,939
Dec-05	3,763	Dec-11	2,958
Jan-06	3,774	Jan-12	2,855
Feb-06	3,790	Feb-12	2,851
Mar-06	3,765	Mar-12	2,848
Apr-06	3,684	Apr-12	2,846
May-06	3,654	May-12	2,844
Jun-06	3,634	Jun-12	2,842
Jul-06	3,617	Jul-12	2,840
Aug-06	3,558	Aug-12	2,839
Sep-06	3,583	Sep-12	2,838
Oct-06	3,605	Oct-12	2,838
Nov-06	3,634	Nov-12	2,838
Dec-06	3,634	Dec-12	2,837
Jan-07	3,644	Jan-13	2,836
Feb-07	3,641	Feb-13	2,835
Mar-07	3,638	Mar-13	2,834
Apr-07	3,617	Apr-13	2,833
May-07	3,584	May-13	2,832
Jun-07	3,596	Jun-13	2,832
Jul-07	3,587	Jul-13	2,831
Aug-07	3,593	Aug-13	2,831
Sep-07	3,607	Sep-13	2,832
Oct-07	3,608	Oct-13	2,832
Nov-07	3,603	Nov-13	2,833
Dec-07	3,605	Dec-13	2,832
Jan-08	3,604	Jan-14	2,832
Feb-08	3,609	Feb-14	2,831
Mar-08	3,606	Mar-14	2,831
Apr-08	3,651	Apr-14	2,830
May-08	3,639	May-14	2,830
Jun-08	3,626	Jun-14	2,829
Jul-08	3,609	Jul-14	2,829
Aug-08	3,486	Aug-14	2,829
Sep-08	3,483	Sep-14	2,830
Oct-08	3,505	Oct-14	2,831

Year	Year End Customers	Economic Data
2005	3,763	
2006	3,634	
2007	3,605	
2008	3,538	
2009	3,215	
2010	2,964	
2011	2,958	
2012	2,837	
2013	2,832	
2014	2,831	
2015	2,831	

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2237
Model: Customer Counts

GOF R-Square= 0.980351
Model: 3635.5-804.296/(1+exp(-0.140966*(t-78.0482)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	3,518	Nov-14	2,831
Dec-08	3,538	Dec-14	2,831
Jan-09	3,527	Jan-15	2,831
Feb-09	3,534	Feb-15	2,830
Mar-09	3,499	Mar-15	2,830
Apr-09	3,500	Apr-15	2,829
May-09	3,463	May-15	2,829
Jun-09	3,415	Jun-15	2,828
Jul-09	3,381	Jul-15	2,828
Aug-09	3,212	Aug-15	2,828
Sep-09	3,228	Sep-15	2,829
Oct-09	3,251	Oct-15	2,830
Nov-09	3,211	Nov-15	2,831
Dec-09	3,215	Dec-15	2,831
Jan-10	3,224	Jan-16	2,830
Feb-10	3,210	Feb-16	2,830
Mar-10	3,204	Mar-16	2,829
Apr-10	3,148	Apr-16	2,828
May-10	3,135	May-16	2,828
Jun-10	3,106	Jun-16	2,828
Jul-10	3,082	Jul-16	2,828
Aug-10	2,977	Aug-16	2,828
Sep-10	2,983	Sep-16	2,829
Oct-10	2,982	Oct-16	2,830
Nov-10	2,967	Nov-16	2,830
Dec-10	2,964	Dec-16	2,831
Jan-11	2,956		

Year	Year End Customers	Economic Data

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2237
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.2632	SSE=	8.94E-05	
Par (X)=P1*X+P2		X=	FRTFSQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.004164	(-0.01112,	0.002796)	
p2	=	0.1475	(-0.01295,	0.308)	

Slope Model

GOF:	R-Square=	0.4299	SSE=	4.00E-07	
Par (X)=P1*X+P2		X=	NG		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.0002772	(-4.17e-005,	0.0005961)	
p2	=	0.001816	(-0.00347,	0.007103)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	0.005	0.2209	0.2702	0.224	0.1599	0.2763	0.065	-0.0126	-0.1617	-0.4175	-0.2301	-0.2499

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data FRTFSQ	NG	date	For Monthly Allocation HDD
Jan-05	5.69	Jan-11	6.00	2005	37.22	23.44	16.95	Jan-05	37.32
Feb-05	6.71	Feb-11	6.87	2006	34.56	24.33	16.54	Feb-05	33.43
Mar-05	5.54	Mar-11	5.42	2007	35.65	24.57	16.22	Mar-05	29.94
Apr-05	4.13	Apr-11	4.05	2008	34.46	23.45	17.00	Apr-05	14.93
May-05	2.19	May-11	2.25	2009	36.21	22.11	16.43	May-05	11.35
Jun-05	1.71	Jun-11	1.39	2010	34.38	22.96	17.34	Jun-05	1.40
Jul-05	1.12	Jul-11	1.39	2011	35.58	24.09	16.21	Jul-05	0.19
Aug-05	0.98	Aug-11	0.62	2012	36.37	24.27	16.14	Aug-05	0.00
Sep-05	1.18	Sep-11	1.10	2013	37.14	24.31	16.87	Sep-05	1.30
Oct-05	1.21	Oct-11	1.08	2014	36.29	24.44	17.47	Oct-05	10.35
Nov-05	2.38	Nov-11	2.29	2015	36.42	24.72	17.82	Nov-05	18.90
Dec-05	4.37	Dec-11	3.13					Dec-05	32.39
Jan-06	5.46	Jan-12	5.99					Jan-06	27.61
Feb-06	5.09	Feb-12	6.69					Feb-06	33.14
Mar-06	5.44	Mar-12	5.86					Mar-06	25.71
Apr-06	4.08	Apr-12	3.66					Apr-06	14.23
May-06	2.45	May-12	2.32					May-06	7.00
Jun-06	1.63	Jun-12	1.52					Jun-06	1.27
Jul-06	1.09	Jul-12	1.24					Jul-06	0.00
Aug-06	0.99	Aug-12	0.87					Aug-06	0.16
Sep-06	1.15	Sep-12	0.99					Sep-06	2.57
Oct-06	1.36	Oct-12	1.33					Oct-06	11.03
Nov-06	2.39	Nov-12	2.63					Nov-06	15.57
Dec-06	3.43	Dec-12	3.27					Dec-06	24.13
Jan-07	4.30	Jan-13	6.13					Jan-07	30.58
Feb-07	6.90	Feb-13	6.93					Feb-07	37.68
Mar-07	6.02	Mar-13	5.78					Mar-07	26.61
Apr-07	4.22	Apr-13	3.99					Apr-07	18.03
May-07	2.53	May-13	2.40					May-07	5.74
Jun-07	1.51	Jun-13	1.55					Jun-07	1.10
Jul-07	0.99	Jul-13	1.18					Jul-07	0.00
Aug-07	0.95	Aug-13	0.81					Aug-07	0.26
Sep-07	1.08	Sep-13	1.02					Sep-07	1.27
Oct-07	1.15	Oct-13	1.26					Oct-07	6.55
Nov-07	2.14	Nov-13	2.54					Nov-07	22.07
Dec-07	3.85	Dec-13	3.54					Dec-07	32.03
Jan-08	5.58	Jan-14	5.98					Jan-08	31.35
Feb-08	6.22	Feb-14	6.81					Feb-08	31.86
Mar-08	7.49	Mar-14	5.69					Mar-08	25.23
Apr-08	1.78	Apr-14	3.88					Apr-08	13.47
May-08	1.78	May-14	2.34					May-08	7.32
Jun-08	1.39	Jun-14	1.49					Jun-08	0.63
Jul-08	1.15	Jul-14	1.18					Jul-08	0.00
Aug-08	1.13	Aug-14	0.76					Aug-08	0.06
Sep-08	0.86	Sep-14	0.99					Sep-08	2.40
Oct-08	1.92	Oct-14	1.21					Oct-08	12.61
Nov-08	2.94	Nov-14	2.44					Nov-08	22.17
Dec-08	2.21	Dec-14	3.51					Dec-08	29.48
Jan-09	6.13	Jan-15	6.00					Jan-09	40.81
Feb-09	6.65	Feb-15	6.84					Feb-09	32.11
Mar-09	4.89	Mar-15	5.74					Mar-09	27.32
Apr-09	3.77	Apr-15	3.82					Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2237
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.2632	SSE=	8.94E-05	
Par (X)=P1*X+P2		X=	FRTFSQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.004164	(-0.01112,	0.002796)	
p2	=	0.1475	(-0.01295,	0.308)	

Slope Model

GOF:	R-Square=	0.4299	SSE=	4.00E-07	
Par (X)=P1*X+P2		X=	NG		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.0002772	(-4.17e-005,	0.0005961)	
p2	=	0.001816	(-0.00347,	0.007103)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	0.005	0.2209	0.2702	0.224	0.1599	0.2763	0.065	-0.0126	-0.1617	-0.4175	-0.2301	-0.2499

Actual Use Per		Forecasted Use Per		Annual Use Per	Economic Data		For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	FRTFSQ	NG	date	HDD
May-09	2.19	May-15	2.34					May-09	6.71
Jun-09	1.63	Jun-15	1.51					Jun-09	2.10
Jul-09	1.19	Jul-15	1.19					Jul-09	0.19
Aug-09	1.25	Aug-15	0.81					Aug-09	0.10
Sep-09	0.97	Sep-15	0.99					Sep-09	3.03
Oct-09	1.56	Oct-15	1.26					Oct-09	12.77
Nov-09	3.26	Nov-15	2.52					Nov-09	15.80
Dec-09	2.71	Dec-15	3.41					Dec-09	31.84
Jan-10	6.33	Jan-16	7.06					Jan-10	35.68
Feb-10	6.42	Feb-16	7.77					Feb-10	31.79
Mar-10	4.66	Mar-16	6.75					Mar-10	19.61
Apr-10	3.13	Apr-16	3.14					Apr-10	11.13
May-10	1.99	May-16	1.92					May-10	3.90
Jun-10	1.30	Jun-16	1.24					Jun-10	0.53
Jul-10	1.09	Jul-16	0.99					Jul-10	0.00
Aug-10	0.91	Aug-16	0.66					Aug-10	0.06
Sep-10	1.07	Sep-16	0.82					Sep-10	1.03
Oct-10	1.23	Oct-16	1.03					Oct-10	9.45
Nov-10	2.18	Nov-16	2.07					Nov-10	20.07
Dec-10	4.07	Dec-16	2.80					Dec-10	33.65
Jan-11	6.04							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 22EN
Model: Customer Counts

GOF R-Square= 0.935153
Model: 388+41/(1+exp(-0.422764*(t-72.5)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	414	Jan-11	429
Feb-05	409	Feb-11	430
Mar-05	409	Mar-11	430
Apr-05	412	Apr-11	430
May-05	413	May-11	429
Jun-05	412	Jun-11	432
Jul-05	412	Jul-11	432
Aug-05	413	Aug-11	432
Sep-05	423	Sep-11	441
Oct-05	423	Oct-11	433
Nov-05	410	Nov-11	432
Dec-05	412	Dec-11	430
Jan-06	406	Jan-12	429
Feb-06	403	Feb-12	428
Mar-06	409	Mar-12	428
Apr-06	409	Apr-12	428
May-06	409	May-12	428
Jun-06	401	Jun-12	429
Jul-06	398	Jul-12	428
Aug-06	397	Aug-12	428
Sep-06	394	Sep-12	428
Oct-06	394	Oct-12	429
Nov-06	391	Nov-12	429
Dec-06	382	Dec-12	430
Jan-07	383	Jan-13	430
Feb-07	383	Feb-13	430
Mar-07	386	Mar-13	430
Apr-07	386	Apr-13	430
May-07	387	May-13	430
Jun-07	392	Jun-13	430
Jul-07	392	Jul-13	430
Aug-07	394	Aug-13	430
Sep-07	393	Sep-13	430
Oct-07	393	Oct-13	431
Nov-07	391	Nov-13	431
Dec-07	390	Dec-13	431
Jan-08	387	Jan-14	431
Feb-08	389	Feb-14	431
Mar-08	384	Mar-14	431
Apr-08	382	Apr-14	431
May-08	382	May-14	431
Jun-08	383	Jun-14	432
Jul-08	383	Jul-14	432
Aug-08	382	Aug-14	432
Sep-08	390	Sep-14	432
Oct-08	405	Oct-14	432

Year	Year End Customers	Economic Data
2005	412	
2006	382	
2007	390	
2008	404	
2009	427	
2010	429	
2011	430	
2012	430	
2013	431	
2014	432	
2015	434	

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 22EN
Model: Customer Counts

GOF R-Square= 0.935153
Model: 388+41/(1+exp(-0.422764*(t-72.5)))
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts				
date		date		Year	Year End Customers	Economic Data
Nov-08	403	Nov-14	432			
Dec-08	404	Dec-14	432			
Jan-09	392	Jan-15	433			
Feb-09	391	Feb-15	433			
Mar-09	390	Mar-15	434			
Apr-09	392	Apr-15	432			
May-09	399	May-15	433			
Jun-09	407	Jun-15	433			
Jul-09	413	Jul-15	433			
Aug-09	412	Aug-15	433			
Sep-09	424	Sep-15	434			
Oct-09	426	Oct-15	434			
Nov-09	430	Nov-15	434			
Dec-09	427	Dec-15	434			
Jan-10	425	Jan-16	434			
Feb-10	426	Feb-16	435			
Mar-10	427	Mar-16	435			
Apr-10	428	Apr-16	434			
May-10	430	May-16	434			
Jun-10	430	Jun-16	435			
Jul-10	431	Jul-16	435			
Aug-10	432	Aug-16	436			
Sep-10	420	Sep-16	437			
Oct-10	418	Oct-16	436			
Nov-10	422	Nov-16	436			
Dec-10	429	Dec-16	435			
Jan-11	428					

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 22EN
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.5858	SSE=	7.49E-02	
Par (X)=P1*X+P2		X=	FHSTMFQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.0007958	(-0.001464,	-0.0001274)	
p2	=	2.474	(2.192,	2.756)	

Slope Model

GOF:	R-Square=	0.3538	SSE=	9.88E-04	
Par (X)=P1*X+P2		X=	FRTFSQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.01714	(-0.005999,	0.04029)	
p2	=	-0.2181	(-0.7516,	0.3154)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	0.0167	0.1273	-0.1007	0.0498	-0.1942	0.0256	-0.0117	-0.0094	0.0361	-0.173	-0.1388	0.03

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data FHSTMFQ	Economic Data FRTFSQ	date	For Monthly Allocation HDD
Jan-05	8.81	Jan-11	8.75	2005	57.52	773.65	23.44	Jan-05	37.32
Feb-05	8.14	Feb-11	9.44	2006	53.25	815.35	24.33	Feb-05	33.43
Mar-05	7.52	Mar-11	6.46	2007	57.00	576.96	24.57	Mar-05	29.94
Apr-05	4.48	Apr-11	5.29	2008	55.03	207.93	23.45	Apr-05	14.93
May-05	3.80	May-11	2.63	2009	51.86	196.78	22.11	May-05	11.35
Jun-05	2.31	Jun-11	2.64	2010	56.86	150.95	22.96	Jun-05	1.40
Jul-05	2.02	Jul-11	1.97	2011	55.92	467.13	24.09	Jul-05	0.19
Aug-05	1.88	Aug-11	2.24	2012	64.81	785.25	24.27	Aug-05	0.00
Sep-05	2.20	Sep-11	2.42	2013	60.87	869.25	24.31	Sep-05	1.30
Oct-05	3.64	Oct-11	3.24	2014	55.97	859.39	24.44	Oct-05	10.35
Nov-05	4.66	Nov-11	5.44	2015	54.51	900.36	24.72	Nov-05	18.90
Dec-05	8.06	Dec-11	5.39					Dec-05	32.39
Jan-06	7.18	Jan-12	10.10					Jan-06	27.61
Feb-06	8.25	Feb-12	9.63					Feb-06	33.14
Mar-06	6.83	Mar-12	6.10					Mar-06	25.71
Apr-06	4.18	Apr-12	5.61					Apr-06	14.23
May-06	3.25	May-12	3.74					May-06	7.00
Jun-06	2.47	Jun-12	3.28					Jun-06	1.27
Jul-06	1.93	Jul-12	2.23					Jul-06	0.00
Aug-06	1.68	Aug-12	2.32					Aug-06	0.16
Sep-06	2.63	Sep-12	2.99					Sep-06	2.57
Oct-06	2.37	Oct-12	4.34					Oct-06	11.03
Nov-06	5.50	Nov-12	6.27					Nov-06	15.57
Dec-06	6.98	Dec-12	8.20					Dec-06	24.13
Jan-07	6.69	Jan-13	9.40					Jan-07	30.58
Feb-07	10.44	Feb-13	9.37					Feb-07	37.68
Mar-07	8.00	Mar-13	6.47					Mar-07	26.61
Apr-07	5.46	Apr-13	5.24					Apr-07	18.03
May-07	1.94	May-13	3.57					May-07	5.74
Jun-07	2.10	Jun-13	3.13					Jun-07	1.10
Jul-07	1.75	Jul-13	1.95					Jul-07	0.00
Aug-07	1.81	Aug-13	2.05					Aug-07	0.26
Sep-07	2.05	Sep-13	2.79					Sep-07	1.27
Oct-07	2.41	Oct-13	3.81					Oct-07	6.55
Nov-07	5.93	Nov-13	5.72					Nov-07	22.07
Dec-07	8.39	Dec-13	7.38					Dec-07	32.03
Jan-08	7.38	Jan-14	8.50					Jan-08	31.35
Feb-08	11.69	Feb-14	8.75					Feb-08	31.86
Mar-08	4.74	Mar-14	5.86					Mar-08	25.23
Apr-08	7.34	Apr-14	4.99					Apr-08	13.47
May-08	0.98	May-14	3.05					May-08	7.32
Jun-08	2.17	Jun-14	2.81					Jun-08	0.63
Jul-08	2.32	Jul-14	1.83					Jul-08	0.00
Aug-08	2.41	Aug-14	1.88					Aug-08	0.06
Sep-08	2.68	Sep-14	2.58					Sep-08	2.40
Oct-08	2.44	Oct-14	3.55					Oct-08	12.61
Nov-08	3.19	Nov-14	5.57					Nov-08	22.17
Dec-08	7.68	Dec-14	6.61					Dec-08	29.48
Jan-09	9.07	Jan-15	8.39					Jan-09	40.81
Feb-09	7.51	Feb-15	8.42					Feb-09	32.11
Mar-09	2.90	Mar-15	5.52					Mar-09	27.32
Apr-09	4.45	Apr-15	4.76					Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 22EN
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.5858	SSE=	7.49E-02	
Par (X)=P1*X+P2		X=	FHSTMFQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.0007958	(-0.001464,	-0.0001274)	
p2	=	2.474	(2.192,	2.756)	

Slope Model

GOF:	R-Square=	0.3538	SSE=	9.88E-04	
Par (X)=P1*X+P2		X=	FRTFSQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.01714	(-0.005999,	0.04029)	
p2	=	-0.2181	(-0.7516,	0.3154)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	0.0167	0.1273	-0.1007	0.0498	-0.1942	0.0256	-0.0117	-0.0094	0.0361	-0.173	-0.1388	0.03

Actual Use Per		Forecasted Use Per		Annual Use Per	Economic Data		For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	FHSTMFQ	FRTFSQ	date	HDD
May-09	2.63	May-15	3.10					May-09	6.71
Jun-09	2.63	Jun-15	2.77					Jun-09	2.10
Jul-09	2.24	Jul-15	1.80					Jul-09	0.19
Aug-09	2.53	Aug-15	1.87					Aug-09	0.10
Sep-09	2.53	Sep-15	2.50					Sep-09	3.03
Oct-09	4.09	Oct-15	3.50					Oct-09	12.77
Nov-09	4.30	Nov-15	5.26					Nov-09	15.80
Dec-09	6.98	Dec-15	6.64					Dec-09	31.84
Jan-10	9.92	Jan-16	10.59					Jan-10	35.68
Feb-10	8.54	Feb-16	10.23					Feb-10	31.79
Mar-10	5.55	Mar-16	6.97					Mar-10	19.61
Apr-10	3.88	Apr-16	3.89					Apr-10	11.13
May-10	3.10	May-16	2.54					May-10	3.90
Jun-10	2.33	Jun-16	2.26					Jun-10	0.53
Jul-10	2.05	Jul-16	1.47					Jul-10	0.00
Aug-10	2.22	Aug-16	1.52					Aug-10	0.06
Sep-10	2.35	Sep-16	2.04					Sep-10	1.03
Oct-10	3.45	Oct-16	2.86					Oct-10	9.45
Nov-10	4.88	Nov-16	4.30					Nov-10	20.07
Dec-10	8.60	Dec-16	5.44					Dec-10	33.65
Jan-11	8.74							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2221
Model: Customer Counts

GOF R-Square= 0.989056
Model: 381.278+647.492/(1+exp(-0.143158*(t-79.5598)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	298	Jan-11	943
Feb-05	301	Feb-11	959
Mar-05	299	Mar-11	966
Apr-05	303	Apr-11	979
May-05	301	May-11	981
Jun-05	301	Jun-11	989
Jul-05	301	Jul-11	992
Aug-05	298	Aug-11	1,004
Sep-05	294	Sep-11	1,008
Oct-05	280	Oct-11	1,014
Nov-05	274	Nov-11	1,032
Dec-05	265	Dec-11	1,051
Jan-06	253	Jan-12	1,006
Feb-06	264	Feb-12	1,008
Mar-06	280	Mar-12	1,010
Apr-06	297	Apr-12	1,013
May-06	343	May-12	1,015
Jun-06	355	Jun-12	1,017
Jul-06	364	Jul-12	1,018
Aug-06	357	Aug-12	1,019
Sep-06	358	Sep-12	1,020
Oct-06	352	Oct-12	1,022
Nov-06	362	Nov-12	1,024
Dec-06	390	Dec-12	1,026
Jan-07	391	Jan-13	1,027
Feb-07	396	Feb-13	1,027
Mar-07	397	Mar-13	1,027
Apr-07	400	Apr-13	1,028
May-07	400	May-13	1,029
Jun-07	400	Jun-13	1,029
Jul-07	396	Jul-13	1,030
Aug-07	391	Aug-13	1,030
Sep-07	387	Sep-13	1,030
Oct-07	393	Oct-13	1,032
Nov-07	415	Nov-13	1,032
Dec-07	427	Dec-13	1,033
Jan-08	450	Jan-14	1,034
Feb-08	442	Feb-14	1,034
Mar-08	445	Mar-14	1,034
Apr-08	395	Apr-14	1,034
May-08	394	May-14	1,034
Jun-08	394	Jun-14	1,035
Jul-08	399	Jul-14	1,035
Aug-08	414	Aug-14	1,035
Sep-08	404	Sep-14	1,036
Oct-08	399	Oct-14	1,037

Year	Year End Customers	Economic Data
2005	265	
2006	390	
2007	427	
2008	441	
2009	704	
2010	924	
2011	1,051	
2012	1,026	
2013	1,033	
2014	1,037	
2015	1,040	

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2221
Model: Customer Counts

GOF R-Square= 0.989056
Model: 381.278+647.492/(1+exp(-0.143158*(t-79.5598)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	390	Nov-14	1,037
Dec-08	441	Dec-14	1,037
Jan-09	472	Jan-15	1,038
Feb-09	482	Feb-15	1,038
Mar-09	491	Mar-15	1,040
Apr-09	504	Apr-15	1,037
May-09	534	May-15	1,038
Jun-09	561	Jun-15	1,038
Jul-09	581	Jul-15	1,039
Aug-09	589	Aug-15	1,039
Sep-09	590	Sep-15	1,042
Oct-09	602	Oct-15	1,041
Nov-09	658	Nov-15	1,041
Dec-09	704	Dec-15	1,040
Jan-10	721	Jan-16	1,041
Feb-10	738	Feb-16	1,042
Mar-10	745	Mar-16	1,043
Apr-10	773	Apr-16	1,041
May-10	785	May-16	1,041
Jun-10	807	Jun-16	1,042
Jul-10	819	Jul-16	1,043
Aug-10	831	Aug-16	1,045
Sep-10	834	Sep-16	1,047
Oct-10	848	Oct-16	1,046
Nov-10	897	Nov-16	1,045
Dec-10	924	Dec-16	1,044
Jan-11	943		

Year	Year End Customers	Economic Data

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2221
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.9282	SSE=	3.33E-05	
Par (X)=P1*X+P2		X=	FYPDPI$Q		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-8.61E-06	(-1.1e-005,	-6.219e-006)	
p2	=	0.5229	(0.3961,	0.6497)	

Slope Model

GOF:	R-Square=	0.7603	SSE=	7.50E-07	
Par (X)=P1*X+P2		X=	NG		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.0007787	(0.0003419,	0.001215)	
p2	=	-0.005952	(-0.01319,	0.001289)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.0504	0.1538	0.2332	0.428	0.3084	0.3129	0.0238	-0.0092	-0.1207	-0.3735	-0.2486	-0.1575

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data FYPDPI$Q	Economic Data NG	date	For Monthly Allocation HDD
Jan-05	5.98	Jan-11	6.85	2005	45.11	50,416.76	16.95	Jan-05	37.32
Feb-05	6.81	Feb-11	7.99	2006	40.27	51,728.70	16.54	Feb-05	33.43
Mar-05	6.14	Mar-11	6.87	2007	42.14	52,092.52	16.22	Mar-05	29.94
Apr-05	4.99	Apr-11	4.53	2008	43.61	52,392.21	17.00	Apr-05	14.93
May-05	3.17	May-11	2.73	2009	40.42	53,982.05	16.43	May-05	11.35
Jun-05	2.72	Jun-11	1.85	2010	40.77	54,266.02	17.34	Jun-05	1.40
Jul-05	1.91	Jul-11	1.37	2011	43.02	54,704.92	16.21	Jul-05	0.19
Aug-05	1.76	Aug-11	1.15	2012	39.57	54,368.53	16.14	Aug-05	0.00
Sep-05	1.82	Sep-11	1.31	2013	41.46	54,291.72	16.87	Sep-05	1.30
Oct-05	1.88	Oct-11	1.76	2014	43.65	53,861.59	17.47	Oct-05	10.35
Nov-05	3.02	Nov-11	2.75	2015	44.48	53,733.52	17.82	Nov-05	18.90
Dec-05	4.92	Dec-11	3.86					Dec-05	32.39
Jan-06	6.25	Jan-12	5.35					Jan-06	27.61
Feb-06	5.40	Feb-12	6.48					Feb-06	33.14
Mar-06	5.63	Mar-12	5.87					Mar-06	25.71
Apr-06	4.50	Apr-12	4.24					Apr-06	14.23
May-06	3.00	May-12	2.70					May-06	7.00
Jun-06	2.26	Jun-12	1.87					Jun-06	1.27
Jul-06	1.68	Jul-12	1.16					Jul-06	0.00
Aug-06	1.37	Aug-12	1.12					Aug-06	0.16
Sep-06	1.82	Sep-12	1.20					Sep-06	2.57
Oct-06	1.85	Oct-12	1.69					Oct-06	11.03
Nov-06	3.01	Nov-12	2.94					Nov-06	15.57
Dec-06	3.49	Dec-12	4.95					Dec-06	24.13
Jan-07	4.89	Jan-13	5.78					Jan-07	30.58
Feb-07	6.93	Feb-13	6.95					Feb-07	37.68
Mar-07	6.52	Mar-13	6.24					Mar-07	26.61
Apr-07	5.00	Apr-13	4.47					Apr-07	18.03
May-07	3.19	May-13	2.79					May-07	5.74
Jun-07	2.23	Jun-13	2.05					Jun-07	1.10
Jul-07	1.60	Jul-13	1.10					Jul-07	0.00
Aug-07	1.49	Aug-13	1.15					Aug-07	0.26
Sep-07	1.71	Sep-13	1.24					Sep-07	1.27
Oct-07	1.52	Oct-13	1.80					Oct-07	6.55
Nov-07	2.45	Nov-13	2.93					Nov-07	22.07
Dec-07	4.60	Dec-13	4.96					Dec-07	32.03
Jan-08	4.65	Jan-14	6.04					Jan-08	31.35
Feb-08	6.57	Feb-14	7.34					Feb-08	31.86
Mar-08	6.37	Mar-14	6.64					Mar-08	25.23
Apr-08	5.54	Apr-14	4.58					Apr-08	13.47
May-08	3.55	May-14	2.93					May-08	7.32
Jun-08	2.48	Jun-14	2.05					Jun-08	0.63
Jul-08	1.74	Jul-14	1.28					Jul-08	0.00
Aug-08	1.54	Aug-14	1.21					Aug-08	0.06
Sep-08	1.79	Sep-14	1.33					Sep-08	2.40
Oct-08	1.64	Oct-14	1.98					Oct-08	12.61
Nov-08	2.86	Nov-14	3.11					Nov-08	22.17
Dec-08	4.88	Dec-14	5.16					Dec-08	29.48
Jan-09	5.60	Jan-15	6.09					Jan-09	40.81
Feb-09	7.02	Feb-15	7.47					Feb-09	32.11
Mar-09	6.49	Mar-15	6.65					Mar-09	27.32
Apr-09	4.89	Apr-15	4.73					Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2221
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.9282	SSE=	3.33E-05	
Par (X)=P1*X+P2		X=	FYPDPI$Q		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-8.61E-06	(-1.1e-005,	-6.219e-006)	
p2	=	0.5229	(0.3961,	0.6497)	

Slope Model

GOF:	R-Square=	0.7603	SSE=	7.50E-07	
Par (X)=P1*X+P2		X=	NG		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.0007787	(0.0003419,	0.001215)	
p2	=	-0.005952	(-0.01319,	0.001289)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.0504	0.1538	0.2332	0.428	0.3084	0.3129	0.0238	-0.0092	-0.1207	-0.3735	-0.2486	-0.1575

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data FYPDPI$Q	NG	For Monthly Allocation date	HDD
May-09	2.72	May-15	3.00					May-09	6.71
Jun-09	1.54	Jun-15	2.13					Jun-09	2.10
Jul-09	1.50	Jul-15	1.26					Jul-09	0.19
Aug-09	1.11	Aug-15	1.24					Aug-09	0.10
Sep-09	1.16	Sep-15	1.34					Sep-09	3.03
Oct-09	1.62	Oct-15	1.95					Oct-09	12.77
Nov-09	2.81	Nov-15	3.21					Nov-09	15.80
Dec-09	3.97	Dec-15	5.40					Dec-09	31.84
Jan-10	7.36	Jan-16	6.93					Jan-10	35.68
Feb-10	7.48	Feb-16	8.20					Feb-10	31.79
Mar-10	5.82	Mar-16	7.57					Mar-10	19.61
Apr-10	3.96	Apr-16	4.49					Apr-10	11.13
May-10	2.48	May-16	2.85					May-10	3.90
Jun-10	1.88	Jun-16	2.02					Jun-10	0.53
Jul-10	0.72	Jul-16	1.20					Jul-10	0.00
Aug-10	1.13	Aug-16	1.18					Aug-10	0.06
Sep-10	1.16	Sep-16	1.27					Sep-10	1.03
Oct-10	1.49	Oct-16	1.85					Oct-10	9.45
Nov-10	2.50	Nov-16	3.04					Nov-10	20.07
Dec-10	4.78	Dec-16	5.12					Dec-10	33.65
Jan-11	6.90							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3367
Model: Customer Counts

GOF R-Square= 0.983151
Model: 216.004-89.5095/(1+exp(-0.562696*(t-72.5935)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	243	Jan-11	133
Feb-05	243	Feb-11	132
Mar-05	245	Mar-11	132
Apr-05	242	Apr-11	129
May-05	242	May-11	129
Jun-05	244	Jun-11	126
Jul-05	245	Jul-11	124
Aug-05	237	Aug-11	120
Sep-05	232	Sep-11	120
Oct-05	238	Oct-11	123
Nov-05	243	Nov-11	124
Dec-05	244	Dec-11	131
Jan-06	246	Jan-12	126
Feb-06	246	Feb-12	126
Mar-06	244	Mar-12	126
Apr-06	243	Apr-12	126
May-06	223	May-12	126
Jun-06	224	Jun-12	126
Jul-06	223	Jul-12	126
Aug-06	228	Aug-12	126
Sep-06	236	Sep-12	126
Oct-06	242	Oct-12	126
Nov-06	229	Nov-12	127
Dec-06	231	Dec-12	127
Jan-07	227	Jan-13	126
Feb-07	227	Feb-13	126
Mar-07	225	Mar-13	126
Apr-07	224	Apr-13	126
May-07	223	May-13	126
Jun-07	222	Jun-13	126
Jul-07	221	Jul-13	126
Aug-07	219	Aug-13	126
Sep-07	215	Sep-13	126
Oct-07	212	Oct-13	126
Nov-07	202	Nov-13	126
Dec-07	198	Dec-13	127
Jan-08	205	Jan-14	126
Feb-08	203	Feb-14	126
Mar-08	205	Mar-14	126
Apr-08	223	Apr-14	126
May-08	218	May-14	126
Jun-08	221	Jun-14	126
Jul-08	219	Jul-14	126
Aug-08	208	Aug-14	126
Sep-08	207	Sep-14	126
Oct-08	218	Oct-14	126

Year	Year End Customers	Economic Data
2005	244	
2006	231	
2007	198	
2008	221	
2009	133	
2010	127	
2011	131	
2012	127	
2013	127	
2014	127	
2015	127	

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3367
Model: Customer Counts

GOF R-Square= 0.983151
Model: 216.004-89.5095/(1+exp(-0.562696*(t-72.5935)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	222	Nov-14	126
Dec-08	221	Dec-14	127
Jan-09	214	Jan-15	126
Feb-09	210	Feb-15	126
Mar-09	203	Mar-15	126
Apr-09	200	Apr-15	126
May-09	190	May-15	126
Jun-09	179	Jun-15	126
Jul-09	176	Jul-15	126
Aug-09	142	Aug-15	126
Sep-09	138	Sep-15	126
Oct-09	143	Oct-15	126
Nov-09	136	Nov-15	126
Dec-09	133	Dec-15	127
Jan-10	131	Jan-16	127
Feb-10	135	Feb-16	126
Mar-10	134	Mar-16	126
Apr-10	132	Apr-16	126
May-10	126	May-16	126
Jun-10	126	Jun-16	126
Jul-10	126	Jul-16	126
Aug-10	122	Aug-16	126
Sep-10	123	Sep-16	125
Oct-10	124	Oct-16	126
Nov-10	127	Nov-16	126
Dec-10	127	Dec-16	127
Jan-11	130		

Year	Year End Customers	Economic Data

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3367
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.7597	SSE=	1.80E-03	
Par (X)=P1*X+P2	X=	FET			
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.001775	(0.0007778,	0.002772)	
p2	=	-1.121	(-1.804,	-0.438)	

Slope Model

GOF:	R-Square=	0.4457	SSE=	1.56E-05	
Par (X)=P1*X+P2	X=	NG			
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.001788	(-0.0002041	0.003781)	
p2	=	0.01229	(-0.02074,	0.04532)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.0371	0.1817	0.2476	0.6343	0.2421	0.6348	0.4947	-0.0381	0.0988	-0.4988	-0.2565	-0.2014

	Actual Use Per		Forecasted Use Per		Annual Use Per		Economic Data		For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	FET	NG	date	HDD
Jan-05	31.58	Jan-11	28.13	2005	197.70	716.32	16.95	Jan-05	37.32
Feb-05	37.40	Feb-11	40.21	2006	183.05	719.16	16.54	Feb-05	33.43
Mar-05	30.72	Mar-11	28.55	2007	188.32	717.87	16.22	Mar-05	29.94
Apr-05	24.95	Apr-11	23.49	2008	178.50	703.85	17.00	Apr-05	14.93
May-05	12.32	May-11	7.72	2009	174.56	670.23	16.43	May-05	11.35
Jun-05	7.40	Jun-11	7.10	2010	174.09	657.79	17.34	Jun-05	1.40
Jul-05	4.26	Jul-11	2.97	2011	173.61	665.74	16.21	Jul-05	0.19
Aug-05	2.50	Aug-11	3.10	2012	173.92	684.84	16.14	Aug-05	0.00
Sep-05	3.18	Sep-11	1.53	2013	186.84	697.95	16.87	Sep-05	1.30
Oct-05	5.04	Oct-11	3.11	2014	206.70	718.51	17.47	Oct-05	10.35
Nov-05	13.84	Nov-11	11.57	2015	217.69	735.11	17.82	Nov-05	18.90
Dec-05	24.51	Dec-11	16.13					Dec-05	32.39
Jan-06	29.60	Jan-12	29.36					Jan-06	27.61
Feb-06	30.64	Feb-12	34.31					Feb-06	33.14
Mar-06	33.78	Mar-12	30.94					Mar-06	25.71
Apr-06	18.73	Apr-12	28.07					Apr-06	14.23
May-06	11.82	May-12	6.89					May-06	7.00
Jun-06	6.56	Jun-12	5.32					Jun-06	1.27
Jul-06	3.64	Jul-12	2.41					Jul-06	0.00
Aug-06	2.73	Aug-12	1.45					Aug-06	0.16
Sep-06	4.43	Sep-12	2.65					Sep-06	2.57
Oct-06	5.99	Oct-12	4.21					Oct-06	11.03
Nov-06	13.06	Nov-12	10.78					Nov-06	15.57
Dec-06	22.07	Dec-12	17.52					Dec-06	24.13
Jan-07	25.84	Jan-13	29.70					Jan-07	30.58
Feb-07	39.48	Feb-13	38.22					Feb-07	37.68
Mar-07	34.16	Mar-13	33.85					Mar-07	26.61
Apr-07	25.46	Apr-13	29.76					Apr-07	18.03
May-07	12.64	May-13	7.26					May-07	5.74
Jun-07	4.43	Jun-13	5.42					Jun-07	1.10
Jul-07	3.34	Jul-13	2.57					Jul-07	0.00
Aug-07	2.88	Aug-13	1.44					Aug-07	0.26
Sep-07	3.20	Sep-13	3.06					Sep-07	1.27
Oct-07	3.30	Oct-13	4.41					Oct-07	6.55
Nov-07	14.64	Nov-13	11.56					Nov-07	22.07
Dec-07	18.96	Dec-13	19.58					Dec-07	32.03
Jan-08	31.81	Jan-14	33.21					Jan-08	31.35
Feb-08	36.21	Feb-14	43.29					Feb-08	31.86
Mar-08	26.48	Mar-14	36.48					Mar-08	25.23
Apr-08	18.61	Apr-14	30.91					Apr-08	13.47
May-08	13.62	May-14	8.63					May-08	7.32
Jun-08	5.72	Jun-14	6.98					Jun-08	0.63
Jul-08	3.06	Jul-14	3.00					Jul-08	0.00
Aug-08	2.59	Aug-14	1.94					Aug-08	0.06
Sep-08	2.87	Sep-14	2.75					Sep-08	2.40

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3367
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.7597	SSE=	1.80E-03	
Par (X)=P1*X+P2		X=	FET		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.001775	(0.0007778,	0.002772)	
p2	=	-1.121	(-1.804,	-0.438)	

Slope Model

GOF:	R-Square=	0.4457	SSE=	1.56E-05	
Par (X)=P1*X+P2		X=	NG		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.001788	(-0.0002041	0.003781)	
p2	=	0.01229	(-0.02074,	0.04532)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.0371	0.1817	0.2476	0.6343	0.2421	0.6348	0.4947	-0.0381	0.0988	-0.4988	-0.2565	-0.2014

Actual Use Per		Forecasted Use Per			Annual Use Per	Economic Data		For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	FET	NG	date	HDD
Oct-08	2.83	Oct-14	4.64					Oct-08	12.61
Nov-08	13.40	Nov-14	13.09					Nov-08	22.17
Dec-08	21.29	Dec-14	21.79					Dec-08	29.48
Jan-09	30.91	Jan-15	35.35					Jan-09	40.81
Feb-09	31.83	Feb-15	44.75					Feb-09	32.11
Mar-09	25.55	Mar-15	38.76					Mar-09	27.32
Apr-09	26.75	Apr-15	34.03					Apr-09	15.45
May-09	6.32	May-15	8.70					May-09	6.71
Jun-09	6.32	Jun-15	6.76					Jun-09	2.10
Jul-09	2.50	Jul-15	3.06					Jul-09	0.19
Aug-09	2.31	Aug-15	1.84					Aug-09	0.10
Sep-09	2.67	Sep-15	3.25					Sep-09	3.03
Oct-09	7.47	Oct-15	5.09					Oct-09	12.77
Nov-09	14.09	Nov-15	13.58					Nov-09	15.80
Dec-09	17.86	Dec-15	22.51					Dec-09	31.84
Jan-10	31.91	Jan-16	33.30					Jan-10	35.68
Feb-10	33.72	Feb-16	41.03					Feb-10	31.79
Mar-10	31.05	Mar-16	36.81					Mar-10	19.61
Apr-10	25.92	Apr-16	39.71					Apr-10	11.13
May-10	4.61	May-16	10.16					May-10	3.90
Jun-10	2.66	Jun-16	7.89					Jun-10	0.53
Jul-10	2.28	Jul-16	3.55					Jul-10	0.00
Aug-10	0.54	Aug-16	2.15					Aug-10	0.06
Sep-10	5.14	Sep-16	3.82					Sep-10	1.03
Oct-10	5.17	Oct-16	5.93					Oct-10	9.45
Nov-10	10.26	Nov-16	15.85					Nov-10	20.07
Dec-10	20.81	Dec-16	26.26					Dec-10	33.65
Jan-11	27.89							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 33EN
Model: Customer Counts

GOF R-Square= 0.605161
Model: 168.972-20.2098/(1+exp(-2.6773*(t-62.649)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	162	Jan-11	159
Feb-05	161	Feb-11	162
Mar-05	161	Mar-11	162
Apr-05	186	Apr-11	162
May-05	186	May-11	161
Jun-05	186	Jun-11	161
Jul-05	164	Jul-11	161
Aug-05	163	Aug-11	162
Sep-05	165	Sep-11	160
Oct-05	161	Oct-11	166
Nov-05	160	Nov-11	168
Dec-05	160	Dec-11	165
Jan-06	159	Jan-12	149
Feb-06	159	Feb-12	149
Mar-06	160	Mar-12	148
Apr-06	160	Apr-12	148
May-06	175	May-12	149
Jun-06	176	Jun-12	149
Jul-06	178	Jul-12	149
Aug-06	177	Aug-12	148
Sep-06	173	Sep-12	148
Oct-06	173	Oct-12	149
Nov-06	174	Nov-12	149
Dec-06	171	Dec-12	149
Jan-07	174	Jan-13	149
Feb-07	174	Feb-13	149
Mar-07	176	Mar-13	149
Apr-07	177	Apr-13	149
May-07	175	May-13	149
Jun-07	175	Jun-13	149
Jul-07	175	Jul-13	149
Aug-07	175	Aug-13	149
Sep-07	170	Sep-13	149
Oct-07	165	Oct-13	149
Nov-07	166	Nov-13	150
Dec-07	165	Dec-13	150
Jan-08	161	Jan-14	150
Feb-08	164	Feb-14	150
Mar-08	167	Mar-14	150
Apr-08	164	Apr-14	150
May-08	166	May-14	150
Jun-08	165	Jun-14	150
Jul-08	165	Jul-14	150
Aug-08	166	Aug-14	150
Sep-08	155	Sep-14	150
Oct-08	147	Oct-14	150

Year	Year End Customers	Economic Data
2005	160	
2006	171	
2007	165	
2008	143	
2009	140	
2010	156	
2011	165	
2012	149	
2013	150	
2014	150	
2015	151	

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 33EN
Model: Customer Counts

GOF R-Square= 0.605161
Model: 168.972-20.2098/(1+exp(-2.6773*(t-62.649)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	143	Nov-14	150
Dec-08	143	Dec-14	150
Jan-09	141	Jan-15	150
Feb-09	143	Feb-15	150
Mar-09	145	Mar-15	151
Apr-09	144	Apr-15	150
May-09	144	May-15	150
Jun-09	146	Jun-15	151
Jul-09	146	Jul-15	151
Aug-09	144	Aug-15	151
Sep-09	140	Sep-15	151
Oct-09	140	Oct-15	151
Nov-09	137	Nov-15	151
Dec-09	140	Dec-15	151
Jan-10	140	Jan-16	151
Feb-10	140	Feb-16	151
Mar-10	142	Mar-16	151
Apr-10	141	Apr-16	151
May-10	144	May-16	151
Jun-10	144	Jun-16	151
Jul-10	143	Jul-16	151
Aug-10	143	Aug-16	152
Sep-10	152	Sep-16	152
Oct-10	151	Oct-16	152
Nov-10	154	Nov-16	152
Dec-10	156	Dec-16	151
Jan-11	154		

Year	Year End Customers	Economic Data

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 33EN
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.4483	SSE=	2.64E-01	
Par (X)=P1*X+P2		X=	FHSTMFQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.001133	(-0.002388,	0.0001225)	
p2	=	4.255	(3.725,	4.785)	

Slope Model

GOF:	R-Square=	0.457	SSE=	1.00E-02	
Par (X)=P1*X+P2		X=	FET		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.002158	(-0.004507,	0.0001917)	
p2	=	2.468	(0.859,	4.078)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.0239	0.0496	0.0959	0.0089	-0.3017	-0.0535	0.04	-0.0259	-0.0923	-0.2308	-0.0706	0.0092

Actual Use Per		Forecasted Use Per		Annual Use Per		Economic Data		For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	FHSTMFQ	FET	date	HDD
Jan-05	38.29	Jan-11	33.95	2005	205.06	773.65	716.32	Jan-05	37.32
Feb-05	34.37	Feb-11	38.57	2006	197.38	815.35	719.16	Feb-05	33.43
Mar-05	31.20	Mar-11	28.19	2007	215.11	576.96	717.87	Mar-05	29.94
Apr-05	13.56	Apr-11	21.91	2008	200.58	207.93	703.85	Apr-05	14.93
May-05	10.09	May-11	8.38	2009	226.93	196.78	670.23	May-05	11.35
Jun-05	3.56	Jun-11	3.70	2010	221.98	150.95	657.79	Jun-05	1.40
Jul-05	2.95	Jul-11	3.05	2011	213.50	467.13	665.74	Jul-05	0.19
Aug-05	3.58	Aug-11	3.74	2012	225.20	785.25	684.84	Aug-05	0.00
Sep-05	3.22	Sep-11	5.44	2013	215.26	869.25	697.95	Sep-05	1.30
Oct-05	8.50	Oct-11	8.14	2014	199.57	859.39	718.51	Oct-05	10.35
Nov-05	22.74	Nov-11	27.49	2015	190.28	900.36	735.11	Nov-05	18.90
Dec-05	33.00	Dec-11	30.96					Dec-05	32.39
Jan-06	31.62	Jan-12	40.78					Jan-06	27.61
Feb-06	35.00	Feb-12	41.63					Feb-06	33.14
Mar-06	29.20	Mar-12	31.90					Mar-06	25.71
Apr-06	17.05	Apr-12	19.00					Apr-06	14.23
May-06	10.32	May-12	8.53					May-06	7.00
Jun-06	4.30	Jun-12	4.27					Jun-06	1.27
Jul-06	3.10	Jul-12	3.72					Jul-06	0.00
Aug-06	2.93	Aug-12	3.78					Aug-06	0.16
Sep-06	5.59	Sep-12	5.13					Sep-06	2.57
Oct-06	8.72	Oct-12	10.98					Oct-06	11.03
Nov-06	21.34	Nov-12	22.01					Nov-06	15.57
Dec-06	28.21	Dec-12	33.46					Dec-06	24.13
Jan-07	27.97	Jan-13	40.55					Jan-07	30.58
Feb-07	43.43	Feb-13	41.11					Feb-07	37.68
Mar-07	34.00	Mar-13	28.66					Mar-07	26.61
Apr-07	22.99	Apr-13	17.54					Apr-07	18.03
May-07	5.37	May-13	9.38					May-07	5.74
Jun-07	5.00	Jun-13	3.62					Jun-07	1.10
Jul-07	4.03	Jul-13	3.16					Jul-07	0.00
Aug-07	3.65	Aug-13	3.47					Aug-07	0.26
Sep-07	4.36	Sep-13	4.65					Sep-07	1.27
Oct-07	6.93	Oct-13	10.01					Oct-07	6.55
Nov-07	22.05	Nov-13	21.06					Nov-07	22.07
Dec-07	35.32	Dec-13	32.04					Dec-07	32.03
Jan-08	29.33	Jan-14	36.49					Jan-08	31.35
Feb-08	34.66	Feb-14	38.51					Feb-08	31.86
Mar-08	33.08	Mar-14	26.93					Mar-08	25.23
Apr-08	18.36	Apr-14	16.97					Apr-08	13.47
May-08	3.60	May-14	7.86					May-08	7.32
Jun-08	5.46	Jun-14	3.46					Jun-08	0.63
Jul-08	5.20	Jul-14	3.02					Jul-08	0.00
Aug-08	4.68	Aug-14	3.24					Aug-08	0.06
Sep-08	5.81	Sep-14	4.47					Sep-08	2.40
Oct-08	12.27	Oct-14	8.75					Oct-08	12.61
Nov-08	14.14	Nov-14	20.82					Nov-08	22.17
Dec-08	34.00	Dec-14	29.06					Dec-08	29.48
Jan-09	36.40	Jan-15	35.06					Jan-09	40.81
Feb-09	37.70	Feb-15	36.53					Feb-09	32.11
Mar-09	36.47	Mar-15	25.78					Mar-09	27.32
Apr-09	20.76	Apr-15	15.89					Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 33EN
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.4483	SSE=	2.64E-01	
Par (X)=P1*X+P2		X=	FHSTMFQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.001133	(-0.002388,	0.0001225)	
p2	=	4.255	(3.725,	4.785)	

Slope Model

GOF:	R-Square=	0.457	SSE=	1.00E-02	
Par (X)=P1*X+P2		X=	FET		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.002158	(-0.004507,	0.0001917)	
p2	=	2.468	(0.859,	4.078)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.0239	0.0496	0.0959	0.0089	-0.3017	-0.0535	0.04	-0.0259	-0.0923	-0.2308	-0.0706	0.0092

Actual Use Per		Forecasted Use Per		Annual Use Per	Economic Data		For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	FHSTMFQ	FET	date	HDD
May-09	3.74	May-15	7.67					May-09	6.71
Jun-09	6.25	Jun-15	3.35					Jun-09	2.10
Jul-09	6.84	Jul-15	2.92					Jul-09	0.19
Aug-09	4.06	Aug-15	3.09					Aug-09	0.10
Sep-09	8.48	Sep-15	4.25					Sep-09	3.03
Oct-09	14.61	Oct-15	8.79					Oct-09	12.77
Nov-09	19.08	Nov-15	18.97					Nov-09	15.80
Dec-09	32.53	Dec-15	28.00					Dec-09	31.84
Jan-10	48.09	Jan-16	35.68					Jan-10	35.68
Feb-10	40.65	Feb-16	35.89					Feb-10	31.79
Mar-10	23.83	Mar-16	26.40					Mar-10	19.61
Apr-10	14.42	Apr-16	14.75					Apr-10	11.13
May-10	8.97	May-16	7.11					May-10	3.90
Jun-10	3.81	Jun-16	3.16					Jun-10	0.53
Jul-10	3.23	Jul-16	2.72					Jul-10	0.00
Aug-10	3.86	Aug-16	2.86					Aug-10	0.06
Sep-10	4.50	Sep-16	3.97					Sep-10	1.03
Oct-10	12.06	Oct-16	8.15					Oct-10	9.45
Nov-10	19.93	Nov-16	17.58					Nov-10	20.07
Dec-10	38.64	Dec-16	26.11					Dec-10	33.65
Jan-11	40.15							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3321
Model: Customer Counts

GOF R-Square= 0.965048
Model: 50.7057+82.7278/(1+exp(-0.149259*(t-69.6412)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	29	Jan-11	132
Feb-05	29	Feb-11	133
Mar-05	29	Mar-11	135
Apr-05	5	Apr-11	137
May-05	4	May-11	137
Jun-05	4	Jun-11	136
Jul-05	27	Jul-11	136
Aug-05	29	Aug-11	141
Sep-05	27	Sep-11	146
Oct-05	27	Oct-11	147
Nov-05	27	Nov-11	147
Dec-05	27	Dec-11	150
Jan-06	27	Jan-12	133
Feb-06	27	Feb-12	133
Mar-06	29	Mar-12	132
Apr-06	29	Apr-12	133
May-06	30	May-12	133
Jun-06	30	Jun-12	133
Jul-06	30	Jul-12	133
Aug-06	32	Aug-12	133
Sep-06	30	Sep-12	133
Oct-06	30	Oct-12	133
Nov-06	46	Nov-12	133
Dec-06	52	Dec-12	134
Jan-07	52	Jan-13	134
Feb-07	52	Feb-13	134
Mar-07	52	Mar-13	134
Apr-07	51	Apr-13	134
May-07	50	May-13	134
Jun-07	49	Jun-13	134
Jul-07	49	Jul-13	134
Aug-07	49	Aug-13	134
Sep-07	52	Sep-13	134
Oct-07	51	Oct-13	135
Nov-07	62	Nov-13	135
Dec-07	74	Dec-13	135
Jan-08	78	Jan-14	135
Feb-08	77	Feb-14	135
Mar-08	76	Mar-14	135
Apr-08	58	Apr-14	135
May-08	60	May-14	135
Jun-08	63	Jun-14	135
Jul-08	63	Jul-14	135
Aug-08	62	Aug-14	135
Sep-08	62	Sep-14	136
Oct-08	65	Oct-14	136

Year	Year End Customers	Economic Data
2005	27	
2006	52	
2007	74	
2008	77	
2009	117	
2010	131	
2011	150	
2012	134	
2013	135	
2014	136	
2015	137	

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3321
Model: Customer Counts

GOF R-Square= 0.965048
Model: 50.7057+82.7278/(1+exp(-0.149259*(t-69.6412)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	65	Nov-14	136
Dec-08	77	Dec-14	136
Jan-09	89	Jan-15	136
Feb-09	91	Feb-15	136
Mar-09	93	Mar-15	137
Apr-09	95	Apr-15	136
May-09	105	May-15	136
Jun-09	111	Jun-15	136
Jul-09	114	Jul-15	136
Aug-09	101	Aug-15	136
Sep-09	103	Sep-15	137
Oct-09	101	Oct-15	137
Nov-09	114	Nov-15	137
Dec-09	117	Dec-15	137
Jan-10	119	Jan-16	137
Feb-10	119	Feb-16	137
Mar-10	121	Mar-16	137
Apr-10	122	Apr-16	137
May-10	122	May-16	137
Jun-10	122	Jun-16	137
Jul-10	122	Jul-16	138
Aug-10	124	Aug-16	138
Sep-10	129	Sep-16	139
Oct-10	129	Oct-16	138
Nov-10	128	Nov-16	138
Dec-10	131	Dec-16	138
Jan-11	129		

Year	Year End Customers	Economic Data

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3321
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0	SSE=	1.45E-01	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	0.09555			

Slope Model

GOF:	R-Square=	n/a	SSE=	9.68E-04	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	0.04484			

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	0.0077	0.1178	0.1511	1.208	0.8783	2.3107	-0.2296	-0.0312	-0.2962	-0.6223	-0.413	-0.2278

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data TimeConst	TimeConst	For Monthly Allocation date	HDD
Jan-05	37.27	Jan-11	33.41	2005	449.32	2005		Jan-05	37.32
Feb-05	36.74	Feb-11	38.80	2006	163.03	2006		Feb-05	33.43
Mar-05	36.46	Mar-11	30.21	2007	173.81	2007		Mar-05	29.94
Apr-05	131.80	Apr-11	21.55	2008	188.18	2008		Apr-05	14.93
May-05	98.94	May-11	13.25	2009	181.91	2009		May-05	11.35
Jun-05	60.11	Jun-11	3.48	2010	181.15	2010		Jun-05	1.40
Jul-05	3.11	Jul-11	3.77	2011	187.12	2011		Jul-05	0.19
Aug-05	1.67	Aug-11	2.84	2012	246.18	2012		Aug-05	0.00
Sep-05	1.02	Sep-11	3.45	2013	229.43	2013		Sep-05	1.30
Oct-05	4.54	Oct-11	4.35	2014	202.78	2014		Oct-05	10.35
Nov-05	12.76	Nov-11	12.64	2015	191.17	2015		Nov-05	18.90
Dec-05	24.91	Dec-11	19.37					Dec-05	32.39
Jan-06	34.10	Jan-12	38.94					Jan-06	27.61
Feb-06	24.11	Feb-12	44.40					Feb-06	33.14
Mar-06	29.36	Mar-12	39.88					Mar-06	25.71
Apr-06	22.23	Apr-12	31.96					Apr-06	14.23
May-06	11.08	May-12	14.45					May-06	7.00
Jun-06	6.60	Jun-12	7.85					Jun-06	1.27
Jul-06	2.60	Jul-12	5.60					Jul-06	0.00
Aug-06	1.92	Aug-12	2.87					Aug-06	0.16
Sep-06	2.79	Sep-12	4.23					Sep-06	2.57
Oct-06	4.87	Oct-12	7.04					Oct-06	11.03
Nov-06	7.19	Nov-12	17.33					Nov-06	15.57
Dec-06	16.18	Dec-12	31.64					Dec-06	24.13
Jan-07	26.86	Jan-13	36.57					Jan-07	30.58
Feb-07	33.19	Feb-13	42.54					Feb-07	37.68
Mar-07	30.11	Mar-13	38.40					Mar-07	26.61
Apr-07	23.46	Apr-13	28.55					Apr-07	18.03
May-07	13.31	May-13	13.53					May-07	5.74
Jun-07	7.26	Jun-13	6.85					Jun-07	1.10
Jul-07	1.82	Jul-13	5.33					Jul-07	0.00
Aug-07	2.66	Aug-13	2.60					Aug-07	0.26
Sep-07	3.33	Sep-13	3.87					Sep-07	1.27
Oct-07	3.62	Oct-13	6.99					Oct-07	6.55
Nov-07	7.90	Nov-13	15.65					Nov-07	22.07
Dec-07	20.31	Dec-13	28.57					Dec-07	32.03
Jan-08	32.04	Jan-14	32.14					Jan-08	31.35
Feb-08	36.96	Feb-14	37.70					Feb-08	31.86
Mar-08	32.65	Mar-14	33.02					Mar-08	25.23
Apr-08	30.28	Apr-14	24.53					Apr-08	13.47
May-08	9.94	May-14	13.01					May-08	7.32
Jun-08	5.15	Jun-14	5.44					Jun-08	0.63
Jul-08	1.02	Jul-14	4.50					Jul-08	0.00
Aug-08	1.54	Aug-14	2.37					Aug-08	0.06
Sep-08	2.83	Sep-14	3.57					Sep-08	2.40

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3321
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0	SSE=	1.45E-01	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	0.09555			

Slope Model

GOF:	R-Square=	n/a	SSE=	9.68E-04	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	0.04484			

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	0.0077	0.1178	0.1511	1.208	0.8783	2.3107	-0.2296	-0.0312	-0.2962	-0.6223	-0.413	-0.2278

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data TimeConst	TimeConst	For Monthly Allocation date	HDD
Oct-08	4.31	Oct-14	6.09					Oct-08	12.61
Nov-08	9.78	Nov-14	14.31					Nov-08	22.17
Dec-08	21.68	Dec-14	26.10					Dec-08	29.48
Jan-09	31.25	Jan-15	30.33					Jan-09	40.81
Feb-09	37.81	Feb-15	35.56					Feb-09	32.11
Mar-09	25.39	Mar-15	31.05					Mar-09	27.32
Apr-09	28.13	Apr-15	23.90					Apr-09	15.45
May-09	8.81	May-15	11.58					May-09	6.71
Jun-09	6.40	Jun-15	5.64					Jun-09	2.10
Jul-09	3.90	Jul-15	4.34					Jul-09	0.19
Aug-09	2.74	Aug-15	2.21					Aug-09	0.10
Sep-09	2.74	Sep-15	3.27					Sep-09	3.03
Oct-09	4.65	Oct-15	5.66					Oct-09	12.77
Nov-09	11.30	Nov-15	13.29					Nov-09	15.80
Dec-09	18.79	Dec-15	24.32					Dec-09	31.84
Jan-10	37.35	Jan-16	37.98					Jan-10	35.68
Feb-10	36.53	Feb-16	42.99					Feb-10	31.79
Mar-10	30.67	Mar-16	39.17					Mar-10	19.61
Apr-10	17.87	Apr-16	17.48					Apr-10	11.13
May-10	7.26	May-16	8.47					May-10	3.90
Jun-10	5.35	Jun-16	4.13					Jun-10	0.53
Jul-10	3.32	Jul-16	3.17					Jul-10	0.00
Aug-10	1.91	Aug-16	1.60					Aug-10	0.06
Sep-10	2.59	Sep-16	2.38					Sep-10	1.03
Oct-10	5.56	Oct-16	4.14					Oct-10	9.45
Nov-10	10.84	Nov-16	9.72					Nov-10	20.07
Dec-10	21.89	Dec-16	17.78					Dec-10	33.65
Jan-11	33.94							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2367
Model: Customer Counts

GOF R-Square= 0.933369
Model: 82.3333-35.3333/(1+exp(-0.377358*(t-74)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	89.0	Jan-11	49
Feb-05	89.0	Feb-11	48
Mar-05	89.0	Mar-11	45
Apr-05	89.0	Apr-11	46
May-05	88.0	May-11	49
Jun-05	87.0	Jun-11	47
Jul-05	86.0	Jul-11	47
Aug-05	85.0	Aug-11	42
Sep-05	82.0	Sep-11	43
Oct-05	83.0	Oct-11	45
Nov-05	83.0	Nov-11	43
Dec-05	85.0	Dec-11	46
Jan-06	85.0	Jan-12	47
Feb-06	84.0	Feb-12	46
Mar-06	84.0	Mar-12	46
Apr-06	84.0	Apr-12	46
May-06	82.0	May-12	45
Jun-06	81.0	Jun-12	45
Jul-06	78.0	Jul-12	45
Aug-06	80.0	Aug-12	45
Sep-06	79.0	Sep-12	45
Oct-06	80.0	Oct-12	46
Nov-06	78.0	Nov-12	47
Dec-06	78.0	Dec-12	47
Jan-07	76.0	Jan-13	47
Feb-07	76.0	Feb-13	46
Mar-07	75.0	Mar-13	46
Apr-07	75.0	Apr-13	46
May-07	75.0	May-13	45
Jun-07	74.0	Jun-13	45
Jul-07	74.0	Jul-13	45
Aug-07	80.0	Aug-13	45
Sep-07	82.0	Sep-13	45
Oct-07	84.0	Oct-13	46
Nov-07	84.0	Nov-13	47
Dec-07	85.0	Dec-13	47
Jan-08	84.0	Jan-14	47
Feb-08	84.0	Feb-14	46
Mar-08	84.0	Mar-14	46
Apr-08	84.0	Apr-14	46
May-08	86.0	May-14	45
Jun-08	85.0	Jun-14	44
Jul-08	87.0	Jul-14	45
Aug-08	81.0	Aug-14	45
Sep-08	82.0	Sep-14	45
Oct-08	82.0	Oct-14	46

Year	Year End Customers	Economic Data
2005	85.0	
2006	78.0	
2007	85.0	
2008	82.0	
2009	62.0	
2010	47.0	
2011	46.0	
2012	47.0	
2013	47.0	
2014	48.0	
2015	48.0	

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2367
Model: Customer Counts

GOF R-Square= 0.933369
Model: 82.3333-35.3333/(1+exp(-0.377358*(t-74)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	81.0	Nov-14	47
Dec-08	82.0	Dec-14	48
Jan-09	81.0	Jan-15	47
Feb-09	81.0	Feb-15	46
Mar-09	78.0	Mar-15	46
Apr-09	78.0	Apr-15	45
May-09	73.0	May-15	45
Jun-09	72.0	Jun-15	44
Jul-09	73.0	Jul-15	44
Aug-09	60.0	Aug-15	45
Sep-09	61.0	Sep-15	45
Oct-09	63.0	Oct-15	46
Nov-09	62.0	Nov-15	47
Dec-09	62.0	Dec-15	48
Jan-10	60.0	Jan-16	47
Feb-10	57.0	Feb-16	46
Mar-10	52.0	Mar-16	47
Apr-10	48.0	Apr-16	46
May-10	44.0	May-16	45
Jun-10	43.0	Jun-16	44
Jul-10	42.0	Jul-16	44
Aug-10	46.0	Aug-16	44
Sep-10	48.0	Sep-16	44
Oct-10	48.0	Oct-16	45
Nov-10	48.0	Nov-16	47
Dec-10	47.0	Dec-16	48
Jan-11	48.0		

Year	Year End Customers	Economic Data

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2367
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0	SSE=	4.81E-02	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	0.8388			

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day
Jan-05	25.33	Jan-11	23.61
Feb-05	24.01	Feb-11	16.48
Mar-05	22.49	Mar-11	27.76
Apr-05	18.90	Apr-11	18.83
May-05	14.71	May-11	12.22
Jun-05	16.79	Jun-11	12.13
Jul-05	11.22	Jul-11	10.95
Aug-05	11.21	Aug-11	12.76
Sep-05	12.39	Sep-11	12.01
Oct-05	12.07	Oct-11	10.21
Nov-05	15.79	Nov-11	16.60
Dec-05	21.14	Dec-11	14.88
Jan-06	21.40	Jan-12	26.19
Feb-06	19.32	Feb-12	21.96
Mar-06	23.20	Mar-12	24.35
Apr-06	21.54	Apr-12	20.02
May-06	16.00	May-12	15.77
Jun-06	15.28	Jun-12	12.60
Jul-06	10.56	Jul-12	10.48
Aug-06	8.82	Aug-12	9.60
Sep-06	16.32	Sep-12	11.66
Oct-06	12.55	Oct-12	10.11
Nov-06	15.17	Nov-12	15.45
Dec-06	16.12	Dec-12	16.20
Jan-07	18.25	Jan-13	27.01
Feb-07	21.92	Feb-13	21.90
Mar-07	19.13	Mar-13	25.91
Apr-07	17.31	Apr-13	20.60
May-07	13.34	May-13	16.58
Jun-07	12.26	Jun-13	11.42
Jul-07	10.47	Jul-13	10.35
Aug-07	8.72	Aug-13	9.44
Sep-07	13.40	Sep-13	11.90
Oct-07	11.20	Oct-13	10.54
Nov-07	15.82	Nov-13	15.22
Dec-07	18.31	Dec-13	16.57
Jan-08	23.39	Jan-14	26.43
Feb-08	23.57	Feb-14	21.17
Mar-08	21.03	Mar-14	26.84
Apr-08	17.38	Apr-14	20.39
May-08	14.20	May-14	15.81
Jun-08	10.41	Jun-14	13.00
Jul-08	9.97	Jul-14	11.18
Aug-08	11.71	Aug-14	10.38
Sep-08	12.74	Sep-14	12.11
Oct-08	9.02	Oct-14	10.59
Nov-08	14.28	Nov-14	15.93
Dec-08	16.56	Dec-14	16.15
Jan-09	20.83	Jan-15	26.90
Feb-09	21.98	Feb-15	22.24
Mar-09	17.52	Mar-15	26.04
Apr-09	16.29	Apr-15	21.07

Year	Annual Use Per Dth/MC/Day	Economic Data TimeConst
2005	206.05	2005
2006	196.28	2006
2007	180.13	2007
2008	184.27	2008
2009	188.87	2009
2010	201.31	2010
2011	188.45	2011
2012	194.40	2012
2013	197.42	2013
2014	199.99	2014
2015	200.86	2015

date	For Monthly Allocation HDD
Jan-05	37.32
Feb-05	33.43
Mar-05	29.94
Apr-05	14.93
May-05	11.35
Jun-05	1.40
Jul-05	0.19
Aug-05	0.00
Sep-05	1.30
Oct-05	10.35
Nov-05	18.90
Dec-05	32.39
Jan-06	27.61
Feb-06	33.14
Mar-06	25.71
Apr-06	14.23
May-06	7.00
Jun-06	1.27
Jul-06	0.00
Aug-06	0.16
Sep-06	2.57
Oct-06	11.03
Nov-06	15.57
Dec-06	24.13
Jan-07	30.58
Feb-07	37.68
Mar-07	26.61
Apr-07	18.03
May-07	5.74
Jun-07	1.10
Jul-07	0.00
Aug-07	0.26
Sep-07	1.27
Oct-07	6.55
Nov-07	22.07
Dec-07	32.03
Jan-08	31.35
Feb-08	31.86
Mar-08	25.23
Apr-08	13.47
May-08	7.32
Jun-08	0.63
Jul-08	0.00
Aug-08	0.06
Sep-08	2.40
Oct-08	12.61
Nov-08	22.17
Dec-08	29.48
Jan-09	40.81
Feb-09	32.11
Mar-09	27.32
Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2367
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0	SSE=	4.81E-02	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	0.8388			

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data TimeConst	For Monthly Allocation date	HDD
May-09	12.20	May-15	16.27				May-09	6.71
Jun-09	15.39	Jun-15	12.69				Jun-09	2.10
Jul-09	10.19	Jul-15	11.06				Jul-09	0.19
Aug-09	18.31	Aug-15	9.94				Aug-09	0.10
Sep-09	12.38	Sep-15	12.05				Sep-09	3.03
Oct-09	9.56	Oct-15	10.55				Oct-09	12.77
Nov-09	18.04	Nov-15	15.74				Nov-09	15.80
Dec-09	16.19	Dec-15	16.30				Dec-09	31.84
Jan-10	28.49	Jan-16	24.45				Jan-10	35.68
Feb-10	22.52	Feb-16	19.52				Feb-10	31.79
Mar-10	22.40	Mar-16	23.16				Mar-10	19.61
Apr-10	20.13	Apr-16	21.88				Apr-10	11.13
May-10	19.86	May-16	17.28				May-10	3.90
Jun-10	9.59	Jun-16	13.47				Jun-10	0.53
Jul-10	10.15	Jul-16	11.74				Jul-10	0.00
Aug-10	7.79	Aug-16	10.79				Aug-10	0.06
Sep-10	13.24	Sep-16	13.08				Sep-10	1.03
Oct-10	12.71	Oct-16	11.45				Oct-10	9.45
Nov-10	14.82	Nov-16	16.71				Nov-10	20.07
Dec-10	19.63	Dec-16	17.31				Dec-10	33.65
Jan-11	23.27						Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 23EN
Model: Customer Counts

GOF R-Square= 0.462579
Model: 62.5763+7.82994/(1+exp(-0.343024*(t-67.4015)))
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts				
date		date		Year	Year End Customers	Economic Data
Jan-05	64	Jan-11	69	2005	56	
Feb-05	64	Feb-11	69	2006	62	
Mar-05	64	Mar-11	69	2007	62	
Apr-05	64	Apr-11	69	2008	66	
May-05	64	May-11	69	2009	74	
Jun-05	64	Jun-11	69	2010	68	
Jul-05	64	Jul-11	69	2011	63	
Aug-05	64	Aug-11	69	2012	68	
Sep-05	58	Sep-11	65	2013	69	
Oct-05	59	Oct-11	65	2014	69	
Nov-05	58	Nov-11	63	2015	69	
Dec-05	56	Dec-11	63			
Jan-06	56	Jan-12	68			
Feb-06	56	Feb-12	68			
Mar-06	56	Mar-12	69			
Apr-06	57	Apr-12	69			
May-06	57	May-12	69			
Jun-06	57	Jun-12	69			
Jul-06	57	Jul-12	69			
Aug-06	57	Aug-12	69			
Sep-06	62	Sep-12	69			
Oct-06	62	Oct-12	68			
Nov-06	63	Nov-12	68			
Dec-06	62	Dec-12	68			
Jan-07	63	Jan-13	69			
Feb-07	63	Feb-13	69			
Mar-07	64	Mar-13	69			
Apr-07	64	Apr-13	69			
May-07	64	May-13	69			
Jun-07	64	Jun-13	69			
Jul-07	64	Jul-13	69			
Aug-07	65	Aug-13	69			
Sep-07	63	Sep-13	69			
Oct-07	62	Oct-13	69			
Nov-07	62	Nov-13	69			
Dec-07	62	Dec-13	69			
Jan-08	62	Jan-14	69			
Feb-08	62	Feb-14	69			
Mar-08	62	Mar-14	69			
Apr-08	62	Apr-14	69			
May-08	61	May-14	69			
Jun-08	61	Jun-14	69			
Jul-08	62	Jul-14	69			
Aug-08	61	Aug-14	69			
Sep-08	70	Sep-14	69			
Oct-08	69	Oct-14	69			

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 23EN
Model: Customer Counts

GOF R-Square= 0.462579
Model: 62.5763+7.82994/(1+exp(-0.343024*(t-67.4015)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	67	Nov-14	69
Dec-08	66	Dec-14	69
Jan-09	65	Jan-15	69
Feb-09	66	Feb-15	69
Mar-09	66	Mar-15	69
Apr-09	67	Apr-15	69
May-09	68	May-15	69
Jun-09	68	Jun-15	69
Jul-09	67	Jul-15	69
Aug-09	67	Aug-15	69
Sep-09	69	Sep-15	69
Oct-09	69	Oct-15	69
Nov-09	72	Nov-15	69
Dec-09	74	Dec-15	69
Jan-10	75	Jan-16	69
Feb-10	75	Feb-16	69
Mar-10	76	Mar-16	69
Apr-10	75	Apr-16	69
May-10	75	May-16	69
Jun-10	75	Jun-16	69
Jul-10	75	Jul-16	69
Aug-10	75	Aug-16	69
Sep-10	70	Sep-16	69
Oct-10	69	Oct-16	69
Nov-10	67	Nov-16	69
Dec-10	68	Dec-16	69
Jan-11	68		

Year	Year End Customers	Economic Data

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 23EN
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0.2673	SSE=	4.66E+00	
Par (X)=P1*X+P2		X=	FO		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.01811	(-0.01184,	0.04805)	
p2	=	16.68	(11.51,	21.84)	

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day
Jan-05	28.66	Jan-11	28.54
Feb-05	26.20	Feb-11	31.93
Mar-05	24.49	Mar-11	24.44
Apr-05	17.60	Apr-11	21.74
May-05	16.63	May-11	16.77
Jun-05	15.63	Jun-11	15.21
Jul-05	12.86	Jul-11	12.09
Aug-05	14.49	Aug-11	14.47
Sep-05	15.97	Sep-11	15.56
Oct-05	13.95	Oct-11	16.09
Nov-05	24.86	Nov-11	20.53
Dec-05	21.92	Dec-11	20.47
Jan-06	21.73	Jan-12	29.29
Feb-06	27.52	Feb-12	28.52
Mar-06	26.49	Mar-12	28.41
Apr-06	18.13	Apr-12	23.55
May-06	17.61	May-12	21.89
Jun-06	16.34	Jun-12	19.71
Jul-06	13.95	Jul-12	16.09
Aug-06	14.98	Aug-12	17.12
Sep-06	19.83	Sep-12	20.41
Oct-06	13.40	Oct-12	22.98
Nov-06	21.39	Nov-12	24.16
Dec-06	23.21	Dec-12	29.41
Jan-07	20.05	Jan-13	36.11
Feb-07	26.68	Feb-13	37.02
Mar-07	24.86	Mar-13	31.35
Apr-07	19.70	Apr-13	26.62
May-07	13.26	May-13	24.54
Jun-07	15.73	Jun-13	22.31
Jul-07	13.58	Jul-13	16.74
Aug-07	38.54	Aug-13	18.26
Sep-07	14.64	Sep-13	21.55
Oct-07	15.18	Oct-13	21.62
Nov-07	24.98	Nov-13	24.93
Dec-07	26.68	Dec-13	29.57
Jan-08	23.42	Jan-14	34.26
Feb-08	30.09	Feb-14	36.26
Mar-08	29.50	Mar-14	31.17
Apr-08	22.97	Apr-14	26.80
May-08	14.75	May-14	23.35
Jun-08	14.56	Jun-14	21.11
Jul-08	19.45	Jul-14	16.59
Aug-08	16.36	Aug-14	17.98
Sep-08	11.01	Sep-14	21.07
Oct-08	9.39	Oct-14	22.03
Nov-08	7.46	Nov-14	25.46
Dec-08	10.61	Dec-14	28.83
Jan-09	14.18	Jan-15	34.77
Feb-09	12.71	Feb-15	35.86
Mar-09	23.23	Mar-15	31.93
Apr-09	17.27	Apr-15	27.01

Year	Annual Use Per Dth/MC/Day	Economic Data FO
2005	233.28	128.18
2006	234.58	118.16
2007	253.91	187.88
2008	209.56	125.18
2009	216.12	192.03
2010	254.29	203.05
2011	237.85	198.67
2012	281.55	182.35
2013	310.62	192.36
2014	304.91	201.86
2015	314.67	211.21

date	For Monthly Allocation HDD
Jan-05	37.32
Feb-05	33.43
Mar-05	29.94
Apr-05	14.93
May-05	11.35
Jun-05	1.40
Jul-05	0.19
Aug-05	0.00
Sep-05	1.30
Oct-05	10.35
Nov-05	18.90
Dec-05	32.39
Jan-06	27.61
Feb-06	33.14
Mar-06	25.71
Apr-06	14.23
May-06	7.00
Jun-06	1.27
Jul-06	0.00
Aug-06	0.16
Sep-06	2.57
Oct-06	11.03
Nov-06	15.57
Dec-06	24.13
Jan-07	30.58
Feb-07	37.68
Mar-07	26.61
Apr-07	18.03
May-07	5.74
Jun-07	1.10
Jul-07	0.00
Aug-07	0.26
Sep-07	1.27
Oct-07	6.55
Nov-07	22.07
Dec-07	32.03
Jan-08	31.35
Feb-08	31.86
Mar-08	25.23
Apr-08	13.47
May-08	7.32
Jun-08	0.63
Jul-08	0.00
Aug-08	0.06
Sep-08	2.40
Oct-08	12.61
Nov-08	22.17
Dec-08	29.48
Jan-09	40.81
Feb-09	32.11
Mar-09	27.32
Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 23EN
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0.2673	SSE=	4.66E+00	
Par (X)=P1*X+P2		X=	FO		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.01811	(-0.01184,	0.04805)	
p2	=	16.68	(11.51,	21.84)	

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data FO	For Monthly Allocation date	HDD
May-09	15.36	May-15	24.50				May-09	6.71
Jun-09	14.13	Jun-15	22.16				Jun-09	2.10
Jul-09	14.71	Jul-15	17.37				Jul-09	0.19
Aug-09	14.69	Aug-15	18.75				Aug-09	0.10
Sep-09	19.55	Sep-15	22.15				Sep-09	3.03
Oct-09	25.75	Oct-15	23.34				Oct-09	12.77
Nov-09	18.89	Nov-15	26.07				Nov-09	15.80
Dec-09	25.66	Dec-15	30.74				Dec-09	31.84
Jan-10	33.30	Jan-16	37.70				Jan-10	35.68
Feb-10	30.23	Feb-16	37.54				Feb-10	31.79
Mar-10	22.34	Mar-16	34.62				Mar-10	19.61
Apr-10	18.90	Apr-16	26.40				Apr-10	11.13
May-10	18.85	May-16	23.94				May-10	3.90
Jun-10	16.85	Jun-16	21.66				Jun-10	0.53
Jul-10	13.58	Jul-16	16.98				Jul-10	0.00
Aug-10	15.60	Aug-16	18.33				Aug-10	0.06
Sep-10	17.58	Sep-16	21.65				Sep-10	1.03
Oct-10	17.03	Oct-16	22.81				Oct-10	9.45
Nov-10	20.70	Nov-16	25.48				Nov-10	20.07
Dec-10	29.32	Dec-16	30.04				Dec-10	33.65
Jan-11	28.50						Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2321
Model: Customer Counts

GOF R-Square= 0.983855
Model: 15.0032+30.8846/(1+exp(-0.171874*(t-77.6351)))
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts		Economic Data	
date		date		Year	Year End Customers
Jan-05	8	Jan-11	44	2005	12
Feb-05	9	Feb-11	44	2006	15
Mar-05	9	Mar-11	45	2007	17
Apr-05	9	Apr-11	42	2008	18
May-05	9	May-11	41	2009	28
Jun-05	9	Jun-11	44	2010	43
Jul-05	11	Jul-11	44	2011	41
Aug-05	11	Aug-11	41	2012	44
Sep-05	12	Sep-11	41	2013	44
Oct-05	12	Oct-11	40	2014	44
Nov-05	12	Nov-11	40	2015	44
Dec-05	12	Dec-11	41		
Jan-06	12	Jan-12	43		
Feb-06	13	Feb-12	43		
Mar-06	13	Mar-12	44		
Apr-06	13	Apr-12	44		
May-06	14	May-12	44		
Jun-06	15	Jun-12	44		
Jul-06	15	Jul-12	44		
Aug-06	14	Aug-12	44		
Sep-06	13	Sep-12	44		
Oct-06	13	Oct-12	44		
Nov-06	15	Nov-12	44		
Dec-06	15	Dec-12	44		
Jan-07	14	Jan-13	44		
Feb-07	14	Feb-13	44		
Mar-07	15	Mar-13	44		
Apr-07	15	Apr-13	44		
May-07	15	May-13	44		
Jun-07	15	Jun-13	44		
Jul-07	15	Jul-13	44		
Aug-07	17	Aug-13	44		
Sep-07	17	Sep-13	44		
Oct-07	18	Oct-13	44		
Nov-07	18	Nov-13	44		
Dec-07	17	Dec-13	44		
Jan-08	16	Jan-14	44		
Feb-08	17	Feb-14	44		
Mar-08	17	Mar-14	44		
Apr-08	17	Apr-14	44		
May-08	17	May-14	44		
Jun-08	17	Jun-14	44		
Jul-08	17	Jul-14	44		
Aug-08	16	Aug-14	44		
Sep-08	16	Sep-14	44		
Oct-08	16	Oct-14	44		

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2321
Model: Customer Counts

GOF R-Square= 0.983855
Model: 15.0032+30.8846/(1+exp(-0.171874*(t-77.6351)))
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	16	Nov-14	44
Dec-08	18	Dec-14	44
Jan-09	19	Jan-15	44
Feb-09	19	Feb-15	44
Mar-09	19	Mar-15	44
Apr-09	19	Apr-15	44
May-09	23	May-15	44
Jun-09	25	Jun-15	44
Jul-09	25	Jul-15	44
Aug-09	27	Aug-15	44
Sep-09	31	Sep-15	44
Oct-09	31	Oct-15	44
Nov-09	29	Nov-15	44
Dec-09	28	Dec-15	44
Jan-10	30	Jan-16	44
Feb-10	32	Feb-16	44
Mar-10	35	Mar-16	44
Apr-10	37	Apr-16	44
May-10	38	May-16	44
Jun-10	40	Jun-16	44
Jul-10	41	Jul-16	44
Aug-10	38	Aug-16	44
Sep-10	39	Sep-16	44
Oct-10	41	Oct-16	44
Nov-10	42	Nov-16	44
Dec-10	43	Dec-16	44
Jan-11	44		

Year	Year End Customers	Economic Data

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2321
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0	SSE=	4.25E-02	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	0.7855			

Actual Use Per		Forecasted Use Per		Annual Use Per		Economic Data	For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	TimeConst	date	HDD
Jan-05	18.81	Jan-11	22.43	2005	186.18	2005	Jan-05	37.32
Feb-05	21.04	Feb-11	24.17	2006	159.54	2006	Feb-05	33.43
Mar-05	19.35	Mar-11	21.05	2007	166.74	2007	Mar-05	29.94
Apr-05	17.33	Apr-11	19.47	2008	172.04	2008	Apr-05	14.93
May-05	11.65	May-11	14.66	2009	173.37	2009	May-05	11.35
Jun-05	19.39	Jun-11	11.89	2010	188.52	2010	Jun-05	1.40
Jul-05	12.69	Jul-11	11.01	2011	192.15	2011	Jul-05	0.19
Aug-05	13.29	Aug-11	10.45	2012	213.95	2012	Aug-05	0.00
Sep-05	12.53	Sep-11	11.47	2013	232.18	2013	Sep-05	1.30
Oct-05	10.42	Oct-11	11.06	2014	236.98	2014	Oct-05	10.35
Nov-05	13.78	Nov-11	16.14	2015	242.12	2015	Nov-05	18.90
Dec-05	15.91	Dec-11	18.34				Dec-05	32.39
Jan-06	18.55	Jan-12	21.09				Jan-06	27.61
Feb-06	15.72	Feb-12	22.94				Feb-06	33.14
Mar-06	18.09	Mar-12	22.04				Mar-06	25.71
Apr-06	16.79	Apr-12	20.35				Apr-06	14.23
May-06	12.78	May-12	15.44				May-06	7.00
Jun-06	10.58	Jun-12	14.18				Jun-06	1.27
Jul-06	8.92	Jul-12	15.37				Jul-06	0.00
Aug-06	9.09	Aug-12	11.75				Aug-06	0.16
Sep-06	10.91	Sep-12	13.39				Sep-06	2.57
Oct-06	10.22	Oct-12	14.31				Oct-06	11.03
Nov-06	11.41	Nov-12	17.94				Nov-06	15.57
Dec-06	16.47	Dec-12	25.16				Dec-06	24.13
Jan-07	17.64	Jan-13	23.08				Jan-07	30.58
Feb-07	19.65	Feb-13	26.33				Feb-07	37.68
Mar-07	23.25	Mar-13	25.90				Mar-07	26.61
Apr-07	16.83	Apr-13	22.62				Apr-07	18.03
May-07	14.47	May-13	16.76				May-07	5.74
Jun-07	12.37	Jun-13	15.28				Jun-07	1.10
Jul-07	9.10	Jul-13	17.61				Jul-07	0.00
Aug-07	7.51	Aug-13	12.77				Aug-07	0.26
Sep-07	9.74	Sep-13	13.85				Sep-07	1.27
Oct-07	8.09	Oct-13	14.45				Oct-07	6.55
Nov-07	12.54	Nov-13	18.98				Nov-07	22.07
Dec-07	15.56	Dec-13	24.55				Dec-07	32.03
Jan-08	18.63	Jan-14	24.47				Jan-08	31.35
Feb-08	20.44	Feb-14	27.28				Feb-08	31.86
Mar-08	17.61	Mar-14	26.19				Mar-08	25.23
Apr-08	16.64	Apr-14	22.91				Apr-08	13.47
May-08	14.05	May-14	17.43				May-08	7.32
Jun-08	12.54	Jun-14	15.61				Jun-08	0.63
Jul-08	8.46	Jul-14	16.40				Jul-08	0.00
Aug-08	10.19	Aug-14	12.84				Aug-08	0.06
Sep-08	9.88	Sep-14	14.23				Sep-08	2.40
Oct-08	10.44	Oct-14	14.63				Oct-08	12.61
Nov-08	15.65	Nov-14	19.45				Nov-08	22.17
Dec-08	17.50	Dec-14	25.54				Dec-08	29.48
Jan-09	19.62	Jan-15	24.14				Jan-09	40.81
Feb-09	20.90	Feb-15	27.21				Feb-09	32.11
Mar-09	16.70	Mar-15	26.24				Mar-09	27.32
Apr-09	19.44	Apr-15	23.35				Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2321
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0	SSE=	4.25E-02	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	0.7855			

	Actual Use Per		Forecasted Use Per		Annual Use Per	Economic Data	For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	TimeConst	date	HDD
May-09	12.53	May-15	17.59				May-09	6.71
Jun-09	11.27	Jun-15	15.98				Jun-09	2.10
Jul-09	9.81	Jul-15	17.51				Jul-09	0.19
Aug-09	8.34	Aug-15	13.25				Aug-09	0.10
Sep-09	9.74	Sep-15	14.72				Sep-09	3.03
Oct-09	11.70	Oct-15	15.41				Oct-09	12.77
Nov-09	12.66	Nov-15	19.99				Nov-09	15.80
Dec-09	20.68	Dec-15	26.73				Dec-09	31.84
Jan-10	23.62	Jan-16	27.07				Jan-10	35.68
Feb-10	25.15	Feb-16	29.46				Feb-10	31.79
Mar-10	22.32	Mar-16	29.43				Mar-10	19.61
Apr-10	16.89	Apr-16	22.12				Apr-10	11.13
May-10	12.27	May-16	16.66				May-10	3.90
Jun-10	10.97	Jun-16	15.14				Jun-10	0.53
Jul-10	11.94	Jul-16	16.58				Jul-10	0.00
Aug-10	11.04	Aug-16	12.55				Aug-10	0.06
Sep-10	11.11	Sep-16	13.94				Sep-10	1.03
Oct-10	11.35	Oct-16	14.59				Oct-10	9.45
Nov-10	13.98	Nov-16	18.94				Nov-10	20.07
Dec-10	17.88	Dec-16	25.32				Dec-10	33.65
Jan-11	22.43						Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3496
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts		Economic Data	
date		date		Year	Year End Customers
Jan-05	12	Jan-11	2	2005	10
Feb-05	12	Feb-11	3	2006	7
Mar-05	11	Mar-11	2	2007	7
Apr-05	11	Apr-11	2	2008	9
May-05	11	May-11	3	2009	5
Jun-05	11	Jun-11	3	2010	2
Jul-05	11	Jul-11	3	2011	5
Aug-05	11	Aug-11	4	2012	2
Sep-05	11	Sep-11	5	2013	2
Oct-05	11	Oct-11	5	2014	2
Nov-05	10	Nov-11	5	2015	2
Dec-05	10	Dec-11	5		
Jan-06	10	Jan-12	2		
Feb-06	10	Feb-12	2		
Mar-06	10	Mar-12	2		
Apr-06	10	Apr-12	2		
May-06	10	May-12	2		
Jun-06	10	Jun-12	2		
Jul-06	10	Jul-12	2		
Aug-06	8	Aug-12	2		
Sep-06	7	Sep-12	2		
Oct-06	7	Oct-12	2		
Nov-06	7	Nov-12	2		
Dec-06	7	Dec-12	2		
Jan-07	6	Jan-13	2		
Feb-07	6	Feb-13	2		
Mar-07	6	Mar-13	2		
Apr-07	6	Apr-13	2		
May-07	6	May-13	2		
Jun-07	6	Jun-13	2		
Jul-07	6	Jul-13	2		
Aug-07	6	Aug-13	2		
Sep-07	7	Sep-13	2		
Oct-07	7	Oct-13	2		
Nov-07	7	Nov-13	2		
Dec-07	7	Dec-13	2		
Jan-08	7	Jan-14	2		
Feb-08	8	Feb-14	2		
Mar-08	8	Mar-14	2		
Apr-08	8	Apr-14	2		
May-08	8	May-14	2		
Jun-08	8	Jun-14	2		
Jul-08	8	Jul-14	2		
Aug-08	8	Aug-14	2		
Sep-08	9	Sep-14	2		
Oct-08	9	Oct-14	2		

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3496
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts				
date		date		Year	Year End Customers	Economic Data
Nov-08	9	Nov-14	2			
Dec-08	9	Dec-14	2			
Jan-09	8	Jan-15	2			
Feb-09	9	Feb-15	2			
Mar-09	8	Mar-15	2			
Apr-09	9	Apr-15	2			
May-09	8	May-15	2			
Jun-09	8	Jun-15	2			
Jul-09	8	Jul-15	2			
Aug-09	9	Aug-15	2			
Sep-09	8	Sep-15	2			
Oct-09	8	Oct-15	2			
Nov-09	5	Nov-15	2			
Dec-09	5	Dec-15	2			
Jan-10	4	Jan-16	2			
Feb-10	4	Feb-16	2			
Mar-10	4	Mar-16	2			
Apr-10	4	Apr-16	2			
May-10	4	May-16	2			
Jun-10	4	Jun-16	2			
Jul-10	4	Jul-16	2			
Aug-10	2	Aug-16	2			
Sep-10	2	Sep-16	2			
Oct-10	2	Oct-16	2			
Nov-10	2	Nov-16	2			
Dec-10	2	Dec-16	2			
Jan-11	2					

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3496
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.7233	SSE=	8.07E-02	
Par (X)=P1*X+P2	X=		FHSTMFQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.001123	(-0.001816,	-0.0004291)	
p2	=	1.073	(0.7807,	1.366)	

Slope Model

GOF:	R-Square=	0.6948	SSE=	3.00E-04	
Par (X)=P1*X+P2	X=		FET		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.0006142	(0.0002075,	0.001021)	
p2	=	-0.292	(-0.5705,	-0.01344)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	0.0211	0.1283	0.3426	0.3591	0.1872	1.1594	0.7116	-0.0524	-0.3862	-0.6322	-0.1148	-0.2269

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day
Jan-05	115.68	Jan-11	87.12
Feb-05	112.95	Feb-11	67.38
Mar-05	133.63	Mar-11	69.61
Apr-05	59.96	Apr-11	68.26
May-05	26.23	May-11	29.79
Jun-05	14.27	Jun-11	19.77
Jul-05	5.42	Jul-11	9.48
Aug-05	4.26	Aug-11	8.67
Sep-05	4.70	Sep-11	4.67
Oct-05	9.08	Oct-11	31.18
Nov-05	45.71	Nov-11	38.71
Dec-05	100.43	Dec-11	46.32
Jan-06	93.56	Jan-12	96.52
Feb-06	85.00	Feb-12	94.26
Mar-06	111.36	Mar-12	96.17
Apr-06	61.37	Apr-12	72.84
May-06	29.46	May-12	48.37
Jun-06	12.03	Jun-12	58.05
Jul-06	3.83	Jul-12	26.66
Aug-06	4.07	Aug-12	6.73
Sep-06	6.70	Sep-12	8.45
Oct-06	15.24	Oct-12	39.04
Nov-06	41.75	Nov-12	52.58
Dec-06	69.44	Dec-12	47.59
Jan-07	76.75	Jan-13	87.14
Feb-07	117.39	Feb-13	98.41
Mar-07	102.30	Mar-13	101.93
Apr-07	60.97	Apr-13	69.29
May-07	23.02	May-13	49.45
Jun-07	9.07	Jun-13	43.17
Jul-07	4.12	Jul-13	19.71
Aug-07	2.44	Aug-13	7.42
Sep-07	9.61	Sep-13	8.17
Oct-07	14.43	Oct-13	47.27
Nov-07	35.00	Nov-13	51.34
Dec-07	68.67	Dec-13	59.35
Jan-08	112.20	Jan-14	81.87
Feb-08	115.73	Feb-14	89.61
Mar-08	122.91	Mar-14	84.04
Apr-08	96.45	Apr-14	64.08
May-08	52.63	May-14	44.99
Jun-08	43.13	Jun-14	41.68
Jul-08	30.96	Jul-14	19.50
Aug-08	23.03	Aug-14	6.40
Sep-08	8.81	Sep-14	8.57
Oct-08	16.00	Oct-14	59.42
Nov-08	65.33	Nov-14	61.13
Dec-08	102.38	Dec-14	72.85
Jan-09	157.73	Jan-15	92.41
Feb-09	103.54	Feb-15	99.45
Mar-09	89.88	Mar-15	98.21
Apr-09	90.29	Apr-15	71.78

Year	Annual Use Per Dth/MC/Day	Economic Data FHSTMFQ	FET
2005	632.33	773.65	716.32
2006	533.81	815.35	719.16
2007	523.78	576.96	717.87
2008	789.57	207.93	703.85
2009	893.71	196.78	670.23
2010	578.07	150.95	657.79
2011	480.96	467.13	665.74
2012	647.27	785.25	684.84
2013	642.66	869.25	697.95
2014	634.14	859.39	718.51
2015	671.16	900.36	735.11

date	For Monthly Allocation HDD
Jan-05	37.32
Feb-05	33.43
Mar-05	29.94
Apr-05	14.93
May-05	11.35
Jun-05	1.40
Jul-05	0.19
Aug-05	0.00
Sep-05	1.30
Oct-05	10.35
Nov-05	18.90
Dec-05	32.39
Jan-06	27.61
Feb-06	33.14
Mar-06	25.71
Apr-06	14.23
May-06	7.00
Jun-06	1.27
Jul-06	0.00
Aug-06	0.16
Sep-06	2.57
Oct-06	11.03
Nov-06	15.57
Dec-06	24.13
Jan-07	30.58
Feb-07	37.68
Mar-07	26.61
Apr-07	18.03
May-07	5.74
Jun-07	1.10
Jul-07	0.00
Aug-07	0.26
Sep-07	1.27
Oct-07	6.55
Nov-07	22.07
Dec-07	32.03
Jan-08	31.35
Feb-08	31.86
Mar-08	25.23
Apr-08	13.47
May-08	7.32
Jun-08	0.63
Jul-08	0.00
Aug-08	0.06
Sep-08	2.40
Oct-08	12.61
Nov-08	22.17
Dec-08	29.48
Jan-09	40.81
Feb-09	32.11
Mar-09	27.32
Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3496
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.7233	SSE=	8.07E-02	
Par (X)=P1*X+P2		X=	FHSTMFQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.001123	(-0.001816,	-0.0004291)	
p2	=	1.073	(0.7807,	1.366)	

Slope Model

GOF:	R-Square=	0.6948	SSE=	3.00E-04	
Par (X)=P1*X+P2		X=	FET		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.0006142	(0.0002075,	0.001021)	
p2	=	-0.292	(-0.5705,	-0.01344)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	0.0211	0.1283	0.3426	0.3591	0.1872	1.1594	0.7116	-0.0524	-0.3862	-0.6322	-0.1148	-0.2269

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data FHSTMFQ	FET	For Monthly Allocation date	HDD
May-09	47.34	May-15	49.72					May-09	6.71
Jun-09	134.70	Jun-15	49.69					Jun-09	2.10
Jul-09	96.68	Jul-15	22.90					Jul-09	0.19
Aug-09	16.21	Aug-15	7.16					Aug-09	0.10
Sep-09	16.60	Sep-15	8.77					Sep-09	3.03
Oct-09	21.03	Oct-15	50.84					Oct-09	12.77
Nov-09	102.55	Nov-15	57.52					Nov-09	15.80
Dec-09	17.16	Dec-15	62.72					Dec-09	31.84
Jan-10	103.72	Jan-16	150.02					Jan-10	35.68
Feb-10	110.82	Feb-16	155.88					Feb-10	31.79
Mar-10	121.46	Mar-16	159.41					Mar-10	19.61
Apr-10	55.55	Apr-16	39.18					Apr-10	11.13
May-10	43.88	May-16	27.13					May-10	3.90
Jun-10	25.62	Jun-16	27.15					Jun-10	0.53
Jul-10	8.84	Jul-16	12.68					Jul-10	0.00
Aug-10	16.86	Aug-16	3.91					Aug-10	0.06
Sep-10	11.60	Sep-16	4.79					Sep-10	1.03
Oct-10	14.43	Oct-16	27.74					Oct-10	9.45
Nov-10	33.85	Nov-16	31.38					Nov-10	20.07
Dec-10	31.45	Dec-16	34.22					Dec-10	33.65
Jan-11	87.82							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 34EN
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Jan-05	27	Jan-11	22
Feb-05	27	Feb-11	22
Mar-05	28	Mar-11	25
Apr-05	28	Apr-11	25
May-05	27	May-11	25
Jun-05	27	Jun-11	25
Jul-05	27	Jul-11	25
Aug-05	27	Aug-11	26
Sep-05	23	Sep-11	27
Oct-05	23	Oct-11	27
Nov-05	24	Nov-11	27
Dec-05	24	Dec-11	27
Jan-06	25	Jan-12	24
Feb-06	25	Feb-12	24
Mar-06	24	Mar-12	24
Apr-06	24	Apr-12	24
May-06	24	May-12	24
Jun-06	24	Jun-12	24
Jul-06	24	Jul-12	24
Aug-06	23	Aug-12	24
Sep-06	25	Sep-12	24
Oct-06	24	Oct-12	24
Nov-06	24	Nov-12	24
Dec-06	24	Dec-12	24
Jan-07	26	Jan-13	24
Feb-07	26	Feb-13	24
Mar-07	26	Mar-13	24
Apr-07	26	Apr-13	24
May-07	26	May-13	24
Jun-07	27	Jun-13	24
Jul-07	27	Jul-13	24
Aug-07	27	Aug-13	24
Sep-07	26	Sep-13	24
Oct-07	26	Oct-13	24
Nov-07	28	Nov-13	24
Dec-07	28	Dec-13	24
Jan-08	29	Jan-14	24
Feb-08	29	Feb-14	24
Mar-08	29	Mar-14	24
Apr-08	29	Apr-14	24
May-08	28	May-14	24
Jun-08	28	Jun-14	24
Jul-08	28	Jul-14	24
Aug-08	28	Aug-14	24
Sep-08	22	Sep-14	24
Oct-08	22	Oct-14	24

Year	Economic Data Year End Customers
2005	24
2006	24
2007	28
2008	22
2009	21
2010	24
2011	27
2012	24
2013	24
2014	24
2015	24

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 34EN
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	22	Nov-14	24
Dec-08	22	Dec-14	24
Jan-09	22	Jan-15	24
Feb-09	22	Feb-15	24
Mar-09	22	Mar-15	24
Apr-09	22	Apr-15	24
May-09	22	May-15	24
Jun-09	22	Jun-15	24
Jul-09	22	Jul-15	24
Aug-09	22	Aug-15	24
Sep-09	19	Sep-15	24
Oct-09	19	Oct-15	24
Nov-09	21	Nov-15	24
Dec-09	21	Dec-15	24
Jan-10	22	Jan-16	24
Feb-10	22	Feb-16	24
Mar-10	22	Mar-16	24
Apr-10	22	Apr-16	24
May-10	22	May-16	24
Jun-10	22	Jun-16	24
Jul-10	22	Jul-16	24
Aug-10	22	Aug-16	24
Sep-10	23	Sep-16	24
Oct-10	23	Oct-16	24
Nov-10	24	Nov-16	24
Dec-10	24	Dec-16	24
Jan-11	22		

Year	Year End Customers	Economic Data

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 34EN
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.1685	SSE=	1.21E+02	
Par (X)=P1*X+P2	X=		NGdivFO		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-114.7	(-369.2,	139.8)	
p2	=	33.09	(7.189,	58.98)	

Slope Model

GOF:	R-Square=	0.5832	SSE=	3.87E-01	
Par (X)=P1*X+P2	X=		FET		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.0173	(-0.03191,	-0.002688)	
p2	=	15.66	(5.648,	25.66)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.0563	0.1048	0.0831	0.1648	-0.1914	0.02	0.0446	-0.0183	-0.0336	-0.2717	-0.1254	-0.0115

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day
Jan-05	149.15	Jan-11	191.82
Feb-05	147.67	Feb-11	229.42
Mar-05	117.22	Mar-11	155.11
Apr-05	69.31	Apr-11	143.71
May-05	49.78	May-11	64.30
Jun-05	20.97	Jun-11	17.32
Jul-05	16.52	Jul-11	16.48
Aug-05	17.03	Aug-11	19.58
Sep-05	25.46	Sep-11	26.10
Oct-05	48.48	Oct-11	50.53
Nov-05	81.46	Nov-11	172.61
Dec-05	128.07	Dec-11	164.05
Jan-06	116.16	Jan-12	157.31
Feb-06	131.19	Feb-12	180.95
Mar-06	102.14	Mar-12	140.13
Apr-06	67.11	Apr-12	105.45
May-06	36.52	May-12	49.95
Jun-06	19.27	Jun-12	23.28
Jul-06	15.99	Jul-12	16.83
Aug-06	17.46	Aug-12	18.77
Sep-06	23.89	Sep-12	23.64
Oct-06	31.19	Oct-12	48.66
Nov-06	84.07	Nov-12	108.25
Dec-06	103.82	Dec-12	167.10
Jan-07	101.42	Jan-13	145.56
Feb-07	160.76	Feb-13	170.78
Mar-07	138.17	Mar-13	117.15
Apr-07	79.96	Apr-13	85.01
May-07	18.13	May-13	52.06
Jun-07	18.09	Jun-13	20.55
Jul-07	18.38	Jul-13	14.67
Aug-07	18.34	Aug-13	16.87
Sep-07	18.71	Sep-13	22.41
Oct-07	31.97	Oct-13	45.02
Nov-07	75.18	Nov-13	111.91
Dec-07	132.59	Dec-13	168.04
Jan-08	137.73	Jan-14	126.29
Feb-08	157.86	Feb-14	147.19
Mar-08	129.07	Mar-14	104.75
Apr-08	115.37	Apr-14	80.13
May-08	58.06	May-14	41.49
Jun-08	60.25	Jun-14	15.78
Jul-08	37.54	Jul-14	12.29
Aug-08	39.68	Aug-14	14.05
Sep-08	64.81	Sep-14	18.78
Oct-08	32.91	Oct-14	36.90
Nov-08	40.43	Nov-14	96.81
Dec-08	90.30	Dec-14	128.70
Jan-09	141.08	Jan-15	111.21
Feb-09	150.54	Feb-15	130.90
Mar-09	159.79	Mar-15	93.75
Apr-09	137.00	Apr-15	70.45

Year	Annual Use Per Dth/MC/Day	Economic Data NGdivFO	FET
2005	871.12	0.14	716.32
2006	748.81	0.09	719.16
2007	811.70	0.14	717.87
2008	964.01	0.09	703.85
2009	917.32	0.09	670.23
2010	988.75	0.08	657.79
2011	1,251.04	0.09	665.74
2012	1,040.32	0.09	684.84
2013	970.02	0.09	697.95
2014	823.17	0.08	718.51
2015	737.53	0.08	735.11

date	For Monthly Allocation HDD
Jan-05	37.32
Feb-05	33.43
Mar-05	29.94
Apr-05	14.93
May-05	11.35
Jun-05	1.40
Jul-05	0.19
Aug-05	0.00
Sep-05	1.30
Oct-05	10.35
Nov-05	18.90
Dec-05	32.39
Jan-06	27.61
Feb-06	33.14
Mar-06	25.71
Apr-06	14.23
May-06	7.00
Jun-06	1.27
Jul-06	0.00
Aug-06	0.16
Sep-06	2.57
Oct-06	11.03
Nov-06	15.57
Dec-06	24.13
Jan-07	30.58
Feb-07	37.68
Mar-07	26.61
Apr-07	18.03
May-07	5.74
Jun-07	1.10
Jul-07	0.00
Aug-07	0.26
Sep-07	1.27
Oct-07	6.55
Nov-07	22.07
Dec-07	32.03
Jan-08	31.35
Feb-08	31.86
Mar-08	25.23
Apr-08	13.47
May-08	7.32
Jun-08	0.63
Jul-08	0.00
Aug-08	0.06
Sep-08	2.40
Oct-08	12.61
Nov-08	22.17
Dec-08	29.48
Jan-09	40.81
Feb-09	32.11
Mar-09	27.32
Apr-09	15.45

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 34EN
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	0.1685	SSE=	1.21E+02	
Par (X)=P1*X+P2	X=		NGdivFO		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-114.7	(-369.2,	139.8)	
p2	=	33.09	(7.189,	58.98)	

Slope Model

GOF:	R-Square=	0.5832	SSE=	3.87E-01	
Par (X)=P1*X+P2	X=		FET		
Coefficients	(with	95%	confidence	bounds):	
p1	=	-0.0173	(-0.03191,	-0.002688)	
p2	=	15.66	(5.648,	25.66)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.0563	0.1048	0.0831	0.1648	-0.1914	0.02	0.0446	-0.0183	-0.0336	-0.2717	-0.1254	-0.0115

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data NGdivFO	Economic Data FET	For Monthly Allocation date	For Monthly Allocation HDD
May-09	25.18	May-15	37.33					May-09	6.71
Jun-09	26.13	Jun-15	15.92					Jun-09	2.10
Jul-09	16.28	Jul-15	11.32					Jul-09	0.19
Aug-09	17.21	Aug-15	12.85					Aug-09	0.10
Sep-09	25.57	Sep-15	17.27					Sep-09	3.03
Oct-09	53.67	Oct-15	33.92					Oct-09	12.77
Nov-09	55.20	Nov-15	82.66					Nov-09	15.80
Dec-09	109.66	Dec-15	119.95					Dec-09	31.84
Jan-10	144.06	Jan-16	130.57					Jan-10	35.68
Feb-10	164.91	Feb-16	148.32					Feb-10	31.79
Mar-10	87.65	Mar-16	109.86					Mar-10	19.61
Apr-10	54.93	Apr-16	54.36					Apr-10	11.13
May-10	44.52	May-16	28.73					May-10	3.90
Jun-10	22.18	Jun-16	12.59					Jun-10	0.53
Jul-10	22.06	Jul-16	8.69					Jul-10	0.00
Aug-10	22.22	Aug-16	9.87					Aug-10	0.06
Sep-10	25.32	Sep-16	13.91					Sep-10	1.03
Oct-10	50.05	Oct-16	26.24					Oct-10	9.45
Nov-10	116.35	Nov-16	63.66					Nov-10	20.07
Dec-10	234.50	Dec-16	92.02					Dec-10	33.65
Jan-11	229.80							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3421
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts			Economic Data
date		date		Year	Year End Customers
Jan-05	0	Jan-11	5	2005	1
Feb-05	0	Feb-11	5	2006	1
Mar-05	0	Mar-11	5	2007	1
Apr-05	0	Apr-11	5	2008	1
May-05	1	May-11	5	2009	4
Jun-05	1	Jun-11	5	2010	5
Jul-05	1	Jul-11	5	2011	3
Aug-05	1	Aug-11	3	2012	5
Sep-05	1	Sep-11	3	2013	5
Oct-05	1	Oct-11	3	2014	5
Nov-05	1	Nov-11	3	2015	5
Dec-05	1	Dec-11	3		
Jan-06	1	Jan-12	5		
Feb-06	1	Feb-12	5		
Mar-06	1	Mar-12	5		
Apr-06	1	Apr-12	5		
May-06	1	May-12	5		
Jun-06	1	Jun-12	5		
Jul-06	1	Jul-12	5		
Aug-06	1	Aug-12	5		
Sep-06	1	Sep-12	5		
Oct-06	1	Oct-12	5		
Nov-06	1	Nov-12	5		
Dec-06	1	Dec-12	5		
Jan-07	1	Jan-13	5		
Feb-07	1	Feb-13	5		
Mar-07	1	Mar-13	5		
Apr-07	1	Apr-13	5		
May-07	1	May-13	5		
Jun-07	1	Jun-13	5		
Jul-07	1	Jul-13	5		
Aug-07	1	Aug-13	5		
Sep-07	1	Sep-13	5		
Oct-07	1	Oct-13	5		
Nov-07	1	Nov-13	5		
Dec-07	1	Dec-13	5		
Jan-08	1	Jan-14	5		
Feb-08	1	Feb-14	5		
Mar-08	1	Mar-14	5		
Apr-08	1	Apr-14	5		
May-08	1	May-14	5		
Jun-08	1	Jun-14	5		
Jul-08	1	Jul-14	5		
Aug-08	1	Aug-14	5		
Sep-08	1	Sep-14	5		
Oct-08	1	Oct-14	5		

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3421
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts				
date		date		Year	Year End Customers	Economic Data
Nov-08	1	Nov-14	5			
Dec-08	1	Dec-14	5			
Jan-09	1	Jan-15	5			
Feb-09	2	Feb-15	5			
Mar-09	2	Mar-15	5			
Apr-09	1	Apr-15	5			
May-09	2	May-15	5			
Jun-09	2	Jun-15	5			
Jul-09	2	Jul-15	5			
Aug-09	2	Aug-15	5			
Sep-09	2	Sep-15	5			
Oct-09	3	Oct-15	5			
Nov-09	4	Nov-15	5			
Dec-09	4	Dec-15	5			
Jan-10	4	Jan-16	5			
Feb-10	4	Feb-16	5			
Mar-10	4	Mar-16	5			
Apr-10	4	Apr-16	5			
May-10	4	May-16	5			
Jun-10	4	Jun-16	5			
Jul-10	4	Jul-16	5			
Aug-10	5	Aug-16	5			
Sep-10	5	Sep-16	5			
Oct-10	5	Oct-16	5			
Nov-10	5	Nov-16	5			
Dec-10	5	Dec-16	5			
Jan-11	5					

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3421
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	n/a	SSE=	1.17E+00	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	0.2799			

Slope Model

GOF:	R-Square=	0.6431	SSE=	1.93E-03	
Par (X)=P1*X+P2		X=	FRTFSQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.04351	(0.01113,	0.07589)	
p2	=	-0.9143	(-1.661,	-0.1678)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.1355	-0.2599	-0.1772	-0.0646	1.0332	2.2884	1.1065	-0.4785	-0.6324	-0.7527	-0.3571	0.1188

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day
Jan-05	0.00	Jan-11	70.77
Feb-05	0.00	Feb-11	107.20
Mar-05	0.00	Mar-11	74.83
Apr-05	0.00	Apr-11	56.93
May-05	67.32	May-11	24.90
Jun-05	16.03	Jun-11	13.44
Jul-05	3.00	Jul-11	13.72
Aug-05	0.10	Aug-11	15.33
Sep-05	0.00	Sep-11	14.31
Oct-05	0.16	Oct-11	46.73
Nov-05	31.80	Nov-11	34.14
Dec-05	108.81	Dec-11	52.21
Jan-06	146.00	Jan-12	107.27
Feb-06	93.39	Feb-12	128.24
Mar-06	125.32	Mar-12	105.84
Apr-06	91.13	Apr-12	74.48
May-06	37.42	May-12	62.17
Jun-06	21.30	Jun-12	16.41
Jul-06	0.00	Jul-12	15.20
Aug-06	0.00	Aug-12	10.96
Sep-06	0.20	Sep-12	16.31
Oct-06	0.00	Oct-12	33.98
Nov-06	32.13	Nov-12	46.30
Dec-06	61.26	Dec-12	176.65
Jan-07	68.42	Jan-13	105.86
Feb-07	117.61	Feb-13	128.73
Mar-07	99.48	Mar-13	102.15
Apr-07	50.03	Apr-13	84.21
May-07	27.52	May-13	48.60
Jun-07	2.40	Jun-13	18.75
Jul-07	0.58	Jul-13	17.59
Aug-07	0.16	Aug-13	11.18
Sep-07	0.10	Sep-13	16.77
Oct-07	0.00	Oct-13	36.37
Nov-07	13.57	Nov-13	42.97
Dec-07	62.58	Dec-13	98.85
Jan-08	85.06	Jan-14	80.25
Feb-08	74.76	Feb-14	106.39
Mar-08	52.84	Mar-14	83.50
Apr-08	48.03	Apr-14	62.18
May-08	24.35	May-14	38.66
Jun-08	7.07	Jun-14	14.88
Jul-08	0.00	Jul-14	13.78
Aug-08	0.00	Aug-14	9.00
Sep-08	0.00	Sep-14	11.89

Year	Annual Use Per Dth/MC/Day	Economic Data TimeConst	FRTFSQ
2005	227.22	2005	23.44
2006	608.16	2006	24.33
2007	442.45	2007	24.57
2008	389.65	2008	23.45
2009	320.19	2009	22.11
2010	450.55	2010	22.96
2011	524.51	2011	24.09
2012	793.81	2012	24.27
2013	712.03	2013	24.31
2014	568.09	2014	24.44
2015	558.81	2015	24.72

For Monthly Allocation date	HDD
Jan-05	37.32
Feb-05	33.43
Mar-05	29.94
Apr-05	14.93
May-05	11.35
Jun-05	1.40
Jul-05	0.19
Aug-05	0.00
Sep-05	1.30
Oct-05	10.35
Nov-05	18.90
Dec-05	32.39
Jan-06	27.61
Feb-06	33.14
Mar-06	25.71
Apr-06	14.23
May-06	7.00
Jun-06	1.27
Jul-06	0.00
Aug-06	0.16
Sep-06	2.57
Oct-06	11.03
Nov-06	15.57
Dec-06	24.13
Jan-07	30.58
Feb-07	37.68
Mar-07	26.61
Apr-07	18.03
May-07	5.74
Jun-07	1.10
Jul-07	0.00
Aug-07	0.26
Sep-07	1.27
Oct-07	6.55
Nov-07	22.07
Dec-07	32.03
Jan-08	31.35
Feb-08	31.86
Mar-08	25.23
Apr-08	13.47
May-08	7.32
Jun-08	0.63
Jul-08	0.00
Aug-08	0.06
Sep-08	2.40

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 3421
Model: Use per Customer (Dth/Customer/Day)

Base Model

GOF:	R-Square=	n/a	SSE=	1.17E+00	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	0.2799			

Slope Model

GOF:	R-Square=	0.6431	SSE=	1.93E-03	
Par (X)=P1*X+P2		X=	FRTFSQ		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.04351	(0.01113,	0.07589)	
p2	=	-0.9143	(-1.661,	-0.1678)	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
alpha:	-0.1355	-0.2599	-0.1772	-0.0646	1.0332	2.2884	1.1065	-0.4785	-0.6324	-0.7527	-0.3571	0.1188

Actual Use Per		Forecasted Use Per		Annual Use Per	Economic Data		For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	TimeConst	FRTFSQ	date	HDD
Oct-08	11.29	Oct-14	33.56					Oct-08	12.61
Nov-08	32.47	Nov-14	31.02					Nov-08	22.17
Dec-08	53.77	Dec-14	82.99					Dec-08	29.48
Jan-09	70.90	Jan-15	79.04					Jan-09	40.81
Feb-09	46.77	Feb-15	99.56					Feb-09	32.11
Mar-09	35.65	Mar-15	78.80					Mar-09	27.32
Apr-09	13.27	Apr-15	59.80					Apr-09	15.45
May-09	34.69	May-15	39.90					May-09	6.71
Jun-09	1.12	Jun-15	13.61					Jun-09	2.10
Jul-09	0.33	Jul-15	12.63					Jul-09	0.19
Aug-09	22.37	Aug-15	8.43					Aug-09	0.10
Sep-09	6.94	Sep-15	12.09					Sep-09	3.03
Oct-09	6.01	Oct-15	28.45					Oct-09	12.77
Nov-09	8.95	Nov-15	32.22					Nov-09	15.80
Dec-09	73.19	Dec-15	94.28					Dec-09	31.84
Jan-10	101.30	Jan-16	124.82					Jan-10	35.68
Feb-10	83.65	Feb-16	151.80					Feb-10	31.79
Mar-10	59.95	Mar-16	124.43					Mar-10	19.61
Apr-10	54.50	Apr-16	40.15					Apr-10	11.13
May-10	27.63	May-16	26.78					May-10	3.90
Jun-10	8.02	Jun-16	9.16					Jun-10	0.53
Jul-10	5.17	Jul-16	8.59					Jul-10	0.00
Aug-10	5.60	Aug-16	5.66					Aug-10	0.06
Sep-10	12.30	Sep-16	8.12					Sep-10	1.03
Oct-10	10.07	Oct-16	19.10					Oct-10	9.45
Nov-10	30.20	Nov-16	21.62					Nov-10	20.07
Dec-10	52.15	Dec-16	63.27					Dec-10	33.65
Jan-11	71.35							Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2496
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts		Economic Data	
date		date		Year	Year End Customers
Jan-05	15	Jan-11	7	2005	20
Feb-05	15	Feb-11	7	2006	16
Mar-05	16	Mar-11	7	2007	10
Apr-05	15	Apr-11	7	2008	13
May-05	15	May-11	7	2009	8
Jun-05	15	Jun-11	7	2010	6
Jul-05	15	Jul-11	7	2011	6
Aug-05	16	Aug-11	8	2012	6
Sep-05	17	Sep-11	7	2013	6
Oct-05	17	Oct-11	7	2014	6
Nov-05	17	Nov-11	6	2015	6
Dec-05	20	Dec-11	6		
Jan-06	19	Jan-12	6		
Feb-06	19	Feb-12	6		
Mar-06	18	Mar-12	6		
Apr-06	18	Apr-12	6		
May-06	17	May-12	6		
Jun-06	15	Jun-12	6		
Jul-06	15	Jul-12	6		
Aug-06	16	Aug-12	6		
Sep-06	15	Sep-12	6		
Oct-06	15	Oct-12	6		
Nov-06	16	Nov-12	6		
Dec-06	16	Dec-12	6		
Jan-07	16	Jan-13	6		
Feb-07	15	Feb-13	6		
Mar-07	16	Mar-13	6		
Apr-07	16	Apr-13	6		
May-07	16	May-13	6		
Jun-07	15	Jun-13	6		
Jul-07	15	Jul-13	6		
Aug-07	11	Aug-13	6		
Sep-07	12	Sep-13	6		
Oct-07	11	Oct-13	6		
Nov-07	10	Nov-13	6		
Dec-07	10	Dec-13	6		
Jan-08	10	Jan-14	6		
Feb-08	10	Feb-14	6		
Mar-08	10	Mar-14	6		
Apr-08	10	Apr-14	6		
May-08	10	May-14	6		
Jun-08	10	Jun-14	6		
Jul-08	10	Jul-14	6		
Aug-08	12	Aug-14	6		
Sep-08	12	Sep-14	6		
Oct-08	14	Oct-14	6		

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2496
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts				
date		date		Year	Year End Customers	Economic Data
Nov-08	13	Nov-14	6			
Dec-08	13	Dec-14	6			
Jan-09	11	Jan-15	6			
Feb-09	10	Feb-15	6			
Mar-09	9	Mar-15	6			
Apr-09	9	Apr-15	6			
May-09	8	May-15	6			
Jun-09	9	Jun-15	6			
Jul-09	10	Jul-15	6			
Aug-09	8	Aug-15	6			
Sep-09	8	Sep-15	6			
Oct-09	8	Oct-15	6			
Nov-09	8	Nov-15	6			
Dec-09	8	Dec-15	6			
Jan-10	6	Jan-16	6			
Feb-10	6	Feb-16	6			
Mar-10	6	Mar-16	6			
Apr-10	5	Apr-16	6			
May-10	7	May-16	6			
Jun-10	8	Jun-16	6			
Jul-10	8	Jul-16	6			
Aug-10	8	Aug-16	6			
Sep-10	8	Sep-16	6			
Oct-10	8	Oct-16	6			
Nov-10	6	Nov-16	6			
Dec-10	6	Dec-16	6			
Jan-11	6					

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2496
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0.9481	SSE=	2.20E-02	
Par (X)=P1*X+P2		X=	PopXDisPersInc		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.0001799	(0.0001379,	0.000222)	
p2	=	-11.38	(-14.95,	-7.807)	

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day
Jan-05	75.65	Jan-11	161.62
Feb-05	80.94	Feb-11	96.14
Mar-05	77.46	Mar-11	110.94
Apr-05	73.97	Apr-11	81.83
May-05	64.37	May-11	66.06
Jun-05	60.88	Jun-11	60.39
Jul-05	48.17	Jul-11	56.27
Aug-05	51.00	Aug-11	41.45
Sep-05	60.02	Sep-11	61.46
Oct-05	58.28	Oct-11	52.77
Nov-05	69.31	Nov-11	80.44
Dec-05	74.24	Dec-11	81.19
Jan-06	58.73	Jan-12	135.43
Feb-06	90.90	Feb-12	108.33
Mar-06	75.36	Mar-12	82.70
Apr-06	61.81	Apr-12	86.90
May-06	52.64	May-12	65.97
Jun-06	79.33	Jun-12	78.62
Jul-06	52.66	Jul-12	75.22
Aug-06	53.34	Aug-12	63.38
Sep-06	70.68	Sep-12	63.04
Oct-06	63.35	Oct-12	48.79
Nov-06	69.73	Nov-12	66.64
Dec-06	82.39	Dec-12	97.96
Jan-07	76.64	Jan-13	151.30
Feb-07	130.35	Feb-13	106.60
Mar-07	91.77	Mar-13	97.76
Apr-07	83.39	Apr-13	84.31
May-07	68.15	May-13	58.14
Jun-07	64.08	Jun-13	77.99
Jul-07	44.54	Jul-13	74.34
Aug-07	50.84	Aug-13	62.63
Sep-07	66.37	Sep-13	64.92
Oct-07	59.03	Oct-13	51.20
Nov-07	56.94	Nov-13	68.22
Dec-07	68.47	Dec-13	110.26
Jan-08	78.91	Jan-14	152.18
Feb-08	99.69	Feb-14	106.62
Mar-08	75.34	Mar-14	99.00
Apr-08	62.45	Apr-14	85.76
May-08	57.74	May-14	64.57
Jun-08	55.32	Jun-14	73.33
Jul-08	54.10	Jul-14	69.53
Aug-08	51.56	Aug-14	58.57
Sep-08	83.93	Sep-14	64.18
Oct-08	85.52	Oct-14	51.82
Nov-08	99.35	Nov-14	69.11
Dec-08	86.57	Dec-14	93.65
Jan-09	67.12	Jan-15	146.77
Feb-09	145.88	Feb-15	108.91
Mar-09	54.56	Mar-15	93.42
Apr-09	77.46	Apr-15	85.99
May-09	124.48	May-15	63.17
Jun-09	85.35	Jun-15	76.93

Year	Annual Use Per Dth/MC/Day	Economic Data PopXDisPersInc
2005	794.30	81,154.71
2006	810.91	82,964.04
2007	860.56	83,321.77
2008	890.48	83,791.49
2009	1,017.55	86,405.94
2010	1,009.89	86,829.92
2011	950.56	87,467.69
2012	972.96	87,037.66
2013	1,007.68	87,287.62
2014	988.34	86,944.72
2015	994.48	87,031.33

date	For Monthly Allocation HDD
Jan-05	37.32
Feb-05	33.43
Mar-05	29.94
Apr-05	14.93
May-05	11.35
Jun-05	1.40
Jul-05	0.19
Aug-05	0.00
Sep-05	1.30
Oct-05	10.35
Nov-05	18.90
Dec-05	32.39
Jan-06	27.61
Feb-06	33.14
Mar-06	25.71
Apr-06	14.23
May-06	7.00
Jun-06	1.27
Jul-06	0.00
Aug-06	0.16
Sep-06	2.57
Oct-06	11.03
Nov-06	15.57
Dec-06	24.13
Jan-07	30.58
Feb-07	37.68
Mar-07	26.61
Apr-07	18.03
May-07	5.74
Jun-07	1.10
Jul-07	0.00
Aug-07	0.26
Sep-07	1.27
Oct-07	6.55
Nov-07	22.07
Dec-07	32.03
Jan-08	31.35
Feb-08	31.86
Mar-08	25.23
Apr-08	13.47
May-08	7.32
Jun-08	0.63
Jul-08	0.00
Aug-08	0.06
Sep-08	2.40
Oct-08	12.61
Nov-08	22.17
Dec-08	29.48
Jan-09	40.81
Feb-09	32.11
Mar-09	27.32
Apr-09	15.45
May-09	6.71
Jun-09	2.10

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2496
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0.9481	SSE=	2.20E-02	
Par (X)=P1*X+P2		X=	PopXDisPersInc		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0.0001799	(0.0001379,	0.000222)	
p2	=	-11.38	(-14.95,	-7.807)	

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data PopXDisPersInc	For Monthly Allocation date	HDD
Jul-09	88.17	Jul-15	73.30				Jul-09	0.19
Aug-09	85.32	Aug-15	61.76				Aug-09	0.10
Sep-09	78.44	Sep-15	64.28				Sep-09	3.03
Oct-09	58.51	Oct-15	50.78				Oct-09	12.77
Nov-09	71.06	Nov-15	68.24				Nov-09	15.80
Dec-09	81.22	Dec-15	100.92				Dec-09	31.84
Jan-10	153.07	Jan-16	128.31				Jan-10	35.68
Feb-10	103.12	Feb-16	91.92				Feb-10	31.79
Mar-10	90.28	Mar-16	81.67				Mar-10	19.61
Apr-10	94.54	Apr-16	94.89				Apr-10	11.13
May-10	24.70	May-16	69.71				May-10	3.90
Jun-10	75.40	Jun-16	84.90				Jun-10	0.53
Jul-10	72.67	Jul-16	80.89				Jul-10	0.00
Aug-10	62.44	Aug-16	68.15				Aug-10	0.06
Sep-10	53.04	Sep-16	70.93				Sep-10	1.03
Oct-10	36.20	Oct-16	56.04				Oct-10	9.45
Nov-10	61.94	Nov-16	75.30				Nov-10	20.07
Dec-10	182.47	Dec-16	111.37				Dec-10	33.65
Jan-11	162.88						Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 24EN
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts	
date		date	
Jan-05	41	Jan-11	64
Feb-05	41	Feb-11	64
Mar-05	40	Mar-11	64
Apr-05	40	Apr-11	65
May-05	41	May-11	66
Jun-05	41	Jun-11	66
Jul-05	41	Jul-11	66
Aug-05	41	Aug-11	66
Sep-05	40	Sep-11	64
Oct-05	40	Oct-11	64
Nov-05	40	Nov-11	65
Dec-05	39	Dec-11	65
Jan-06	40	Jan-12	50
Feb-06	40	Feb-12	50
Mar-06	41	Mar-12	50
Apr-06	41	Apr-12	50
May-06	40	May-12	50
Jun-06	43	Jun-12	50
Jul-06	41	Jul-12	50
Aug-06	43	Aug-12	50
Sep-06	46	Sep-12	50
Oct-06	46	Oct-12	50
Nov-06	46	Nov-12	50
Dec-06	46	Dec-12	50
Jan-07	46	Jan-13	50
Feb-07	47	Feb-13	50
Mar-07	46	Mar-13	50
Apr-07	46	Apr-13	50
May-07	47	May-13	50
Jun-07	49	Jun-13	50
Jul-07	49	Jul-13	50
Aug-07	49	Aug-13	50
Sep-07	53	Sep-13	50
Oct-07	44	Oct-13	50
Nov-07	47	Nov-13	50
Dec-07	49	Dec-13	50
Jan-08	53	Jan-14	50
Feb-08	54	Feb-14	50
Mar-08	53	Mar-14	50
Apr-08	54	Apr-14	50
May-08	54	May-14	50
Jun-08	54	Jun-14	50
Jul-08	55	Jul-14	50
Aug-08	55	Aug-14	50
Sep-08	49	Sep-14	50
Oct-08	49	Oct-14	50

	Economic Data
Year	Year End Customers
2005	39
2006	46
2007	49
2008	49
2009	44
2010	50
2011	65
2012	50
2013	50
2014	50
2015	50

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 24EN
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

date	Actual Monhtly Customer Counts	date	Forecast Monhtly Customer Counts
Nov-08	49	Nov-14	50
Dec-08	49	Dec-14	50
Jan-09	47	Jan-15	50
Feb-09	48	Feb-15	50
Mar-09	48	Mar-15	50
Apr-09	49	Apr-15	50
May-09	49	May-15	50
Jun-09	48	Jun-15	50
Jul-09	47	Jul-15	50
Aug-09	48	Aug-15	50
Sep-09	44	Sep-15	50
Oct-09	44	Oct-15	50
Nov-09	45	Nov-15	50
Dec-09	44	Dec-15	50
Jan-10	44	Jan-16	50
Feb-10	46	Feb-16	50
Mar-10	46	Mar-16	50
Apr-10	48	Apr-16	50
May-10	48	May-16	50
Jun-10	48	Jun-16	50
Jul-10	48	Jul-16	50
Aug-10	48	Aug-16	50
Sep-10	50	Sep-16	50
Oct-10	50	Oct-16	50
Nov-10	50	Nov-16	50
Dec-10	50	Dec-16	50
Jan-11	50		

Year	Year End Customers	Economic Data

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 24EN
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	n/a	SSE=	6.66E+03	
Par (X)=P1*X+P2		X=	PopXDisPersInc		
Coefficients	(with		95% confidence	bounds):	
p1	=		0		
p2	=		204.6		

Actual Use Per		Forecasted Use Per		Annual Use Per		Economic Data	For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	PopXDisPersInc	date	HDD
Jan-05	328.91	Jan-11	246.80	2005	2,939.54	81,154.71	Jan-05	37.32
Feb-05	332.76	Feb-11	270.20	2006	2,453.62	82,964.04	Feb-05	33.43
Mar-05	307.70	Mar-11	232.14	2007	2,469.38	83,321.77	Mar-05	29.94
Apr-05	437.78	Apr-11	212.78	2008	2,061.32	83,791.49	Apr-05	14.93
May-05	208.24	May-11	173.79	2009	2,493.61	86,405.94	May-05	11.35
Jun-05	186.11	Jun-11	185.47	2010	2,455.32	86,829.92	Jun-05	1.40
Jul-05	164.81	Jul-11	163.11	2011	2,445.36	87,467.69	Jul-05	0.19
Aug-05	156.21	Aug-11	183.42	2012	2,570.93	87,037.66	Aug-05	0.00
Sep-05	181.05	Sep-11	180.95	2013	2,648.60	87,287.62	Sep-05	1.30
Oct-05	196.41	Oct-11	177.00	2014	2,626.69	86,944.72	Oct-05	10.35
Nov-05	203.71	Nov-11	209.67	2015	2,647.40	87,031.33	Nov-05	18.90
Dec-05	235.86	Dec-11	210.04				Dec-05	32.39
Jan-06	231.12	Jan-12	280.76				Jan-06	27.61
Feb-06	245.72	Feb-12	268.34				Feb-06	33.14
Mar-06	225.58	Mar-12	231.13				Mar-06	25.71
Apr-06	186.08	Apr-12	220.13				Apr-06	14.23
May-06	188.61	May-12	172.15				May-06	7.00
Jun-06	166.20	Jun-12	219.18				Jun-06	1.27
Jul-06	201.39	Jul-12	180.62				Jul-06	0.00
Aug-06	148.77	Aug-12	191.60				Aug-06	0.16
Sep-06	202.94	Sep-12	182.90				Sep-06	2.57
Oct-06	154.07	Oct-12	188.43				Oct-06	11.03
Nov-06	254.21	Nov-12	205.39				Nov-06	15.57
Dec-06	248.94	Dec-12	230.30				Dec-06	24.13
Jan-07	204.32	Jan-13	289.81				Jan-07	30.58
Feb-07	268.69	Feb-13	280.23				Feb-07	37.68
Mar-07	263.43	Mar-13	236.23				Mar-07	26.61
Apr-07	213.07	Apr-13	221.39				Apr-07	18.03
May-07	184.83	May-13	181.50				May-07	5.74
Jun-07	169.12	Jun-13	213.12				Jun-07	1.10
Jul-07	178.26	Jul-13	183.81				Jul-07	0.00
Aug-07	166.30	Aug-13	197.99				Aug-07	0.26
Sep-07	183.17	Sep-13	186.75				Sep-07	1.27
Oct-07	221.07	Oct-13	194.56				Oct-07	6.55
Nov-07	161.52	Nov-13	220.99				Nov-07	22.07
Dec-07	255.61	Dec-13	242.20				Dec-07	32.03
Jan-08	253.72	Jan-14	278.29				Jan-08	31.35
Feb-08	149.80	Feb-14	282.44				Feb-08	31.86
Mar-08	115.86	Mar-14	238.56				Mar-08	25.23
Apr-08	174.99	Apr-14	224.25				Apr-08	13.47
May-08	160.01	May-14	181.75				May-08	7.32
Jun-08	137.03	Jun-14	212.42				Jun-08	0.63
Jul-08	143.27	Jul-14	181.50				Jul-08	0.00
Aug-08	134.34	Aug-14	197.31				Aug-08	0.06
Sep-08	178.37	Sep-14	187.75				Sep-08	2.40
Oct-08	236.32	Oct-14	190.81				Oct-08	12.61
Nov-08	139.01	Nov-14	218.01				Nov-08	22.17
Dec-08	238.61	Dec-14	233.60				Dec-08	29.48
Jan-09	289.11	Jan-15	286.07				Jan-09	40.81
Feb-09	298.59	Feb-15	283.30				Feb-09	32.11
Mar-09	230.43	Mar-15	237.90				Mar-09	27.32
Apr-09	209.74	Apr-15	224.38				Apr-09	15.45
May-09	135.33	May-15	180.41				May-09	6.71
Jun-09	224.09	Jun-15	217.33				Jun-09	2.10

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 24EN
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	n/a	SSE=	6.66E+03	
Par (X)=P1*X+P2		X=	PopXDisPersInc		
Coefficients	(with		95% confidence	bounds):	
p1	=		0		
p2	=		204.6		

Actual Use Per		Forecasted Use Per		Annual Use Per		For Monthly Allocation	
date	Dth/MC/Day	date	Dth/MC/Day	Year	Dth/MC/Day	Economic Data PopXDisPersInc	date	HDD
Jul-09	185.00	Jul-15	183.99				Jul-09	0.19
Aug-09	169.53	Aug-15	197.77				Aug-09	0.10
Sep-09	177.59	Sep-15	187.85				Sep-09	3.03
Oct-09	194.61	Oct-15	193.37				Oct-09	12.77
Nov-09	159.00	Nov-15	217.11				Nov-09	15.80
Dec-09	220.58	Dec-15	237.94				Dec-09	31.84
Jan-10	322.24	Jan-16	294.19				Jan-10	35.68
Feb-10	233.89	Feb-16	281.30				Feb-10	31.79
Mar-10	201.91	Mar-16	244.65				Mar-10	19.61
Apr-10	166.78	Apr-16	222.36				Apr-10	11.13
May-10	157.95	May-16	178.78				May-10	3.90
Jun-10	197.74	Jun-16	215.37				Jun-10	0.53
Jul-10	166.56	Jul-16	182.33				Jul-10	0.00
Aug-10	187.26	Aug-16	195.99				Aug-10	0.06
Sep-10	181.33	Sep-16	186.15				Sep-10	1.03
Oct-10	183.47	Oct-16	191.63				Oct-10	9.45
Nov-10	214.35	Nov-16	215.15				Nov-10	20.07
Dec-10	241.84	Dec-16	235.79				Dec-10	33.65
Jan-11	226.12						Jan-11	38.52

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2421
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts		Economic Data	
date		date		Year	Year End Customers
Jan-05	0	Jan-11	8	2005	0
Feb-05	0	Feb-11	7	2006	1
Mar-05	0	Mar-11	7	2007	2
Apr-05	0	Apr-11	7	2008	3
May-05	0	May-11	7	2009	2
Jun-05	0	Jun-11	7	2010	8
Jul-05	0	Jul-11	7	2011	6
Aug-05	0	Aug-11	8	2012	6
Sep-05	0	Sep-11	7	2013	6
Oct-05	0	Oct-11	7	2014	6
Nov-05	0	Nov-11	6	2015	6
Dec-05	0	Dec-11	6		
Jan-06	0	Jan-12	6		
Feb-06	0	Feb-12	6		
Mar-06	0	Mar-12	6		
Apr-06	0	Apr-12	6		
May-06	0	May-12	6		
Jun-06	1	Jun-12	6		
Jul-06	1	Jul-12	6		
Aug-06	1	Aug-12	6		
Sep-06	1	Sep-12	6		
Oct-06	1	Oct-12	6		
Nov-06	1	Nov-12	6		
Dec-06	1	Dec-12	6		
Jan-07	1	Jan-13	6		
Feb-07	1	Feb-13	6		
Mar-07	1	Mar-13	6		
Apr-07	1	Apr-13	6		
May-07	1	May-13	6		
Jun-07	1	Jun-13	6		
Jul-07	1	Jul-13	6		
Aug-07	2	Aug-13	6		
Sep-07	2	Sep-13	6		
Oct-07	2	Oct-13	6		
Nov-07	2	Nov-13	6		
Dec-07	2	Dec-13	6		
Jan-08	2	Jan-14	6		
Feb-08	2	Feb-14	6		
Mar-08	2	Mar-14	6		
Apr-08	2	Apr-14	6		
May-08	2	May-14	6		
Jun-08	2	Jun-14	6		
Jul-08	2	Jul-14	6		
Aug-08	2	Aug-14	6		
Sep-08	2	Sep-14	6		
Oct-08	2	Oct-14	6		

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2421
Model: Customer Counts

GOF R-Square= n/a
Model: constant
Where:

Actual Monhtly Customer Counts		Forecast Monhtly Customer Counts				
date		date		Year	Year End Customers	Economic Data
Nov-08	2	Nov-14	6			
Dec-08	3	Dec-14	6			
Jan-09	4	Jan-15	6			
Feb-09	6	Feb-15	6			
Mar-09	6	Mar-15	6			
Apr-09	5	Apr-15	6			
May-09	5	May-15	6			
Jun-09	5	Jun-15	6			
Jul-09	5	Jul-15	6			
Aug-09	3	Aug-15	6			
Sep-09	3	Sep-15	6			
Oct-09	3	Oct-15	6			
Nov-09	2	Nov-15	6			
Dec-09	2	Dec-15	6			
Jan-10	4	Jan-16	6			
Feb-10	4	Feb-16	6			
Mar-10	5	Mar-16	6			
Apr-10	5	Apr-16	6			
May-10	5	May-16	6			
Jun-10	5	Jun-16	6			
Jul-10	5	Jul-16	6			
Aug-10	5	Aug-16	6			
Sep-10	6	Sep-16	6			
Oct-10	6	Oct-16	6			
Nov-10	7	Nov-16	6			
Dec-10	8	Dec-16	6			
Jan-11	8					

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2421
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0	SSE=	2.43E+01	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	2.663			

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data TimeConst	For Monthly Allocation date	HDD
Jan-05	0.00	Jan-11	84.28	2005	0.00	2005	Jan-05	37.32
Feb-05	0.00	Feb-11	101.43	2006	273.08	2006	Feb-05	33.43
Mar-05	0.00	Mar-11	80.16	2007	606.54	2007	Mar-05	29.94
Apr-05	0.00	Apr-11	85.46	2008	447.06	2008	Apr-05	14.93
May-05	0.00	May-11	63.27	2009	697.56	2009	May-05	11.35
Jun-05	0.00	Jun-11	60.39	2010	639.20	2010	Jun-05	1.40
Jul-05	0.00	Jul-11	49.14	2011	835.45	2011	Jul-05	0.19
Aug-05	0.00	Aug-11	59.13	2012	783.84	2012	Aug-05	0.00
Sep-05	0.00	Sep-11	61.50	2013	883.08	2013	Sep-05	1.30
Oct-05	0.00	Oct-11	51.79	2014	886.79	2014	Oct-05	10.35
Nov-05	0.00	Nov-11	70.58	2015	912.35	2015	Nov-05	18.90
Dec-05	0.00	Dec-11	68.32				Dec-05	32.39
Jan-06	0.00	Jan-12	66.49				Jan-06	27.61
Feb-06	0.00	Feb-12	72.55				Feb-06	33.14
Mar-06	0.00	Mar-12	70.55				Mar-06	25.71
Apr-06	0.00	Apr-12	72.17				Apr-06	14.23
May-06	0.00	May-12	73.13				May-06	7.00
Jun-06	51.20	Jun-12	72.33				Jun-06	1.27
Jul-06	36.71	Jul-12	56.34				Jul-06	0.00
Aug-06	39.03	Aug-12	53.24				Aug-06	0.16
Sep-06	43.80	Sep-12	61.11				Sep-06	2.57
Oct-06	40.23	Oct-12	58.57				Oct-06	11.03
Nov-06	44.57	Nov-12	56.86				Nov-06	15.57
Dec-06	17.55	Dec-12	70.50				Dec-06	24.13
Jan-07	114.97	Jan-13	71.26				Jan-07	30.58
Feb-07	58.86	Feb-13	98.63				Feb-07	37.68
Mar-07	71.55	Mar-13	79.28				Mar-07	26.61
Apr-07	67.93	Apr-13	79.45				Apr-07	18.03
May-07	61.31	May-13	75.82				May-07	5.74
Jun-07	46.43	Jun-13	73.46				Jun-07	1.10
Jul-07	32.03	Jul-13	56.65				Jul-07	0.00
Aug-07	14.40	Aug-13	61.82				Aug-07	0.26
Sep-07	29.43	Sep-13	64.48				Sep-07	1.27
Oct-07	31.84	Oct-13	59.61				Oct-07	6.55
Nov-07	36.77	Nov-13	69.47				Nov-07	22.07
Dec-07	41.02	Dec-13	93.14				Dec-07	32.03
Jan-08	50.85	Jan-14	83.21				Jan-08	31.35
Feb-08	54.53	Feb-14	102.62				Feb-08	31.86
Mar-08	52.63	Mar-14	85.74				Mar-08	25.23
Apr-08	42.90	Apr-14	84.20				Apr-08	13.47
May-08	36.98	May-14	75.42				May-08	7.32
Jun-08	35.68	Jun-14	73.30				Jun-08	0.63
Jul-08	11.65	Jul-14	57.65				Jul-08	0.00
Aug-08	54.66	Aug-14	58.77				Aug-08	0.06
Sep-08	24.28	Sep-14	63.34				Sep-08	2.40
Oct-08	27.97	Oct-14	57.79				Oct-08	12.61
Nov-08	27.97	Nov-14	66.20				Nov-08	22.17
Dec-08	26.95	Dec-14	78.54				Dec-08	29.48
Jan-09	64.04	Jan-15	78.79				Jan-09	40.81
Feb-09	20.81	Feb-15	98.22				Feb-09	32.11

The Narragansett Electric Company d/b/a National Grid
2011 Gas Delivery Forecast Model Specification

Class: 2421
Model: Use per Customer (Dth/Customer/Day)

NH Model

GOF:	R-Square=	0	SSE=	2.43E+01	
Par (X)=P1*X+P2		X=	TimeConst		
Coefficients	(with	95%	confidence	bounds):	
p1	=	0			
p2	=	2.663			

date	Actual Use Per Dth/MC/Day	date	Forecasted Use Per Dth/MC/Day	Year	Annual Use Per Dth/MC/Day	Economic Data TimeConst	For Monthly Allocation date	HDD
Mar-09	39.74	Mar-15	83.99				Mar-09	27.32
Apr-09	51.80	Apr-15	84.15				Apr-09	15.45
May-09	61.00	May-15	80.25				May-09	6.71
Jun-09	63.12	Jun-15	78.40				Jun-09	2.10
Jul-09	50.21	Jul-15	61.07				Jul-09	0.19
Aug-09	53.91	Aug-15	62.03				Aug-09	0.10
Sep-09	81.58	Sep-15	67.56				Sep-09	3.03
Oct-09	84.82	Oct-15	62.99				Oct-09	12.77
Nov-09	70.71	Nov-15	68.62				Nov-09	15.80
Dec-09	55.82	Dec-15	86.28				Dec-09	31.84
Jan-10	35.60	Jan-16	82.55				Jan-10	35.68
Feb-10	85.99	Feb-16	99.36				Feb-10	31.79
Mar-10	47.69	Mar-16	88.00				Mar-10	19.61
Apr-10	51.80	Apr-16	82.36				Apr-10	11.13
May-10	61.00	May-16	78.55				May-10	3.90
Jun-10	58.57	Jun-16	76.74				Jun-10	0.53
Jul-10	42.53	Jul-16	59.77				Jul-10	0.00
Aug-10	56.11	Aug-16	60.72				Aug-10	0.06
Sep-10	44.78	Sep-16	66.13				Sep-10	1.03
Oct-10	42.90	Oct-16	61.66				Oct-10	9.45
Nov-10	44.78	Nov-16	67.16				Nov-10	20.07
Dec-10	67.46	Dec-16	84.45				Dec-10	33.65
Jan-11	84.28						Jan-11	38.52