



# **ANALYSIS OF JOB CREATION from 2013 Expenditures for Energy Efficiency in Rhode Island by National Grid**

Prepared for National Grid

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## Executive Summary

In 2013, National Grid spent a total of \$80,221,280.24 on electric and gas energy efficiency programs and services in Rhode Island. These programs aimed at reducing energy use, saving money for customers, improving the environment, and improving the health, comfort, and safety of homes and businesses. Delivering the 2013 energy efficiency programs required the active involvement of a broad range of workers across a wide array of businesses, including not-for-profits, contractors, plumbers, rebate processors, state agencies, engineering firms, marketing firms, and others.

In order to quantify the number of direct workers involved, National Grid commissioned Peregrine Energy Group, Inc. (Peregrine) to conduct a study of the job impacts of National Grid's energy efficiency programs delivered to Rhode Island electricity and natural gas customers in 2013. Peregrine determined that 544.73 full-time equivalent (FTE) employees had work in 2013 as a result of investments by National Grid in energy efficiency programs provided to its Rhode Island electricity and natural gas customers. Most of the jobs created as a result of energy efficiency investments were local because they were tied to installation of equipment and other materials.

The study identified 814 companies and agencies involved in National Grid's 2013 energy efficiency programs, 78% of which were located in Rhode Island. The companies identified include those whose employees are counted in the FTE analysis, as well as additional companies who assisted customers to secure equipment rebates, for example through the New Construction or High Efficiency HVAC programs. A full list of companies involved in the 2013 Rhode Island energy efficiency programs is included at the end of this report.

These findings confirm that job creation is an additional significant benefit that National Grid's investment in energy efficiency has contributed to Rhode Island's economy and to business owners and their employees that participate in and deliver these programs. One FTE equals 1,760 work hours, or the total of one person working 8 hours a day for 220 work days in an average year. Since a "full-time equivalent" employee often represents the labor of more than one person over the course of a year, the number of individual workers employed as result of Rhode Island energy efficiency programs funded by National Grid is far larger than the total of FTEs.

Employers whose workers were supported by these program included organizations across a broad range of companies involved in energy program design, management and delivery. These include National Grid itself, program design consultants, energy program management specialists, marketing and advertising specialists, equipment manufacturers and suppliers, equipment and appliance retailers, architectural firms and developers, engineers and energy analysts, installation companies and independent contractors, quality assurance inspection



companies, utility rebate processing houses, waste material recyclers, and program evaluators. In addition, Community Action Program agencies under contract to the state Department of Human Services delivered low-income energy efficiency services for the federal Weatherization Assistance Program (WAP).



## Introduction

National Grid commissioned Peregrine Energy Group, Inc. (Peregrine) to conduct a study of the job impacts of National Grid's energy efficiency programs and services delivered to Rhode Island electricity and natural gas customers in 2013. The objective of the research was to count or estimate the number of direct jobs attributable to National Grid's 2013 energy efficiency programs to meet the requirements of General Law 39-2-1.2, enacted by the Rhode Island General Assembly in 2012.

In 2013, National Grid spent a total of \$80,221,280.24 on electric and gas energy efficiency programs in Rhode Island. It is important to note that this funding does not include the customer share of installation costs, finance dollars, or other leveraged funding from the Regional Greenhouse Gas Initiative (RGGI) and the Low Income Heating Assistance Program (LIHEAP).

National Grid's energy efficiency programs focus on delivering cost-effective energy savings to residential customers, low-income residential customers, small and large commercial businesses, and industrial customers in Rhode Island.

While job creation is not a formal goal of energy efficiency, this study illustrates the additional economic benefits that investments in energy efficiency contribute to Rhode Island and to the businesses participating in National Grid's programs. Peregrine was commissioned to find and count the full-time equivalent (FTE) employees engaged in all aspects of National Grid's 2013 energy efficiency programs. Peregrine assumed that one FTE equals 1,760 work hours, or the equivalent of one person working 8 hours a day for 220 work days in an average year.

Unlike the energy savings resulting from these programs that are analyzed, measured, and recorded, the labor component of energy efficiency improvements is only tracked, if it is counted at all, as an expense. Types of employees and number of hours worked to deliver programs and services are not captured, except by employers themselves for payroll and business planning purposes. For this reason, calculating job impacts can be more art than science.

The study's findings were developed through interviews with managers at energy services companies, equipment vendors, and contractors identified by National Grid for Peregrine or identified as sub-contractors by companies that Peregrine interviewed. These companies voluntarily shared information on how they staff their contracts and services and even researched payroll records to provide FTE counts. Where possible, the study names the companies that provided information to Peregrine.

Peregrine also completed a detailed review of National Grid's records of all energy efficiency measures installed in homes, apartment buildings, businesses, and industrial facilities



throughout Rhode Island in 2013. Peregrine then calculated typical labor hours required for each installation, based on industry standards and discussions with the contractors themselves and other experts, and extrapolated total FTE employment using total counts of measures installed.

The report is divided into four primary sections:

1. An Efficiency Workforce Overview that describes the types of companies and workers engaged in providing efficiency program-related services and support in Rhode Island
2. The Delivery Approach used for individual programs
3. Summary Counts of FTEs with observations on their significance
4. Attachments describing Peregrine's methodology in more detail, Peregrine's interview guide, and a listing of companies involved in the 2013 programs.

## Efficiency Workforce Overview

Peregrine recognized two main categories of employers/employees that participated in the delivery of National Grid's energy efficiency programs. These categories are:

1. Program Support Service Providers: those involved in program planning and administration, marketing, rebate processing, and evaluation and market research.
2. Direct Service Providers: those responsible for sales, technical assistance and training, and for supplying and installing approved efficiency measures that National Grid promoted with incentives and rebates.

### Program Support Service Providers

The Program support services provider category included: companies engaged to provide marketing, outreach, public information, and other related support services, including media placement and design of collateral marketing materials; specialized firms processing and paying out rebates offered for purchase and installation of install high efficiency equipment; and, evaluators of the overall performance of and savings associated with National Grid's programs.

### National Grid

National Grid staff in this category included individuals engaged in program design, regulatory matters, administrative management of subcontractors, marketing support, and evaluation activities. Peregrine is reporting National Grid FTEs as a separate category for purposes of this study and not allocating them to specific programs or groups of programs.



### **Support Services Contractors**

Peregrine interviewed the majority of lead vendors who supported National Grid in these activities to obtain information on their roles and responsibilities in program delivery and FTE counts. Often, these FTEs represented the aggregation of a small number of hours by many employees. This was due to the fact that the contractor's role may have been limited in duration and/or required contributions from a multi-disciplinary team. Depending on the nature of the services the vendor provided and whether the support provided could be associated with specific programs, contractor time was allocated according to the overall distribution of Gas and Electric budget dollars by program sector (Residential, Residential Low Income, Commercial and Industrial), or allocated to a specific program sector.

### ***Program Planners and Administrators***

The sub-category is primarily made of Vermont Energy Investment Corporation (VEIC) and its subcontractors Optimal Energy and Energy Futures Group. VEIC served as consultant to Rhode Island's Energy Efficiency and Resource Management Council and was paid for out of system benefits charges and the energy efficiency budget.

### ***Marketers***

Marketing consultants, including Kelliher Samets Volk (KSV) and Gardner Nelson, provided comprehensive marketing campaigns to generate awareness among customers about the breadth of National Grid's energy efficiency programs, campaigns directed at trade allies, or targeted campaigns that focused on specific programs like EnergyWise Residential ("Get House Fit"). Their role included media placement, organizing social media campaigns, and organizing phone messaging.

- KSV identified 11 individuals who touched the Rhode Island marketing account, including a brand manager, project manager, creative director, copywriter, production designer, art director, traffic manager, media director, associate media buyer, media strategist, and brand strategies. These individuals totaled 0.7 FTE in terms of total hours billed to National Grid.
- Gardner Nelson identified 13 individuals with project management, creative, media, and production specialties that were part of their Rhode Island National Grid team. All told, these individuals totaled 1 FTE.

Marketing FTEs were allocated across all programs.

### ***Rebate Processors***

National Grid contacted with Parago, based in Minnesota, to process rebates offered for a variety of energy efficient products. Parago also supported other National Grid programs in



Massachusetts and New York, as well as other clients nationwide. Parago scanned, data-entered, and validated rebate applications, processed payments, and cut and mailed checks. All told, Parago required 2.4 FTEs to support Rhode Island programs, with over 4,000 hours tracked for scanning, data entry, customer service, quality assurance, processing services, reward fulfillment, account management, and technology support.

### **Evaluators**

Contracted firms specializing in utility program evaluation were also paid for out of energy efficiency program funds. These firms included DNV KEMA, Opinion Dynamics, and Cadmus Energy Services. Generally, outside evaluator time was attributed to specific programs and the FTEs associated with those hours added to program totals.

### Direct Service Providers

The Direct Service Providers category was comprised of contractors hired by National Grid to deliver and promote Rhode Island energy efficiency programs, as well as equipment suppliers and installers. This category included, but was not limited to:

- **National Grid account managers** providing outreach and direct technical assistance to customers, particularly for large commercial and industrial retrofits, and new construction;
- **Energy services companies specializing in field services and installation program management** who were engaged by National Grid to deliver programs, providing schedulers, technical specialists, engineers, trades people, project managers, warehouse managers and materials handlers, supervisors, quality assurance inspectors, bookkeepers, and data handlers;
- **Energy services companies** hired by National Grid to engage, support, manage, and coordinate product suppliers and distributors, retail store offerings, and service networks;
- **Electrical and mechanical engineers** employed by contracted consulting firms and dispatched to identify potential projects, quantify savings, and recommend actions that customers should take;
- **Equipment suppliers and installation contractors** providing energy efficient equipment and approved materials across multiple market sectors for National Grid customers.

The role and contributions of these Direct Service Providers is described in detail in the next section.





## Energy Efficiency Program Delivery

This section describes how National Grid's electric and gas energy efficiency programs and services were delivered in 2013.

National Grid's energy efficiency program delivery strategy varied for different market sectors and sub-sectors, based on fuel type, customer rate class, end-use technology, and whether the objective was to affect energy efficiency of current operations or to reduce energy use in new construction.

### Residential Programs

In 2013, National Grid offered a variety of residential programs ranging from home energy audits to rebates for high efficiency appliances and lighting. These programs were designed to reduce energy use by electric and gas customers living in single family dwellings, 2 to 4 unit buildings, and larger multi-family residences. National Grid's residential programs were primarily delivered by contractors that specialized in supporting utility energy efficiency programs. The contractors' role was to educate a range of market players, buyers and sellers, and bring them in line with National Grid's energy efficiency objectives through education, training, and technical support. Information on each program's delivery mechanism is detailed below.

#### **EnergyWise Single Family (gas and electric)**

In 2013, EnergyWise offered customers living in single family (1 to 4 unit) homes a comprehensive assessment of their energy use, followed by recommendations of various ways to improve the energy efficiency of their home.

- Participants in this program received recommendations, technical assistance, and financial assistance to improve building insulation and replace inefficient lighting fixtures, appliances, and thermostats with high efficiency models.
- As part of the energy assessment, contractors installed energy efficient lighting, low-flow showerheads, faucet aerators, smart power strips, and refrigerator brushes.
- After the installation of insulation and heating equipment, quality assurance inspections were provided to confirm that equipment was installed properly.
- The program offered the RI Heat Loan, which provided 0% interest financing to eligible single family customers to support the adoption of recommendations made during the assessment. Customers who live in one to four unit single family residences were eligible for a 0% interest loan of a minimum of \$2,000 up to \$25,000 with terms up to seven years.
- In 2013 the program was extended to homes heated by oil and propane.



**Delivery:**

- National Grid contracted with RISE Engineering, based in Cranston, Rhode Island, to manage the EnergyWise Single Family program. In 2013, RISE employees included: a program manager, office and field staff supervisors, field auditors, field installers and technicians, field inspectors, intake staff and schedulers, warehouse and material management staff, electricians, quality assurance/quality control inspectors, and accounting and contract oversight personnel. In 2013, RISE field staff completed 7,800 audits, resulting in 2,350<sup>1</sup> customers proceeding with weatherization services (i.e. insulation and air sealing).
- As part of EnergyWise Single Family, RISE also helped customers to secure Heat loans to finance the installation of more efficient heating systems, hot water systems, and insulation upgrades. Through 2013, 1,501 loans were secured from private lending institutions, amounting to \$9,208,760<sup>2</sup> in energy efficiency projects.
- In 2013, 29 independent insulation contractors<sup>3</sup> installed the insulation and air-sealing materials recommended by RISE, and independent heating contractors installed heating system components. Each insulation crew chief was BPI-certified.
- RISE received a program management fee for its services for this program that included a fee per audit, a fee per item installed by RISE staff, and a percentage mark-up (i.e. cost plus) on insulation work completed by contractors.

**EnergyWise Multifamily (gas and electric)**

In 2013, EnergyWise Multifamily provided comprehensive energy services to multifamily customers in buildings with five or more units, including energy assessments, incentives for heating and domestic hot water systems, cooling equipment, lighting, and appliances. These same services were offered to market rate and income-eligible multifamily properties. The programmatic approach for serving existing multifamily properties included using a designated primary point-of-contact to manage and coordinate services offered through the full portfolio of National Grid programs, including EnergyWise, Large Commercial Retrofit, Income Eligible Services (i.e. Low Income), and ENERGY STAR® HVAC.

**Delivery:**

RISE Engineering managed the EnergyWise Multifamily program for National Grid. RISE staff included a program manager, a technical services director, field coordinators, field auditors, electricians, and project intake and coordination staff. This same staff was responsible for the

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<sup>1</sup> Source: Peregrine interview with RISE Engineering

<sup>2</sup> Source: Peregrine interview with RISE Engineering

<sup>3</sup> Source: Statistics on 2013 insulation projects provided by National Grid



Income Eligible Multifamily Program described below. A combined 3,700 multifamily units<sup>4</sup> benefited from this program in 2013. RISE staff served as project managers for retrofit projects, meeting with building facility managers, making presentations to condominium boards and owners, and writing work orders and scopes of work (e.g. for air sealing, attic insulation, lighting fixtures, and even replacement refrigerators from retailers for low-income residents).

Independent contractors installed weatherization materials (insulation and air sealing) and heating equipment components. There were eight pre-qualified insulation contractors that bid on this work. This program was coordinated with the Commercial Multi-family program for gas heating systems.

RISE received a program management fee for its services for this program that included a fee per audit, a fee per item installed by RISE staff, and a percentage mark-up (i.e. cost plus) on insulation work completed by contractors.

### **Residential New Construction (gas and electric)**

This program promoted the construction of high-performing energy efficient single family, multifamily, and low-income homes in both 1 to 4 unit buildings and multifamily buildings up to five stories. To that end, it educated builders, developers, housing agencies, tradesmen, designers, and code officials regarding the construction requirements, performance benefits, and costs for such buildings. In 2013, the program adopted a performance-based tier structure with corresponding financial incentives. It also captured savings from the Renovation/Rehabilitation and Deep Energy Retrofit offerings, both of which were pilots during 2012. Incentives paid were based on the percentage of improvement over an established baseline.

Changes driven by the Residential New Construction program improved lifecycle energy performance. This is primarily attributable to better materials selection and improved construction methods. Builders say that the incremental cost of these enhancements are more than offset by faster home sales and fewer call backs to address owner concerns.

### ***Delivery:***

For program year 2013, National Grid contracted with Conservation Services Group (CSG), based in Westborough, Massachusetts, to deliver this program. Staff located at the Westborough office focused on program management, data management, and administrative responsibilities, while field and training personnel were based in Greenwich (Warwick), Rhode Island. Field

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<sup>4</sup>Source: RISE Engineering



personnel provided trainings and reviewed plans submitted by builders and developers. They also modeled proposed buildings and completed inspections that verified and certified that construction practices for participating buildings receiving performance ratings. In 2013, 473 units of housing and homes received HERS ratings<sup>5</sup>.

With approval from National Grid, Peregrine did not include labor hours for this program beyond the program implementation services provided by CSG. While incentives offered by National Grid influence the installation of more efficient materials and products in a new home, such installations do not substantially increase labor hours. The labor needed to construct a high-efficiency home is more or less the same for buildings that meet current code requirements. In addition, new homes would have been built without the intervention and support of the program, even though they would not achieve the same standards for efficiency in their design and function. Therefore, no construction labor component is counted for purposes of this study.

#### **Education Programs (electric)**

The Company promoted energy education to private and public schools and youth groups through the National Energy Education Development (N.E.E.D) Program. This program provided curriculum materials and training to students and teachers in grades K-12.

Funds provided for this effort did not result in any readily identifiable Rhode Island labor activity.

#### **Residential Home Energy Reports (gas and electric)**

National Grid began offering Home Energy Reports (HER) statewide to all residential customers in 2013. The Rhode Island HER program, the first statewide behavior program in the country, used historical energy usage benchmarking and social comparisons to encourage energy efficient behavior in the homes of residential customers. The program provided customers with access to personalized energy usage information and the ability to directly link with National Grid's other residential energy efficiency programs and services.

#### ***Delivery:***

OPower, with offices in Arlington, Virginia, delivered the statewide HER program. Opower developed and distributed data-driven, software-generated reports to residential customers. Opower was also tasked with creating an online engagement platform, documenting savings,

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<sup>5</sup> Source: Conservation Services Group



and working with existing Company systems. OPower is staffed with behavioral scientists, marketing experts, engineers, and software product developers, with support staff, operating in cross-functional teams to develop and deliver these audit reports in Rhode Island and elsewhere across the U.S.

### **Residential Community Based Initiatives (gas and electric)**

This initiative leveraged trusted community partnerships and developed targeted marketing strategies in order to promote all residential (and commercial) energy efficiency programs, in specific, targeted communities (or business sectors).

#### ***Delivery:***

Connecticut-based Smart Power coordinated community-based initiatives, including the Rhode Island Energy Challenge, which encouraged communities to establish energy efficiency goals and take steps to achieve them. The program had a Rhode Island-based manager, supported by operations staff in Connecticut. At the community level, the program enlisted volunteers to promote participation, though these volunteers are not counted for purposes of this study.

### **ENERGY STAR® Lighting (electric)**

ENERGY STAR® Lighting is a point-of-purchase initiative implemented jointly with other regional utilities. It provided discounts to customers for the purchase of ENERGY STAR® compact fluorescent lamps and fixtures and solid state lighting through instant rebates and special promotions at retail stores. A mail-order catalog and online store were also available to customers for lighting purchasing.

#### ***Delivery:***

In 2013, National Grid hired The Cadmus Group of Waltham, Massachusetts to provide diversified marketing assistance and an awareness campaign for this initiative. Cadmus employed a staff of specialists to support this program, as well as the high efficiency appliance program described below. Cadmus, in turn, used sub-contractors to assist with media purchasing, public relations, and social media-oriented strategies.

Lockheed Martin Services, with an office in Marlborough, Massachusetts, was likewise engaged by National Grid to support the residential consumer lighting initiative, providing direct outreach and education to both product retailers and manufacturers, including having a full-time field representative based in Providence to work with retailers statewide.

Massachusetts-based Energy Federation, Inc. provided a product catalogue and online store for National Grid and other regional utilities to promote and supply qualified products and to provide technical assistance to customers. This fulfillment function employed a manager,



required a call center that took orders, and included warehouse personnel serving orders from Rhode Island customers, customers from elsewhere in New England, and nation-wide.

As outlined in the program description, ENERGY STAR® Lighting employed a number of avenues to encourage the purchase of energy efficient lighting to residential customers. Part of this region-wide initiative focused on retail outlets. However, retail outlet employees were not counted for this study since the sale of these products had no discernible incremental effect on store employment (i.e. it primarily resulted in different lighting choices by consumers).

### **ENERGY STAR® Appliances (electric)**

In 2013, ENERGY STAR® Appliances was run in collaboration with other regional utilities to promote the purchase of high efficiency household appliances, including kitchen appliances, and electronics. These appliances carry an ENERGY STAR® label. The program also offered refrigerator recycling, which helped address a significant barrier to purchasing a more efficient refrigerator, while removing non-efficient units from the market, recycling their components, and capturing and properly disposing of refrigerants.

#### ***Delivery:***

As was the case with ENERGY STAR® Lighting, ENERGY STAR® Appliances was primarily a retail-store based initiative. And as with ENERGY STAR® Lighting, the program was supported by The Cadmus Group and their sub-contractors for marketing and increasing consumer awareness, using a range of media and direct outreach strategies.

National Grid and the other regional utilities contracted with JACO Environmental to recycle refrigerators as part of the holistic strategy to encourage the purchase of energy efficient refrigerators. JACO has a regional facility in Franklin, Massachusetts for refrigerator collection, dismemberment, and recycling. JACO employed a local program manager to service the regional program, staffed a large warehouse in Franklin, and had staff dedicated to New England utility customers at its call center in Washington State. JACO employed Appliance Distribution, Inc. as a sub-contractor to pick up discarded refrigerators from customers, using two-person crews to bring them to the Franklin warehouse. In 2013, 6,074 Rhode Island refrigerators and freezers were collected<sup>6</sup>, according to JACO, and an estimated 95% of components of collected appliances were recycled.

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<sup>6</sup> Source: Peregrine interview with JACO



### **ENERGY STAR® HVAC (gas and electric)**

The High-Efficiency HVAC programs (*Gas Heat* [heating] and *CoolSmart* [cooling]) promoted the installation of high efficiency gas heating and electric cooling systems via tiered rebate levels for more efficient technologies including ductless mini-splits, heat pumps, heat pump water heaters, boilers, furnaces, Wi-Fi thermostats, boiler reset controls, and furnaces equipped with high efficiency fans. The program provided in-depth contractor training for design, installation, and testing of high efficiency systems. Furthermore, the program provided quality installation verification training, ensuring that all equipment is properly sized, installed, sealed, and performing.

#### ***Delivery:***

National Grid hired Westborough, Massachusetts-based Conservation Services Group (CSG) to deliver this Program, which included three related initiatives: Cool Smart, the Rhode Island Gas Heat Program, and Commercial Upstream Cooling. Both Cool Smart and RI Gas Heat Program focused on contractors, with Conservation Services Group providing training, technical support, and marketing assistance to help encourage customers to upgrade to higher efficiency systems. Cool Smart also provided quality control inspections. 1,476 Cool Smart rebates<sup>7</sup> were approved in 2013. For Commercial Upstream Cooling, a circuit rider was used to provide field support.

Lockheed Martin Services was also involved in this program, promoting advanced thermostats and energy efficient water heaters to big box home improvement retailers.

### **Income Eligible Residential Programs**

Income Eligible (low-income) programs were offered to National Grid customers in single family (1-4 unit) dwellings and multifamily (5 or more unit) buildings or developments that were eligible for the Low Income Heating Assistance Program (LIHEAP). Because this target audience was already being provided with some energy related assistance through federal and state programs, National Grid's strategy was to complement and support these existing programs. Specific 2013 Low Income Residential Programs, included:

#### **Income Eligible Single Family (gas and electric)**

The Income Eligible Single Family program provided low-income customers with home energy assessments, installation of energy efficient lighting, appliances, heating systems, domestic hot water equipment, and weatherization measures.

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<sup>7</sup> Source: Peregrine interview with Conservation Services Group



***Delivery:***

Income Eligible Single Family was delivered through local Community Action Program (CAP) agencies under contract to the Rhode Island Department of Human Services to deliver federally funded Weatherization Assistance Program (WAP) and the Low Income Heating Assistance Program (LIHEAP). All seven Rhode Island CAP agencies participated in and delivered Single Family Income Eligible Services. They provided three types of building audits: audits focused on lighting and appliances only that installed lighting products, audits providing detailed recommendations and work orders for insulation contractors, heating system installers, and fans; and comprehensive audits that did both. BPI-certified auditors completed building assessments and work orders. Special AMP (appliance management program) auditors installed lights and refrigerator measures.

Independent weatherization contractors installed the insulation and completed air sealing for the CAP agencies. These contractors were selected off a state-approved list and offered fixed pricing statewide for installed measures. Each agency had three to five insulation contractors it typically worked with. The CAP auditing staff inspected completed insulation work post-installation to ensure it was properly installed. Heating system upgrades were put out to bid to heating contractors, and heating contractors also were used for post-installation inspections.

In July 2013, CLEARresult, with offices in Providence, Rhode Island, became the manager of the Income Eligible Residential program, responsible for training, quality control, and oversight of National Grid-funded services and installations delivered through CAP agencies. CLEARresult also served as the conduit for National Grid payments to the CAP agencies. CLEARresult staffing included a program manager, a quality assurance / quality control inspector, and administrative support.

**Income Eligible Multifamily (gas and electric)**

In 2013, the Company consolidated energy efficiency offerings for low-income multifamily properties with five or more units into the Income Eligible Multifamily program. This suite of programs addressed both gas and electric opportunities, which were previously offered as part of EnergyWise or Large Commercial Retrofit. Comprehensive energy services available to these customers included energy assessments, incentives for heating and domestic hot water systems, cooling equipment, lighting and appliances. Services are coordinated with delivery of the EnergyWise Multifamily program, but tracked separately. Additionally, the Residential New Construction program worked with RI Housing, local housing authorities, and developers of income-eligible housing to encourage construction of energy efficient properties.

***Delivery:***

As was the case with EnergyWise Multifamily, RISE Engineering, based in Cranston, Rhode





Island, was the primary point-of-contact to coordinate Income Eligible Multifamily services. RISE staff serve as project managers for retrofit projects, meeting with building facility managers, making presentations to condominium boards and owners, and writing work orders and scopes of work (e.g. for air sealing, attic insulation, lighting fixtures, and even replacement refrigerators from retailers for low-income residents. Independent contractors installed weatherization materials (insulation and air sealing) and heating equipment components.

## Commercial and Industrial Programs

In 2013, National Grid's Commercial and Industrial programs used a range of delivery mechanisms to accomplish National Grid's energy efficiency goals for new construction, retrofit and small business.

### **Small Business Direct Install (electric)**

The Small Business Direct Install program provided direct installation of prescriptive and custom energy efficient lighting, non-lighting retrofit measures, and minor gas efficiency measures. Electric customers with average monthly demand of less than 200 kW were eligible to participate. The customer share of the cost was 30% of the total cost of a retrofit, with the remaining 70% as On Bill Repayment (OBR). The customer could choose to spread its share over a two-year period interest free and be billed monthly for the amortized amount (OBR).

The Direct Install program also included the SBS Coolers sub-program, which provided refrigeration controls and other refrigeration improvements to eligible customers. These measures included fan controls, cooler and freezer door heaters, smart defrost technology, EC motors, night shut off controls for novelty coolers, and LED lighting for refrigerator applications.

### ***Delivery:***

The Direct Install program's lighting and non-refrigeration measures were delivered by RISE Engineering of Cranston, Rhode Island, as the Regional Program Administrator or RPA, and sourced from one product vendor (Monro Distributing). Both RISE and Monro were selected through a competitive bidding process.

RISE had an exclusive contract to provide turnkey installation services to this sub-market, with a formal budget and annual goals. Approximately 1,000 customers participated in 2013<sup>8</sup>. RISE staff included employees responsible for marketing and lead generation and staffing an intake center that was responsible for pre-qualifying potential customers. RISE energy specialists performed

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<sup>8</sup> Source: RISE Engineering

field audits of customers' facilities; data entry staff used completed audits to generate proposals for customers. Audits also resulted in referrals to the Commercial and Industrial Gas Program, described below. RISE also employed Energy Source, LLC, based in Providence, Rhode Island, to assist with lead generation. When a customer accepted a proposal, RISE project managers took over, ensuring that sufficient product was available, issuing that product to installer/electricians, and ultimately closing out the work when the installation was completed. RISE maintained a warehouse for material distribution with warehouse managers and materials handlers. Electricians were a combination of RISE employees and sub-contractor, Superior Electric, employees. Customers could also elect to use their own preferred electrician, and a small number took advantage of this option. RISE also used two HVAC firms as controls subcontractors. Finally, RISE employed back office and accounting staff to service this program. In general, RISE employees supporting this program were salaried or hourly, while subcontractors were paid for installation work on a piece basis.

National Resource Management based in Canton, Massachusetts delivered the SBS Coolers sub-program. Staff included administration and support personnel, sales representatives, and equipment installers.

Veolia ES Technical Solutions LLC, based in West Bridgewater, Massachusetts, was under contract with National Grid in 2013 to recycle the fluorescent lamps and ballasts that were removed and replaced under the Rhode Island Small Business Direct Install program and other National Grid programs. Material to be recycled was packed by installers in packaging provided by Veolia. Each week, Veolia sent a truck to pick up package materials and brought them to the West Bridgewater facility where they were broken down for recycling or appropriate disposal of component parts. In 2013, approximately 70,000 lamps and 42,000 ballasts were brought to West Bridgewater from Rhode Island for recycling. The same facility also recycled lamps and ballasts from all other National Grid programs in New England and New York, as well similar material generated by other New England utilities' energy efficiency programs.

National Grid also hired Competitive Resources, based in Ashland, Massachusetts, to provide quality assurance inspections of small business projects. A total of 557 small business inspections were completed in 2013.<sup>9</sup>

### **Large Commercial Retrofit (electric)**

Large Commercial Retrofit was a comprehensive retrofit program designed to promote the installation of prescriptive and custom configurations of energy efficient electric equipment

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<sup>9</sup>Source: Interview with Competitive Resources

such as lighting, motors, and heating, ventilation and air conditioning (HVAC) systems in existing buildings. All commercial, industrial, and institutional customers were eligible to participate. Participating customers tended to be larger (i.e. having a monthly demand of 200 KW or more) or were pursuing electricity saving measures that were not offered through the Direct Install program. National Grid offered technical assistance to customers to help them identify cost-effective conservation opportunities, and paid incentives to assist with defraying part of the material and labor costs associated with installing energy efficient equipment. Incentives available through this program were often less attractive than through the Direct Install program described above, with customers paying a larger percentage of the installed cost of measures.

***Delivery:***

The Large Commercial Retrofit program was primarily a market-based initiative with no formal program administrator or designated suppliers. Customers chose their own suppliers and installation vendors. National Grid offered technical assistance to customers to help them identifying cost-effective conservation opportunities, and paid rebates to assist in defraying part of the material and labor costs associated with the energy efficient equipment. While there was no lead vendor for the program, National Grid-approved project expeditors pursued, secured, and installed the majority of the lighting projects completed under this program.

Customers that were replacing equipment with more energy efficient technology initiated some of the Large Commercial Retrofit projects. Also, vendors of products and services, including the project expeditors mentioned above, used the program as a means to induce customers to upgrade existing systems to improve energy efficiency or purchase and install qualifying energy efficient equipment. These vendors included general energy contractors and energy services companies, as well as purveyors of energy saving technologies, such as energy management systems, advanced lighting systems, process equipment, combined heat and power projects, HVAC components, etc. The projects also included “custom” applications for incentives for projects that required modeling and special analysis to determine the electricity savings that would result and what level of incentive was justified.

In support of this program, National Grid contracted with consulting engineers who could be assigned at the request of an account manager to assist a customer with identifying potential custom projects and evaluate or model the energy savings that would result, including completing required program applications. In other situations, the customer could propose his own engineer with a scope of work that National Grid might elect to support. Additional like support was available from contracted engineers to witness project commissioning, confirm that the installed measures were operating and performing as anticipated, and ensure that predicted savings would be achieved.

In a similar vein, National Grid contracted with Portland, Oregon-based PECl, through its



Massachusetts office, to offer the Energy Smart Grocer sub-program. Working in 60 kW or larger supermarkets, PECl focused on refrigeration improvement and some lighting. PECl employed auditors and other technical staff to identify and develop refrigeration improvement projects, engage contractors to complete upgrades, provide technical support as needed, and perform quality assurance inspections of installations. In total, 69 projects were completed in 2013.<sup>10</sup>

Competitive Resources Inc. also completed an additional 30 inspections of large commercial retrofit installations.<sup>11</sup>

### **Large Commercial New Construction (electric)**

The Large Commercial New Construction program encouraged energy efficient design and construction practices in new and renovated commercial, industrial, and institutional buildings. The program also promoted the installation of high efficiency equipment in existing facilities during building remodeling and at the time of equipment failure and replacement. The program offered incentives to eliminate or significantly reduce the incremental cost of high efficiency equipment over standard efficiency equipment and provided technical support to assist customers to identify opportunities for incremental efficiency improvement in eligible buildings.

National Grid introduced the Commercial and Industrial Upstream Lighting program in Rhode Island to encourage customers to choose higher efficiency lighting products at the point of purchase. As with other New Construction efforts, the goal of this program is to bring the incremental cost of the more efficient products in line with now-conventional products so customers will opt for high efficiency and another lost opportunity will be avoided.

#### ***Delivery:***

The New Construction program was administered internally by National Grid and provided both technical and design assistance to help customers identify efficiency opportunities in their new building designs and to help them refine their designs to pursue these opportunities. Outside consultants were brought in to assist customers to identify and incorporate energy efficiency solutions into new construction designs and to complete detailed studies that model and quantify energy savings. Commissioning or quality assurance was also offered to ensure that the equipment and systems operated as intended. For purposes of this study, as is the case with Residential New Construction, construction jobs associated with commercial new construction are not being counted. Construction-related employment does not measurably increase in these projects as a result of National Grid's involvement.

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<sup>10</sup> Source: Peregrine interview with PECl

<sup>11</sup> Source: Competitive Resources



The Upstream Lighting program is offered through numbers of distributors of lighting products. No incremental job increases were assumed for distributors as lighting would most likely have been purchased anyway. National Grid hired ECOVA to manage, support, and promote Upstream Lighting. ECOVA engaged manufacturers and calling on distributors. They offered incentives from National Grid to reduce list prices of certain energy efficient products to electrical contractors and businesses, with the goal of transitioning and transforming stocking behavior. ECOVA processed incentives and managed a quality assurance process to ensure that recorded sales were legitimate. National Grid also contracted with Competitive Resources to conduct inspections of five percent of installations (118 purchases) to confirm that product was installed.

### **Commercial and Industrial Gas Programs**

Commercial and Industrial Gas programs supported installation of energy efficient gas heating and water heating systems, certain thermal envelope measures, and custom gas systems in existing buildings and in new construction. The program guidelines for measure eligibility were the same as for the Large Commercial Retrofit program and the New Construction program. Retrofit measures must demonstrate that they will result in added efficiency beyond existing still functional equipment. For new construction or with failed equipment, the “lost opportunity” rules apply. New equipment, to be eligible for incremental incentives, must exceed the efficiency of what codes require. All commercial, industrial, and institutional customers were eligible to participate.

The Commercial and Industrial Gas programs also offered technical assistance to customers to help them identify cost-effective conservation opportunities and paid incentives to assist in defraying part of the material and labor costs associated with the energy efficient equipment. In 2013, a total of 149 retrofit project and 40 new construction projects were completed and closed-out.<sup>12</sup>

#### ***Delivery:***

RISE Engineering also served as National Grid’s Regional Program Administrator for gas programs. RISE employees working on this project included a program manager and project coordinator, mechanical and electrical engineers, field staff performing audits and minor installations, and administrative personnel and support staff.

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<sup>12</sup> Source: RISE Engineering

RISE received leads from a variety of sources, including project expeditors, mechanical contractors, and suppliers of equipment such as steam traps. RISE would then generate a program application and as necessary or appropriate, review the customer proposal or undertake a scoping study. If the project proposed was acceptable (i.e. met National Grid's standards), RISE issued an offer letter to the customer authorizing the project to proceed. Customers had responsibility for arranging for and completing the installation. RISE performed and post-installation inspection and closed out the application so that the rebate could be issued.

## Employment Impacts of National Grid Programs

Peregrine found that an estimated 544.73 full-time equivalent jobs or "FTEs"<sup>13</sup> resulted from National Grid's Rhode Island energy efficiency programs in 2013. The table on the following page summarizes the job impacts of electric and gas energy efficiency programs, by program and by program sector. Program Support Service Provider FTEs have been allocated and integrated into individual program FTE counts and program sector FTE counts based on budgets. Smaller programs with limited FTE counts, including pilots and community initiatives were combined into the category titled "other". Community Action Weatherization Assistance program staff and National Grid staff are counted in the 544.73 total, but are presented separately in the table.

Based on interviews with companies directly involved in the implementation of National Grid's energy efficiency programs and an analysis of field delivery, Peregrine found that the number of individual workers employed as result of Rhode Island energy efficiency programs is far larger than the total FTEs. While we were not able to develop counts of the numbers of individuals participating, many companies, as described in the Energy Efficiency Program Delivery section, employed multiple individuals with specialized skills or discrete roles for only a portion of their annual hours.

For example, National Grid calculated that it had 38.47 FTE employees who worked on Rhode Island energy efficiency programs in 2013. This total is comprised of employees dedicated to Rhode Island, and also included numbers of National Grid employees with system-wide responsibilities and others whose primary responsibilities were in other states and contributed fractionally to the FTE total.

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<sup>13</sup> Peregrine has defined a FTE as 1,760 annual hours of employment (or 220 total days of employment per FTE).



### 2013 Full Time Equivalents by Program

PROGRAMS	2013 SPEND	TOTAL FTES
<b>ELECTRIC PROGRAMS</b>		
<b>COMMERCIAL &amp; INDUSTRIAL (C&amp;I) TOTAL</b>		<b>160.24</b>
Large Commercial New Construction	\$8,708,646	8.69
Large Commercial Retrofit	\$9,943,729	86.97
Small Business Direct Install	\$10,518,679	63.7
Other	\$731,788	0.88
<b>LOW-INCOME RESIDENTIAL TOTAL</b>		<b>23.31</b>
Single family Income Eligible Services	\$5,045,811	18.93
Income Eligible Multifamily	\$1,750,700	4.38
<b>RESIDENTIAL TOTAL</b>		<b>98.93</b>
Energy Wise	\$8,044,953	62.99
EnergyStar Appliances	\$2,041,439	13.45
EnergyWise Multifamily	\$1,726,756	4.32
Home Energy Reports - Residential	\$1,411,770	9.1
Residential New Construction	\$1,380,747	2.98
Energy Star HVAC	\$1,879,491	0.44
Energy Star Lighting	\$5,137,953	3.48
Other	\$2,219,430	2.16
<b>NATURAL GAS PROGRAMS</b>		
<b>COMMERCIAL &amp; INDUSTRIAL (C&amp;I) TOTAL</b>		<b>23.77</b>
Large Commercial New Construction	\$1,833,957	2.96
Small Business Direct Install - Gas	\$114,138	0.63
Large Commercial Retrofit	\$2,923,596	18.35
Commercial & Industrial Multifamily	\$423,992	1.68
Other	\$283,582	0.14
<b>LOW-INCOME RESIDENTIAL TOTAL</b>		<b>18.53</b>
Single family Income Eligible Services	\$1,868,029	14.26
Income Eligible Multifamily	\$1,646,616	4.27
<b>RESIDENTIAL TOTAL</b>		<b>150.78</b>
Energy Star HVAC	\$2,912,489	0.77
Energy Wise	\$4,530,725	145.02
EnergyWise Multifamily	\$580,404	1.67
Home Energy Reports - Residential	\$313,282	2.28
Residential New Construction	\$230,171	0.48
Other	\$239,229	0.55
<b>COMMUNITY ACTION WEATHERIZATION STAFF</b>		<b>30.7</b>
<b>NATIONAL GRID STAFF</b>		<b>38.47</b>
<b>GRAND TOTAL</b>		<b>544.73</b>



For some program service providers, whose business focus is utility program services, the number of FTEs and the number of staff contributing to those counts was almost the same. For example, RISE Engineering was the Regional Program Administrator for many of the largest programs offered in Rhode Island by National Grid, including EnergyWise Single Family and Multifamily, Small Business Direct Install, and the Commercial and Industrial Gas programs. The larger size of these programs enabled RISE to employ full-time staff to serve in specific program roles, such as auditors and inspectors. Also, similarities between staffing needs across multiple programs, e.g. engineering, materials handling, or accounting, allowed RISE to pool staff to provide higher levels of utilization and improved economies. Further, similarities in technical needs between programs, e.g. for electricians, allowed RISE to employ a baseline number of full-time technical specialists, but then supplemented them on an as needed basis with sub-contracted assistance.

As the table shows, the numbers of FTEs attributable to different programs was not necessarily proportionate to the relative size of program budgets. For example, the Large Commercial Retrofit program included a significant installed labor component because the program replaces fully functional equipment. This program had a larger FTE count per total budget compared to Commercial New Construction that includes initiatives like Upstream Lighting, which use incentives to change buyer choices and supplier behaviors, but does not increase labor since that lighting would have been changed out regardless. Likewise, the Residential New Construction program impacts the choice of materials, equipment, and construction techniques, but does not significantly increase amount of labor and time needed to construct the building.

Another factor influencing the number of FTEs associated with a program budget was whether the energy efficiency measures installed, on a per dollar spent basis, were more labor intensive or equipment intensive. For example, the largest proportion of the cost of weatherization to improve thermal performance and reduce air leakage in residential buildings (i.e. for installed insulation and air sealing) is for labor. The weatherization materials (e.g., cellulose insulation, caulking, foam) are simple and inexpensive. Therefore, program budgets that paid for insulation and air sealing resulted in more jobs counted per dollar invested than programs where installed measures were sophisticated, factory-manufactured equipment (e.g., an energy management system) where manufacturing employees are not counted.

A countermending force in terms of job impacts was the desire of all parties involved (regulators, National Grid, and installers) to improve the cost effectiveness of energy saved for each dollar spent. National Grid used a competitive bidding process to secure materials and labor vendors, requiring would be contractors to devise strategies to tighten their belts and budget their workforce cost effectively. Further, contractors were paid on a fixed fee or a performance basis, encouraging them to keep their costs down, not only to be more competitive, but also to maximize margins. Then, once a vendor was selected to deliver a program or perform an installation, unless compensated on an hourly basis, the vendor looked





for ways to maximize worker productivity. Perhaps the best example of this phenomenon is commercial lighting retrofits, where electrical contractors are paid by National Grid on a per unit installed basis, but pay electricians on an hourly basis. The net result is that electrical contractors have developed strategies for deploying teams of qualified electricians (including master electricians, journeyman electricians, and apprentices) that enables them to retrofit or replace lighting in ever decreasing amounts of time, resulting in less labor required overall for each dollar spend to achieve kWh reduction goals.

The last observation, generated as much from interviews with service providers as from the FTE counts, is about economies of scale and the impact it has on service delivery and job impacts in a smaller state like Rhode Island. National Grid provided many of the same programs in Rhode Island as it does in Massachusetts to a larger customer base. National Grid's ability to offer programs in Rhode Island as part of regional collaborations with other utilities, or across multiple states, greatly increases the cost effectiveness of Rhode Island programs, but reduces the number of FTEs that would otherwise be needed. One example of this scenario is found in the implementation of the Residential New Construction program. The program is administered by Conservation Services Group (CSG), which is the lead vendor for this program, and has Rhode Island-based staff that provide field services. However, CSG staff administering this program for Rhode Island also have the same responsibilities in Massachusetts. Those three full-time administrative staff persons only charge 10 percent of their time to the Rhode Island program, bringing the full benefits and expertise of program management without the cost of full-time managers. A number of contractors told Peregrine that they would not have been able to offer services of the same quality and at an acceptable price if they were not also under contract to provide similar services elsewhere in the region.



## Attachment A: Methodologies used for Assessing Employment

### Program Support Service Providers

#### **National Grid**

National Grid gave Peregrine a summary FTE count of its own employees engaged in Rhode Island energy efficiency programs. Responsibilities identified for these employees included program planning and development, program administration, regulatory affairs, marketing, evaluation, and market research. Peregrine is reporting National Grid FTEs as a separate category for purposes of this study and not allocating them to specific programs or groups of programs.

#### **Support Services Contractors**

Peregrine interviewed most of the larger contractors who supported National Grid in these activities, and they described their roles and responsibilities and provided FTE counts. Often, these FTEs represented the aggregation of small numbers of hours by many employees. This was either because the contractor's role was limited in duration and/or required contributions from a multi-disciplinary team. Depending on the nature of the services they provided and whether the support provided could be associated with specific programs, contractor time is allocated according to the overall allocation of Gas and Electric budget dollars by program sector (Residential, Residential Low Income, Commercial and Industrial), or allocated to a specific program sector.

### Direct Service Providers

As noted above, interviews of primary contractors engaged by National Grid to support Rhode Island programs was a major source of information about type and number of personnel involved. Jobs counts reported by interviewed Direct Service Providers was supplemented with calculated FTE job numbers, based on counts of installed ECMs in 2013 by individual programs that were provided to us by National Grid or from other sources and average time (in man-hours or man-days) required for each installation. Where installations were completed by staff whose hours of work was tracked and provided to Peregrine, those numbers were used instead of calculated FTEs.

#### **Residential Programs**

##### ***EnergyWise Single Family***

For the EnergyWise Single Family program, Peregrine spoke with RISE Engineering's program manager who provided an overview of how the program functions and counts of RISE



employees in various roles. RISE provided FTE counts for these staff. RISE was also helpful in sharing some general rules of thumb for how weatherization contractors and heating system installers staff site work. These numbers were borne out by direct interviews with a sample of the insulation installation companies and interviews with community action program supervisors with similar responsibilities for low-income residential services.

We learned that on average, it takes a crew made up of three insulation contractors two days to complete a weatherization job (insulation and air sealing). National Grid provided counts of numbers of insulation jobs completed by each participating insulation contractor, as well as the total number of square feet of insulation installed for Gas customers and for Electric customers. We used the total counts of insulation jobs and the average number of man-days required for each installation to estimate the total number of FTEs (assuming work 220 days per person per year) providing insulation services in 1-4 unit buildings. We then allocated this total number of FTEs to Gas and Electric programs based on the distribution of square foot of insulation installed for Electric customers (generally those heating with oil or propane) and Gas customers (those heating with gas) which is 29%/71%. Finally, we marked up each FTE total by 20% to account for contractor support and management staff.

For heating system installations, we learned that it requires a two-person team around four days on average to remove and replace a heating system. Peregrine secured counts of high efficiency heating systems and related equipment installed in 2013 from Parago Service Corp., which processes the incentives paid out for these installations. Since we had differentiated counts for replacements furnaces and boilers, we assumed that replacement furnaces would take less time to install than hydronic boilers (due to less piping work) and adjusted time estimates accordingly. Residential gas equipment was allocated to the Gas program and residential oil or propane heating equipment was treated as an expense of the Electric program, as are electric heat pump hot water heaters. We multiplied the average number of hours required for an installation by the total number of items installed. The total number of calculated hours was then divided by 1,760 hours to convert it to FTEs, and the FTEs were marked up by 20% to account for contractor support and management staff.

### ***EnergyWise Multifamily Program***

As with the EnergyWise Single Family program, Peregrine interviewed RISE's program manager and was provided with staffing counts. In addition to general program supervision, responsibilities included technical leadership, auditing, field coordination and inspections, and electrical installation work. Again, RISE was able to convert staff counts to FTEs associated with this particular program. As was the case with the EnergyWise Single Family program, Peregrine relied on installation counts from National Grid to determine numbers of individual measures that had been installed by independent insulation contractors and heating contractors in these buildings. And was the case for contractors installing ECMs in 1 to 4 unit buildings, these counts



were multiplied by average times for installations in hours or portions of hours, and the resulting total hour counts were divided by 1,760 hours per FTE to arrive at annual FTE counts.

***Residential New Construction***  
***Residential Home Energy Reports***  
***Residential Community Based Initiatives***  
***ENERGY STAR® HVAC***

The residential programs in this grouping were all funded in 2013 by both residential Gas and Electric budgets. For all of these programs, there was no significant incremental labor impact associated with product installed or purchased. Peregrine generated FTE counts through interviews with individual businesses that provided support services (e.g. marketing assistance, informational mailings, technical assistance and training, quality assurance inspections). These businesses gave Peregrine staffing counts for 2013 from their accounting records. Total FTEs were then allocated to Gas or Electric based on the ratio of dollars in residential gas and electric budgets for each program.

***ENERGY STAR® Lighting***  
***ENERGY STAR® Appliances***

Both of these programs were funded solely through the residential Electric budget. For both programs, there was no significant incremental labor impact associated with amount of product installed or purchased. Peregrine generated FTE counts through interviews with individual businesses that provided support services (e.g. marketing assistance, refrigerator recycling). These businesses gave Peregrine staffing counts for 2013 from their accounting records. Total FTEs were then allocated to the residential Electric budget.

***Low Income Residential Programs***

***Income Eligible Single Family***

FTE counts for this program were developed from direct interviews with CAP agencies that had lead responsibility for providing field services to qualified households. Each agency contacted provided numbers of staff in different roles. These staffing levels were verified by Department of Human Services. National Grid provided the counts of weatherization and heating system installations completed in 2013. CAP agencies provided guidance on contractor crew sizes and installation practices that Peregrine used to calculate FTE installers who did this work for this customer group.



### ***Income Eligible Multifamily***

Peregrine used the same approach to calculating FTEs for the Income Eligible Multifamily program as for the EnergyWise Multifamily program since both programs were administered by RISE Engineering and used the same delivery strategy.

### **Commercial and Industrial Programs**

#### ***Small Business Direct Install***

Peregrine used counts of employees provided in an interview with RISE Engineering, the regional program administrator, to generate FTEs for RISE staff involved in program management and measure installations and for their sub-contractors as well. No actual measure counts and calculated FTEs were used to compile job counts attributable to this program as all workers were accounted for without a piecework analysis.

National Resource Management (NRM) tallied total hours of individual support staff by responsibility. NRM also gave Peregrine average hours required for different types of installations performed, and Peregrine was able to use this information to generate annual FTE's required to install the numbers of measures reported by National Grid for the year.

Similarly, Veolia provided staffing numbers for lamp and ballast recycling services.

#### ***Large Commercial Retrofit (electric)***

As described in the section on energy program delivery, the Large Commercial Retrofit program is the most market based of all Electric programs provided. There is no program administrator under contract to facilitate or organize installation work. Projects were initiated by customers or by businesses that have products or services they are trying to sell. National Grid does provide technical assistance support to customers selectively, in particular where they are developing "custom" solutions that require engineering to determine what needs to be doing and to determine what energy savings will result so appropriate incentive levels can be calculated.

Peregrine relied entirely on National Grids descriptions and counts of technical assistance and installations performed during 2013 to calculate workforce impacts. For technical assistance support provided by engineers under contract to National Grid, Peregrine took the total dollars paid out for this work and calculated how many hours of labor it represented at an assumed \$120 per hour. Total hours were then converted to FTEs.

Installation work performed was treated in a number of ways, depending on how much information was included in the datasets collected by National Grid. The labor cost component of projects is not identified to National Grid for these projects, only total cost. Projects that identified a specific technology group that the project fit into and provided counts of products



installed were the easiest to develop FTE estimates for. Using average installation times provided to us by installation vendors, Peregrine estimated workforce requirements and number of hours or days (for more labor intensive projects) per installation and converted this to FTEs. In doing these calculations, Peregrine did not distinguish between whether the contractor of record for the job was a customer, a general contractor, or an installation contractor. We assumed that installation contractors that were motivated to work as efficiently as possible were doing the installation work.

For larger, more complex custom projects, the energy efficiency project component of the total cost may only be a portion of the total project cost identified in the National Grid database so Peregrine used incentive levels paid out to tease out the total efficiency project cost. This required comparing incentives paid for simple projects and the complex custom projects covered by the program to determine the efficiency project size. Once the size of the efficiency project was determined, we could apply assumptions about the ratios of labor cost to material cost for different technologies and calculate the type and number of labor hours this represented, aggregate the total hours, and convert them to FTEs.

### ***Commercial and Industrial Gas***

The Commercial and Industrial Gas programs were managed for National Grid by RISE Engineering, and Peregrine interviewed RISE to secure counts of RISE employees and FTEs. A variety of contractors installed energy efficiency measures installed. Peregrine used measure counts that National Grid provided to calculate how many FTEs of labor they represented, applying average installation times provided to us by installation vendors, determining how many hours or days were required in aggregate, and converting these hours or days to full-time equivalent jobs.



## Attachment B: Interview Guide

### National Grid RI Labor Study Organization Interviews

Program:

Company:

Location(s) of office(s) providing services and role:

Interviewee/Position/Contact info:

Program overview:

How is program delivered?

Company function (i.e. services provided):

Staff assigned:

Roles	Number / FTE	Compensation (salary, hourly, piece, commission)
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Are there sub-contractors used?

Names	Roles	Compensation type	Contact info
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Are there contractors involved in delivery to NGrid customers?

Names	Roles	Compensation type	Contact info
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Does Program result in increased employment or additional hours for contractors?

Additional comments:



## Attachment C: Participating Companies

The list includes contractors and subcontractors performing work directly for National Grid Energy Efficiency programs in 2013 that were counted in the FTE analysis and additional companies who assisted customers to secure equipment rebates, for example through the New Construction or High Efficiency HVAC programs. The list also includes the Community Action Program agencies and their subcontractors involved with the delivery of the low-income program, whether under National Grid funding or WAP/LIHEAP/ARRA funding.

Of the 814 companies, agencies, contractors and sub-contractors listed here, 637 (78%) are either headquartered in Rhode Island, or have a physical presence in Rhode Island. The list is organized first by state (alphabetically), and then alphabetically by company name. To find the Rhode Island companies, move the first appearance of "RI" in the far right column.

Greenlite	Irvine	CA
HD Supply	San Diego	CA
Search Partner Pro LLC	Oakland	CA
E Source Companies LLC	Boulder	CO
AMS GreenSolutions	Willington	CT
Best Energy Plumbing Heating Air Conditioning	Pawcatuck	CT
Chouinard Mechanical	Pomfret Center	CT
Competitive Resources Inc.	Yalesville	CT
Harrington Plumbing and Heating	Pawcatuck	CT
Home Tronics Lifestyles	Durham	CT
ICON International	Stamford	CT
JKMuir LLC	Durham	CT
Lantern Energy LLC	Norwich	CT
M Deshefy Plumbing LLC	North Stonington	CT
Mystic Plumbing and Heating	Mystic	CT
Self Propelled Scientific	Manchester	CT
Specialty Lighting Group	Centerbrook	CT
Techniart Inc.	Collinsville	CT
Total Refrigeration	West Suffield	CT
WJR Plumbing and Heating LLC	Voluntown	CT
American Council for an Energy-Efficient Economy	Washington	DC
Smartpower	Washington	DC
LED Source	Wellington	FL
Pro Unlimited Inc.	Boca Raton	FL
U Save LED (formerly ComNET)	Boca Raton	FL
Gas Technology Institute	Chicago	IL
Reed Construction Data	Carol Stream	IL
3-D Lighting	Franklin	MA
A & T Plumbing, Heating & Mechanical Co Inc.	North Dartmouth	MA



A&M Electrical Mechanical Inc.	Fall River	MA
Action Inc.	Fall River	MA
Advantage Weatherization	Quincy	MA
American Green Building Services Inc.	Dedham	MA
American Plant Maintenance	Woburn	MA
Andelman & Lelek	Norwood	MA
Anthony F Vieira III Heating and Air Conditioning	Attleboro	MA
Atlantic Power Services Inc.	Seekonk	MA
B2Q Associates Inc.	North Andover	MA
Barnett Heating And Cooling	Fall River	MA
Bruin Corp	North Attleboro	MA
Building Science and Construction	Braintree	MA
Camaras Heating and Conditioning Services	Westport	MA
Champion Resources	Ipswich	MA
Clarence P Rich Plumbing and Heating	Norton	MA
Conservation Services Group Inc.	Westborough	MA
Consigli Construction	Milford	MA
Consolidated Marketing Services	Burlington	MA
Consortium for Energy Efficiency	Boston	MA
Copland Mechanical Services Inc.	Attleboro	MA
Crown Supply Co, Inc. /Crown Electric	Milford	MA
Dan Baron	Seekonk	MA
Dave Silva	South Attleboro	MA
DMI Inc.	Needham	MA
Donald Dalpe Plumbing and Heating	Blackstone	MA
Dooley Heating	Attleboro	MA
Doug Machado	Swansea	MA
DW Smith Plumbing and Heating HVAC	Uxbridge	MA
EEL Lighting	South Chatham	MA
Efficient Tech Lighting Corp	Topsfield	MA
EM Corbeil Inc.	Millville	MA
ENE Systems Inc.	Canton	MA
Energy & Resource Solutions Inc.	North Andover	MA
Energy Federation Inc.	Westborough	MA
Energy Systems Design	Wayland	MA
Enernoc	Boston	MA
Environmental Systems Inc.	Attleboro	MA
FLM Plumbing and Heating	Seekonk	MA
Frank I Rounds	Randolph	MA
Fraunhofer USA	Cambridge	MA
George Obrien Co Inc.	South Dennis	MA
Germain Plumbing and Heating Inc.	Attleboro	MA



Graybar	Boston	MA
IBM Corp	Cambridge	MA
ICF Consulting Inc.	Lexington	MA
ICS Corp	Billerica	MA
Industrial Control Service Corporation	Chelmsford	MA
Insulate 2 Save	Fall River	MA
Interstate Electrical Services	Billerica	MA
J & S Plumbing and Heating Co	Attleboro	MA
JACO Environmental	Franklin	MA
Jalette Plumbing and Heating	Fairhaven	MA
Jaquez General Contractor	Lynn	MA
Jay Sheldons Heating	Seekonk	MA
JCI	Lynnfield	MA
Kaeser Compressor Inc.	South Easton	MA
KCG Energy LLC	Lexington	MA
Kelliher Samets Volk	Boston	MA
KEMA	Burlington	MA
Kyle Dias	Fall River	MA
Larry's Heating and Air Conditioning	Rehoboth	MA
LCI Energy	Ipswich	MA
Lexicon Energy Consulting Inc.	Lexington	MA
Litemor	Norwood	MA
Lockheed Martin Services	Burlington	MA
M Sardinha & Sons Plumbing and Heating Inc.	Fall River	MA
Machs Mechanical	Attleboro	MA
Michael A Muratori Heating and Cooling	Foxboro	MA
Miguel Plumbing and Heating	Swansea	MA
Mike Doucette Plumbing	North Attleboro	MA
MJ Electric Refrigeration LLC	Rehoboth	MA
National Resource Management	Canton	MA
NESCO	Canton	MA
New England Energy Management Inc.	Leominster	MA
New England Weatherization LLC	Attleboro	MA
Nexamp Inc.	Andover	MA
Next Step Living	Boston	MA
NORESCO	Westborough	MA
Northeast Efficiency Supply (NES)	Sutton	MA
Northeast Electrical Distributors	Brockton	MA
Northeast Energy Efficiency Partnerships	Lexington	MA
O'Neill Mechanical Services	Seekonk	MA
Opinion Dynamics Corp	Waltham	MA
Platinum Home Services Inc.	Fall River	MA



Quality Climate Control Inc.	Fall River	MA
R.G. Vanderweil Engineers LLP	Boston	MA
Reilly Electric	South Easton	MA
Renova Lighting System	Mansfield	MA
Retrofit Insulation Inc.	Seekonk	MA
RI Sheet Metal LLC	Rehoboth	MA
Richard Smith Plumbing and Heating	Swansea	MA
Rick Field	Raynham	MA
Ritchie's Insulation	Westport	MA
River Energy Consultants	Fall River	MA
Robert Fickert Plumbing & Heating	Lakeville	MA
Rockingham Electrical Supply	Amesbury	MA
Savio Lighting/TW Lighting	Needham	MA
SourceOne (A Veolia Energy Company)	Boston	MA
Stateline Fuel And Burner Service Inc.	Seekonk	MA
Steam Trap Systems	Amesbury	MA
Steve Dessert The Heating Man	Swansea	MA
Symmes Maini & Mckee Associates	Cambridge	MA
Tendril Networks Inc.	Newton Lower Falls	MA
The Cadmus Group Inc.	Waltham	MA
The Green Engineer Inc.	Concord	MA
The Green Machine Plumbing Heating Mechanical	Woburn	MA
The Heating Man	Rehoboth	MA
Theroux Mechanical	Attleboro	MA
TNZ Energy Consulting Inc.	Stoughton	MA
Triple B Plumbing Inc.	Seekonk	MA
TS Professional HVAC	Attleboro Falls	MA
UTS Energy Engineering	Quincy	MA
Veolia ES Technical Solutions LLC	Boston	MA
Victory Mechanical Services Inc.	Bellingham	MA
WESCO Distributors	Westborough	MA
William Matos Heating	Assonet	MA
Electrical Wholesalers	Stoughton	MA
Boyko Engineering	Gorham	ME
Helgeson Enterprises Inc.	White Bear Lake	MN
Sebesta Blomberg & Associates	Minneapolis	MN
Jacobs Engineering	St. Louis	MO
Exposure Control Technologies	Cary	NC
Ingersol Rand Co	Davidson	NC
Amerlux LLC	Fairfield	NJ
Clear Energy LLC	Bloomfield	NJ
Facility Solutions Group (FSG)	Perth Amboy	NJ



Ideas Agency Inc.	Blairstown	NJ
Gardner Nelson & Partners	New York	NY
Hudson Technologies Company	Pearl River	NY
Impressions ABA Industries	Mineola	NY
Integral Group	New York	NY
L & S Energy Services Inc.	Clifton Park	NY
LED Next Inc.	Westbury	NY
Parsons Brinckerhoff	New York	NY
Ram Marketing	Saint James	NY
Compressed Air Technologies Inc.	Monroe	OH
Questline Inc.	Columbus	OH
SAIC Energy Environment	Oklahoma City	OK
Ecobee Inc.	Toronto	ON
2-Sons Electric	East Providence	RI
A Barber Co	Warwick	RI
A Plus Electric	Rumford	RI
A Plus Plumbing Rooter and Heating Services	Providence	RI
A&C Burner Service/HVAC LLC	East Providence	RI
A&J Electric	Bristol	RI
A&M Compressed Air Products, Inc.	Johnston	RI
A. Perry Plumbing, Heating & Construction	Coventry	RI
A. Plumbing and Heating	East Providence	RI
A.H. Robert Plumbing & Heating	Warwick	RI
AAA Affordable Plumbing	North Providence	RI
Able Air	Pawtucket	RI
Absolute Haitian Corporation	North Kingstown	RI
Accurate Heating and Cooling LLC	Providence	RI
Acorn Maintenance	Warwick	RI
ACR Construction & Management Corp	Johnston	RI
Advance Electrical Corporation	Smithfield	RI
Advanced Burner and Boiler Services	Cumberland	RI
Advanced Comfort Systems Inc.	North Smithfield	RI
Aegis Energy Services	West Warwick	RI
Aero Mechanical Inc.	Providence	RI
Affordable Building & Weatherization	Providence	RI
Affordable Heating & Air Conditioning Services	North Providence	RI
Air Conditioning Services Of New England	Cranston	RI
Air Energy Inc.	West Warwick	RI
Air Masters HVAC Services of NE Inc.	Portsmouth	RI
Air Metalworks Ltd	Carolina	RI
Air Synergy LLC	Providence	RI
Aire Serv Heating & Air Conditioning	Pawtucket	RI



Air-Tech Heating and Air Conditioning	Rumford	RI
AJS Electric LLC	Cranston	RI
Al King	North Kingstown	RI
Albert S Gizzarelli Plumbing and Heating Inc.	Greenville	RI
Albert Ucci	Greenville	RI
Alhambra Building Co.	Warwick	RI
All Energy Services LLC	Pawtucket	RI
All In One Plumbing and Heating Inc.	North Scituate	RI
All Phase Heating Concepts LLC	Woonsocket	RI
All Seasons Heating and Air Inc.	Johnston	RI
All State Plumbing and Heating	Tiverton	RI
Allan Menard Plumbing LLC	Pawtucket	RI
Allen Plumbing and Heating	North Providence	RI
Alliance Energy Solutions	Cumberland	RI
Allied Plumbing and Heating	North Providence	RI
Allstate Electric Inc.	Newport	RI
Alpha Mechanical	East Providence	RI
Al's Plumbing and Heating	West Warwick	RI
Ameresco	Providence	RI
American Development Institute ADI Energy	Warwick	RI
American Heating Plumbing and Sprinkler Inc.	North Providence	RI
American Home Heating and Air Conditioning Inc.	Providence	RI
Amos House Builds	Providence	RI
Anchor Plumbing and Heating Co Inc.	Providence	RI
Anthony Januario Heating Co	Bristol	RI
APB Plumbing and Heating	Cumberland	RI
Applied Energy Engineering & Commissioning	Providence	RI
Apuzzo Plumbing and Heating	North Scituate	RI
AR Heating & Cooling Inc.	Providence	RI
Aramark	Providence	RI
Arden Engineering Constructors LLC	Providence	RI
Arema HVAC	Greenville	RI
Ariza Plumbing and Heating	Providence	RI
Armor Plumbing	Exeter	RI
Arrow Services Group	Warwick	RI
Arthur Desautels Master Pipe Fitter	West Greenwich	RI
Arthur Dipetrillo Plumbing and Heating	Johnston	RI
Arthur Lettieri	Providence	RI
ATC	Cranston	RI
Aten Energy Conservation LLC	Providence	RI
Atlantic Control Systems	Exeter	RI
Atlantic Supply LLC	Coventry	RI



Atlantis Comfort Systems Corp	Smithfield	RI
Atlas Insulation	North Scituate	RI
Autiello Plumbing and Heating LLC	Cranston	RI
Automatic Heating Equipment Inc.	Providence	RI
Automatic Temperature Control	Cranston	RI
Aztec Energy Partners	East Providence	RI
B & M Mechanical Inc.	East Providence	RI
B and B Consumers Natural Gas Service	Woonsocket	RI
B Lachapelle Home Improvements LLC	Lincoln	RI
B Z Electric	Warwick	RI
Barlow Heating LLC	Warwick	RI
Barrington Plumbing and Heating	Barrington	RI
Bay Plumbing Service Inc.	North Kingstown	RI
Baynes Electric	Westerly	RI
Bayside Construction	Jamestown	RI
BC Plumbing & Heating	Pascoag	RI
Beauchemin Design	North Smithfield	RI
Beaver River Heating and Cooling LLC	Wyoming	RI
Behan Bros Inc.	Middletown	RI
Bell and Piasczyk Plumbing and Heating	Narragansett	RI
Beneficial Energy Products Co	Pawtucket	RI
Berard Heating and Plumbing	Warwick	RI
Bermudez Plumbing and Heating	Pawtucket	RI
Bert Gardiner	Charlestown	RI
Bertrand Plumbing Inc.	Pascoag	RI
Bienvenido Rodriguez	Central Falls	RI
Bill Ellis Plumbing and Heating	Johnston	RI
Bill Francis	Barrington	RI
Bill Gardiner Plumbing And Heating LLC	East Providence	RI
Bill Harfst Plumbing and Heating	North Smithfield	RI
Bluestone Energy Services Ltd	Newport	RI
Bob Larisas Plumbing and Heating Inc.	Barrington	RI
Bob Martel Plumbing and Heating	Central Falls	RI
Bobby's Plumbing Inc.	North Providence	RI
Bodell Plumbing and Heating	South Kingstown	RI
Boston E Lab Inc.	Providence	RI
Boucher HVAC Inc.	Wakefield	RI
Brain's Heating Concepts Inc.	Tiverton	RI
Braswells Plumbing and Heating Inc.	North Kingstown	RI
Bristol County Plumbing and Heating LLC	Bristol	RI
Briteswitch LLC	Providence	RI
Bruno & Sons Electric	Providence	RI



BSH Heating and Appliance	Barrington	RI
Buckley Heating and Cooling	Wakefield	RI
Burners Plumbing and Heating Inc.	North Kingstown	RI
Burton Carpentry	Coventry	RI
Butler & Sons Plumbing and Heating Inc.	Providence	RI
BVCAP	Pawtucket	RI
BZ Electric Inc.	Pawtucket	RI
C & K Electric	Providence	RI
C and D Mechanical	Cranston	RI
C.J. Nemes Inc. Plumbing and Heating	Woonsocket	RI
CAAP (Formerly ProCap)	Providence	RI
Cadorette Plumbing and Heating	Slatersville	RI
Cal Supply Company	North Kingstown	RI
Calyx Retrofit LLC	Lincoln	RI
Capitol Plumbing Company	Cumberland	RI
Carbone Plumbing, Heating & Air Conditioning	Johnston	RI
Cardillo Plumbing and Heating	Coventry	RI
Carjon Air Conditioning and Heating	Providence	RI
Carl Pecchia Heating Contractor Inc.	Warwick	RI
Carlo Fossati Plumbing	Greenville	RI
Carousel Industries of North America	Exeter	RI
Carrier Corporation	Providence	RI
Carter Plumbing and Heating Co	Warren	RI
Casanna HVAC	Providence	RI
Cavaco Brothers Plumbing and Heating Inc.	East Providence	RI
CCAP	Cranston	RI
CCMS Lighting Inc.	Providence	RI
Ccorp Construction LLC	Johnston	RI
CD Heating Inc.	Cranston	RI
Cecil Moore	Greene	RI
Central Street Contractors	Central Falls	RI
Century Heating	Smithfield	RI
Cerreto Associates	East Greenwich	RI
Charland Enterprises Inc.	Pawtucket	RI
Charlies Heating LLC	North Kingstown	RI
Cipriano Plumbing and Heating	Wakefield	RI
Clearesult Consulting Inc.	Providence	RI
Climate Air	Warwick	RI
CMAGS HVAC Inc.	Warwick	RI
Cola Plumbing and Heating Inc.	North Kingstown	RI
Coldmasters Temperature Control	Providence	RI
Comfort Zone Inc.	Hopkinton	RI



Commercial Heating Service	Cumberland	RI
Connecticut Controls Corporation	Pawtucket	RI
Conserve-A-Watt	Smithfield	RI
Continental Engineering Inc.	Johnston	RI
Cooper Heating and Cooling LLC	Exeter	RI
Copperline Plumbing and Heating	Coventry	RI
Copy Stedman and Kazounis	Charlestown	RI
Corp Builders Inc.	Tiverton	RI
Creative Plumbing and Heating Inc.	Newport	RI
Crest Managementco Inc.	Exeter	RI
CRM Modular Homes	Johnston	RI
Cross Insulation	Cumberland	RI
Crown Petroleum Plumbing and Heating Inc.	Barrington	RI
Crystal Plumbing and Heating Inc.	Providence	RI
CT Controls	Providence	RI
Cummings Plumbing Co	Coventry	RI
Custom Plumbing and Heating Co	Newport	RI
CW Cummings Plumbing Co	Coventry	RI
D and D Metal Works Inc.	North Providence	RI
D and J Plumbing And Heating Inc.	Carolina	RI
D and V Mechanical Inc.	Westerly	RI
D.F. Pray	West Warwick	RI
Daluz Plumbing and Heating	West Warwick	RI
D'Ambra Construction	Warwick	RI
Damon Insulation	Riverside	RI
Daniel Ledoux	Pawtucket	RI
Daniels Plumbing	East Greenwich	RI
Dante Gonzales	Providence	RI
David Agnew Plumbing	East Providence	RI
David Maxwell	Warwick	RI
David W Bradley Plumbing and Heating Inc.	East Providence	RI
Davidsons Plumbing and Heating	Warwick	RI
De Vivo Plumbing and Heating	North Smithfield	RI
Defusco Restoration and Remodeling	Warwick	RI
Del Grande Inc.	Lincoln	RI
Delekta Plumbing and Heating Co.	Warren	RI
Delta Mechanical Contractors LLC	Warwick	RI
Delta T Distributors	Cranston	RI
Design Built Inc.	Providence	RI
Design Installation Service	West Warwick	RI
Desmarais Plumbing and Heating Inc.	Johnston	RI
DFS Plumbing Services	West Greenwich	RI





DG Plumbing	Cumberland	RI
Digregorio and Sons Inc.	North Kingstown	RI
Dimeo Construction Company	Providence	RI
Dirocco Plumbing Services LLC	North Providence	RI
DJ Medeiros Heating and Pipe Fitting	East Providence	RI
Don Jestings and Son LLC	Middletown	RI
Don Labriole	Coventry	RI
Donovan & Sons Inc.	Middletown	RI
Douglas McIntosh	North Providence	RI
DPS Plumbing and Heating	Hope	RI
Drivers Plumbing and Mechanical Inc.	Providence	RI
DS Plumbing	Coventry	RI
DSL and Sons Heating And Cooling LLC	Bradford	RI
Duff Electric	Providence	RI
Dupuis Energy	Pawtucket	RI
DWI Group	Cranston	RI
Dykeman Electric	Providence	RI
Dynamic Air Systems Inc.	East Providence	RI
E & M Sheet Metal Co	Warwick	RI
E A Marcoux And Son Inc.	Woonsocket	RI
E W Burman	Warwick	RI
E Whitford Plumbing Services	Exeter	RI
E2S Energy Efficiency Services LLC	Providence	RI
Earl Massey Electric	Providence	RI
Eastbay Community Action	Riverside	RI
Eastern Plumbing Co Inc.	North Kingstown	RI
Ecologic Spray Foam Insulation Inc.	Jamestown	RI
Ed Beaudoin Plumbing and Heating	Cranston	RI
Ed Skinner	Warwick	RI
Eddy's Construction	Providence	RI
Edge Services LLC	Cranston	RI
Edward Tomolillo Master Pipe Fitter	North Providence	RI
Emcor Services	Pawtucket	RI
Emery Electrical	Cranston	RI
Enercon Inc.	Cranston	RI
Energy Collaborative (EMC)	Smithfield	RI
Energy Conservation Inc.	South Kingstown	RI
Energy Efficient Exteriors Inc.	Lincoln	RI
Energy Electric Inc.	Providence	RI
Energy Management Collaborative LLC	Cranston	RI
Energy One Southern Mechanical Inc.	Warwick	RI
Energy Only	Cranston	RI



Energy Source	Providence	RI
EPM Plumbing	Woonsocket	RI
Eric A Soares	Middletown	RI
ESCO Energy Services Co.	Newport	RI
Eurotech Climate Systems LLC	Pawtucket	RI
Everett C Brown	North Smithfield	RI
Evergreen Plumbing and Heating Co Inc.	Warwick	RI
EW Burman	Providence	RI
Extreme Electric Inc.	Lincoln	RI
Falcon Hydraulics and Boiler Service	West Kingston	RI
FCI Engineering Group LLC	Providence	RI
Feula P&H	Johnston	RI
Fitzgerald Building and Remodeling	Riverside	RI
Five Star Plumbing and Heating	Johnston	RI
Fleet Plumbing and Heating Inc.	North Scituate	RI
Fletcher Heating	Ashaway	RI
Francis Heating and Hydronics	East Providence	RI
Frank Dimaio Heating LLC	Cranston	RI
Frank Knight Plumbing and Heating	Warwick	RI
Frank Lombardo and Sons	Providence	RI
Franks Plumbing and Heating Inc.	North Kingstown	RI
Fredrick Bailey Enterprises	Johnston	RI
Fressilli Plumbing Inc.	Riverside	RI
Fullport Plumbing and Heating	Rumford	RI
G Hill Plumbing and Heating Fire Protection	Westerly	RI
Gary Pagnozzi Plumbing and Heating	Johnston	RI
Gas Doctor LLC	Cranston	RI
Gas Master Inc.	Little Compton	RI
Gas Pro Inc.	Cumberland	RI
Gas Works	Westerly	RI
Gasman Inc.	Warwick	RI
Gem Air Services Inc.	Warwick	RI
Gem Mechanical Services Inc.	Lincoln	RI
Gerard Levesque Jr Plumbing and Heating	Coventry	RI
Gerster Trane	Providence	RI
Gexpro	Providence	RI
Gilbane Building Company	Providence	RI
Ginos Plumbing	Warwick	RI
Giorno Plumbing and Heating	Cranston	RI
GKT Refrigeration	Pawtucket	RI
Globex Industries	Providence	RI
Grainger Lighting Service	Warwick	RI



Greanseal Insulation	North Kingstown	RI
Green Performance	Greene	RI
Greener U Inc.	Providence	RI
Greenville Insulation Co., Inc.	Smithfield	RI
Greenwich Insulation	Coventry	RI
Greg Greenlaw	Pawtucket	RI
Grentech Energy Services Inc.	Cumberland	RI
Groves Energy	Hope	RI
Guardian Energy Management Solutions	Middleton	RI
Guy Clermont Plumbing And Heating	Cranston	RI
Harmony Design and Construction LLC	Cumberland	RI
Hart Engineering Corp	Narragansett	RI
Haven Plumbing and Heating Co Inc.	Cranston	RI
Hawkes Plumbing and Heating Co Inc.	Chepachet	RI
Heffernan Mechanical Services	Warwick	RI
HF Robinson & Sons Plumbing and Heating	Cranston	RI
HH Heating Complete Heating Systems	Lincoln	RI
Hilgrove Butterfield	Providence	RI
Hill Electrical Serives	Pascoag	RI
Hinckley Allen	Providence	RI
HK Heating Inc.	Greene	RI
Holden Plumbing and Heating Inc.	Foster	RI
Hope Air Systems	Briston	RI
Hope Anchor Plumbing Service	Providence	RI
Horizon Solutions LLC	Smithfield	RI
Houle Plumbing and Heating	Greene	RI
Howards Heating Service	North Kingstown	RI
Huntington Controls	Providence	RI
HVAC Inc.	Cumberland	RI
Ianniello Plumbing and Heating Co	Cranston	RI
Iasimone Plumbing, Heating & Drain Cleaning Inc.	North Providence	RI
Incontrol	Warwick	RI
Industrial Burner Service Inc.	Pawtucket	RI
Interstate Oil and Energy	Johnston	RI
Ironman Heating and Cooling	Riverside	RI
Iroquoian Plumbing and Heating Supplies	Providence	RI
Izzo & Sons Electric	Providence	RI
J & K Supplemental Plumbing Inc.	East Greenwich	RI
J & M Plumbing LLC	Coventry	RI
J Gallant Enterprises LLC	Greenville	RI
J Joyce Plumbing and Heating Inc.	Warwick	RI
JD Electric	West Warrick	RI



JD Mechanical Inc.	Greenville	RI
JD Mello Plumbing and Heating Inc.	Newport	RI
Jed Electric Inc.	North Kingstown	RI
Jeffrey Florio	North Providence	RI
Jenkins Construction Co	Middletown	RI
JH Plumbing And Heating	Foster	RI
Jim Amaral	East Providence	RI
JKL Engineering Co Inc.	Providence	RI
JMAC Plumbing and Heating Inc.	Warwick	RI
JN Jordan Plumbing and Mechanical	Shannock	RI
Joao Carvalheira	Rumford	RI
Joe Chaves Heating and Plumbing	Middletown	RI
Joe Gruttadauria	Johnston	RI
Joe Palombo Plumbing Heating and Cooling	West Kingston	RI
Joe Soave	North Providence	RI
Joe Walsh Contractors	Exeter	RI
John E Jackson	Cumberland	RI
John Lowell	Foster	RI
John Nicholson Mechanical Contractor	North Scituate	RI
John S Babcock Plumbing Heating Unlimited	Ashaway	RI
Johnny's Oil and Heating Inc.	Providence	RI
John's Heating	Riverside	RI
Johnson & Johnson Plumbing and Heating Inc.	Saunderstown	RI
Johnson Controls Lighting Services	Lincoln	RI
Joseph Anthony	Rumford	RI
Joseph Giorno Plumbing and Heating	Cranston	RI
Joubert Heating and Air Conditioning	Warwick	RI
Just Heat	Portsmouth	RI
Kafin Oil Company Inc.	Woonsocket	RI
Kans Plumbing	Bristol	RI
Kens Heating All Your Gas And Oil Needs	Providence	RI
Kesslers Sheet Metal Co Inc.	Cranston	RI
Kevin Barry	Warwick	RI
Kevin Cilley	Westerly	RI
Kevin L Masse	Johnston	RI
KRA Inc.	North Scituate	RI
Kwik Plumbing and Heating Inc.	Johnston	RI
L & F Plumbing LLC	Cranston	RI
L C Contractor Services	Bristol	RI
L&B Remodeling	Warwick	RI
Lakewood Builders	Warwick	RI
Larry Giorgi Plumbing and Heating Inc.	North Providence	RI



Lavin Plumbing And Heating Co	Warren	RI
Lawrence Air Systems Inc.	Barrington	RI
Leddy Electric Inc.	Smithfield	RI
Lemay Framing and Remodeling	North Smithfield	RI
Leveille Electric	Smithfield	RI
Liberty Plumbing and Heating	Jamestown	RI
Lighthouse Contracting Services	Johnston	RI
Lighthouse Propane Inc.	East Greenwich	RI
Lincoln Energy Mechanical Services	West Warwick	RI
Loeb Lighting Services	Warwick	RI
Logan Dowd	Smithfield	RI
Lubera Plumbing	Coventry	RI
Luso Plumbing and Heating Inc.	Cumberland	RI
Lynch Corp	Cumberland	RI
M & G Correia's Plumbing & Heating	East Providence	RI
M Bennett Plumbing and Heating	Charlestown	RI
M Deltufo Plumbing and Heating Inc.	East Greenwich	RI
M Faria Plumbing and Heating	Cranston	RI
Major Electric Supply	West Warwick	RI
Maloney Oil Co Inc.	Pawtucket	RI
Manning Plumbing	Warwick	RI
Marc D Ledoux	North Kingstown	RI
Marcelino Nieves	Pawtucket	RI
Martel Plumbing and Heating	Lincoln	RI
Mastro Electric Supply Co Inc.	Providence	RI
Mastrocinque and Sons	Portsmouth	RI
Matt's Mechanical	Cumberland	RI
Mckee Brothers Oil Corporation	Cumberland	RI
MCL Home Improvement	Johnston	RI
Merit Service LLC	Warwick	RI
Metro Plumbing Co	Foster	RI
Michael Arthur Kowal	Warwick	RI
Michael Freitas Plumbing and Mechanical	Pascoag	RI
Michael Giuffre	West Warwick	RI
Michael Greene	North Kingstown	RI
Michael Petronelli Plumbing and Heating	Johnston	RI
Midstate Heating and Cooling	Hope Valley	RI
Mike Palumbow	Foster	RI
MJF Plumbing and Heating	Bristol	RI
Mlite Associates	Warwick	RI
MMT Home Improvements	Warwick	RI
Morgan Electric	Providence	RI



Morin Plumbing and Heating	Chepachet	RI
Morrair Heating and Air Conditioning	Warwick	RI
Mr. Rooter Plumbing	Warwick	RI
Munro Distributing	Cranston	RI
Murray Plumbing and Heating Inc.	Greenville	RI
Mutual Development Corp.	West Warwick	RI
Mutual Engineering Service Company	Warwick	RI
NALCO	Providence	RI
National Refrigeration Inc.	Warwick	RI
Neil Smith	Providence	RI
New England Insulation	Woonsocket	RI
New England Lighting	Woonsocket	RI
New England Restoration and Construction Services	Exeter	RI
Newbury New England LLC	Westerly	RI
Newport Plumbing and Heating Gas Co	Portsmouth	RI
Nexgen Mechanical Inc.	Warwick	RI
Nexrev Inc.	Middletown	RI
Nicolas Bermudez	Pawtucket	RI
Nightingale Plumbing and Heating	Providence	RI
Nite Oil Company Inc.	Tiverton	RI
Nolin Electric Incorporated	Providence	RI
Norbury Construction	Portsmouth	RI
North Atlantic Heating Inc.	Coventry	RI
Northeast Energy Reduction Corporation	Lincoln	RI
Northeast Noise Abatement	Warwick	RI
Novar	Woonsocket	RI
NRG Electrical Inc.	Harrisville	RI
NRM	Providence	RI
Oceanside Plumbing	Bradford	RI
Oliveira Plumbing and Heating LLC	Smithfield	RI
On The Side HVAC	Cranston	RI
Optimal Energy Inc.	Providence	RI
P & D Heating Inc.	Coventry	RI
Paradise Building and Plastering Co Inc.	Chepachet	RI
Patriot Plumbing Inc.	Coventry	RI
Paul Brassard Master Plumber	North Providence	RI
Paul Parenteau	Warwick	RI
PECI	Portsmouth	RI
Pellegrino Plumbing and Heating	Westerly	RI
Pelletier & Son Plumbing and Heating Inc.	North Kingstown	RI
Percivalle Electric	Warwick	RI
Peregrine Mechanical	East Providence	RI



Perez Plumbing And Heating LLC	Cranston	RI
Pete's Plumbing Inc.	North Smithfield	RI
Petrarca Plumbing and Heating	Warwick	RI
Petro Heating and Air Conditioning Services	Warwick	RI
Petronelli Plumbing and Heating	Johnston	RI
Pezzucco Construction	Cranston	RI
Phil Paul Plumbing and Heating	North Smithfield	RI
Philips Optimum	Warwick	RI
Philips Precision Plumbing LLC	Greene	RI
Phillip M Child Plumbing Heating Refrigeration	Bristol	RI
Phillips Plumbing and Mechanical Inc.	Cranston	RI
Phil's Heating and Air Conditioning	Westerly	RI
Phil's Propane	Tiverton	RI
Pickles Plumbing and Heating LLC	Mapleville	RI
Pinnacle Plumbing and Heating	Greenville	RI
Plumb Perfection	Johnston	RI
Plumbing and Heating Solutions LLC	Providence	RI
Plumbing R US	Newport	RI
Plumbing With Merritt	Warwick	RI
Polaris Plumbing and Heating Inc.	Johnston	RI
Potvin Electric Company	Cranston	RI
Pratt Plumbing and Heating LLC	Harrisville	RI
Precision Power	Woonsocket	RI
Premair HVAC	Warwick	RI
Premier Heating and Cooling	Lincoln	RI
Prism Consulting Inc.	North Kingstown	RI
Pro Plumbing RI	West Warwick	RI
Providence Mechanical Services LLC	Smithfield	RI
R E Coogan Heating Inc.	Warwick	RI
R Ianniello Plumbing And Heating Inc.	Johnston	RI
R W Bruno Heating And Cooling	Lincoln	RI
R.B. Queern & Co., Inc.	Portsmouth	RI
Ralph A DeVivo Jr Plumbing and Heating	North Smithfield	RI
Rawnsley Plumbing and Heating	Exeter	RI
Ray Christopher Plumbing and Heating	Foster	RI
Rayco Electric	Providence	RI
Raymond Degnan	North Providence	RI
Raymond J Reinsant	Lincoln	RI
Reddy Piping Concepts Inc.	Cranston	RI
Regan Heating & Air Conditioning Inc.	Providence	RI
Regency Energy Services	Cranston	RI
Reid & Son Remodeling	Warwick	RI



Reliable Plumbing and Mechanical Inc.	North Providence	RI
Remy Plumbing and Heating Inc.	Warren	RI
Renovate Earth	Westerly	RI
Resendes Heating Services LLC	Coventry	RI
Residential and Commercial Services LLC	Cumberland	RI
Restivos Heating and Air Conditioning	Johnston	RI
Rexel Electric & Datacom Supplies	Providence	RI
RF Heating and Cooling	Exeter	RI
Rhode Island Green Building Council	Providence	RI
Rhody Plumbing	Smithfield	RI
RI Blown In Cellulose Insulation Inc.	Providence	RI
RI HVAC Corporation	Pawtucket	RI
Richard A Lavey	Warren	RI
Richard Migliori	Newport	RI
Rise Engineering	Providence	RI
RJL Construction	Middletown	RI
RK Electric LLC	North Kingstown	RI
RK Plourd	Warwick	RI
Robert Colaluca Plumbing & Heating	Greenville	RI
Robert Dichiaro	Smithfield	RI
Robert Schnaible	Hope	RI
Robinson & Son Heating and Plumbing	East Greenwich	RI
Roger Buteau	Pawtucket	RI
Roger's Electric	Coventry	RI
Roland & Sons	Saunderstown	RI
Roland M Belanger Plumbing and Heating	Pascoag	RI
Ron Lima	Rumford	RI
Rossi Electric Company Inc.	Cranston	RI
RSC Plumbing LLC	Exeter	RI
RSS Installations	Coventry	RI
RST Heating and Air Conditioning	North Kingstown	RI
Ruggieri & Sons Mechanical Services	Richmond	RI
Russell Barron Plumbing	Cranston	RI
RW Bruno Heating and Cooling Inc.	Providence	RI
Ryan Electric	Providence	RI
S B Carbone Plumbing and Heating Company Inc.	Cranston	RI
Sakonnet Plumbing and Heating Inc.	Little Compton	RI
Sal Manzi & Son Plumbing and Heating Inc.	Cranston	RI
Sam Bliven Jr Plumbing and Heating Inc.	Westerly	RI
Santoro Electric Inc.	Warwick	RI
Sarra Engineering	Providence	RI





Sasa Energy LLC	Johnston	RI
Savard Oil Co Inc.	East Providence	RI
Schneider Laboratories	Richmond	RI
Schwagler & Sons Plumbing and Heating Inc.	Slatersville	RI
Scott Santerre	Narragansett	RI
Scott Smith	Riverside	RI
Shamrocks Plumbing	Pawtucket	RI
Shawmut	Providence	RI
Sheridan Electric	East Greenwich	RI
Siemens Industry	Cranston	RI
Sine Plumbing and Heating Co Inc.	East Providence	RI
Size Construction	Cranston	RI
Smalls Plumbing Inc.	Woonsocket	RI
Solar Tint	Warwick	RI
Sosa & Son Plumbing and Heating	Woonsocket	RI
South County Community Action	Wakefield	RI
South County Gas Service	Narragansett	RI
Sparts Plumbing	Rumford	RI
Speedy Plumbing	Johnston	RI
Spencers Plumbing	Warwick	RI
St Angelo Plumbing	Barrington	RI
State Of Rhode Island	Providence	RI
Statewide Insulation & Siding Co	North Smithfield	RI
Stedman & Kazounis Plumbing and Heating	Charlestown	RI
Stephen Freitas Plumbing and Heating	Lincoln	RI
Stephen Larochelle	Cumberland	RI
Steve Dupre Plumbing	Pawtucket	RI
Steve Lascola	Cranston	RI
Sun Plumbing and Heating Co	Chepachet	RI
Sunrise Plumbing And Heating	Johnston	RI
Sunshine Fuels and Energy Services Inc.	Bristol	RI
Sunsystems Inc. Building Co	Narragansett	RI
Super Green Solutions	North Kingstown	RI
Superior Comfort	Bristol	RI
Superior Electric	Warwick	RI
Superior Plumbing And Heating	Cranston	RI
Superior Plus Energy Services	Providence	RI
Supermarket Energy	North Smithfield	RI
Supply New England	Pawtucket	RI
Sustainable Energy Solutions	Providence	RI
Sylvania Lighting Services	Johnston	RI
T & T Plumbing And Heating Inc.	Hope Valley	RI



T A Gardiner Plumbing And Heating Inc.	Bristol	RI
T Gomes Heating and Cooling	Providence	RI
Tasso Plumbing And Heating Co	Middletown	RI
TBK Green Energy Consultants LLC	Providence	RI
TD Delmonico Plumbing	East Providence	RI
Temptec Mechanical	Providence	RI
The Elcon Group Inc./CCMS Lighting Inc.	Providence	RI
The Plumber Company Inc.	Johnston	RI
Thermal Home Energy Solutions	Cranston	RI
Therrien Mechanical Systems	Lincoln	RI
Thielsch Engineering	Cranston	RI
Thomas O'Brien Company LLC	Westerly	RI
Thomas P McGee Plumbing and Heating	North Smithfield	RI
Thomas S Cavaco & Sons LLC	East Providence	RI
Timothy Almonte	Cranston	RI
Todd Delmonico Plumbing	East Providence	RI
Tom Peters Plumbing and Heating Inc.	Portsmouth	RI
Tom Whitaker	Newport	RI
Tom's Plumbing and Heating	Manville	RI
Top Notch Plumbing and Heating	Cranston	RI
Tops Lighting (Electric Supply Company)	Providence	RI
Total Comfort Heating and Cooling	Tiverton	RI
Total Control HVAC LLC	Cranston	RI
TRAC Builders Inc.	Johnston	RI
Travers Plumbing and Heating Incorporated	Portsmouth	RI
Trico Realty & Remodeling	Cranston	RI
Tri-Town Community Action	Johnston	RI
TW Johnston Plumbing and Heating	West Warwick	RI
Tyce Engineering Sales and Leasing	Coventry	RI
UG Nasons Inc.	Middletown	RI
United Mechanical Inc.	Cranston	RI
United Refrigeration Inc.	Providence	RI
Universal Insulation	Providence	RI
V Letizia Plumbing and Heating	Providence	RI
V&L Construction	Providence	RI
Valcourt Heating Inc.	Little Compton	RI
Valley Heating and Cooling Inc.	Hope Valley	RI
Valley Plumbing and Heating	Cumberland	RI
Vaughn Oil Co Inc.	Smithfield	RI
Vicmir And Sons	Riverside	RI
Viking Supply Company	Westerly	RI
Villa Lighting	Middletown	RI



Vivona Plumbing And Heating Inc.	Portsmouth	RI
Wakefield Heating and Service LLC	Wakefield	RI
Waldo Plumbing and Heating LLC	Lincoln	RI
Walker Parking	Providence	RI
Walsh Electric	Cumberland	RI
Warner Appliance Service	North Kingstown	RI
Wayne J Griffin Electric	East Providence	RI
WE Hill Plumbing and Heating Inc.	Bristol	RI
Westbay Community Action	Warwick	RI
Wickford Appliance and Lighting Inc.	Pawtucket	RI
William J Lang	North Scituate	RI
William J Riley Plumbing and Heating	Warwick	RI
William N Harris Inc.	Providence	RI
WLS Lighting Systems Inc.	Lincoln	RI
WM Lamar and Sons Inc.	East Providence	RI
Woods Heating Service	East Providence	RI
World Enerem	Providence	RI
Zawadzki Plumbing and Heating Inc.	Warwick	RI
Zompa Plumbing and Heating	Barrington	RI
Coast Electric	Cranston	RI
The Electric Connection Inc.	Middletown	RI
Spirax Sarco Inc.	Blythewood	SC
Parago Services Corp	Lewisville	TX
SalesNexus LLC	Houston	TX
Opower Inc.	Arlington	VA
Vermont Energy Investment Corporation	Burlington	VT
Absher Construction Company	Puyallup	WA
Ecova Inc.	Spokane	WA
New Buildings Institute Inc.	White Salmon	WA
Northwest Energy Efficiency Council	Seattle	WA

