

Rhode Island Energy Efficiency

Fourth Quarter 2023 | Rhode Island Energy

February 12, 2024

Overview

Rhode Island Energy's energy-efficiency programs continued to deliver energy savings for Rhode Island customers through the fourth quarter of 2023 by achieving 624,613 net lifetime MWh of electric savings (93.4% of the net lifetime goal) and 2,878,021 net lifetime MMBtu of natural gas savings (81.3% of the net lifetime goal).

- **Income Eligible Services:** Q4 saw an overperformance in electric savings, pushing the program well past its electric savings goal, while gas savings lagged its year-end goal. In preparation for 2024, the Company's vendors collaborated with the Rhode Island Department of Human Services (DHS) to identify training needs for energy and program specialists, with a focus on upskilling capabilities around comprehensive energy assessments.
- **EnergyWise:** Demand for Home Energy Assessments remained lower in the fourth quarter than historic program averages. Electric savings continued to lag program forecasts, but improved uptake of electric saving measures in Q4 resulted in an improvement in the percent of electric savings to goal. The uptake of gas savings improvements was strong in the fourth quarter and the program will exceed the gas savings goal. The program continued to offer enhanced incentives including increasing the standard incentive from 50% to 75% and a 100% incentive for electrically heated homes. These customers make ideal candidates for upgrades to ASHP when their home is fully weatherized.
- **Large Commercial New Construction:** In Q4, there were ninety-five active projects with fifty-five of those projects representing nearly six million square feet of building space. Forty projects are awaiting more construction details. As information continues to be received and finalized, the program is close to reaching its gas savings goal and is lagging its electric savings goal by around fourteen percent.
- **Large Commercial Retrofit:** The program exceeded its electric savings goal in Q4. Under the EnergySmart grocer initiative, a large grocery chain proceeded with retro-commissioning measures resulting in approximately 700,000 kWh of energy savings.

2023 Program & Initiative Updates – Q4

Residential New Construction (RNC)

The Residential New Construction (RNC) program achieved 6,738 net lifetime MWh of electric savings (51.3% of the lifetime goal) and 40,724 net lifetime MMBtu of gas savings (69.6% of the lifetime goal) through the fourth quarter of 2023.

Q4 RNC Program Enrollments and Completed Units

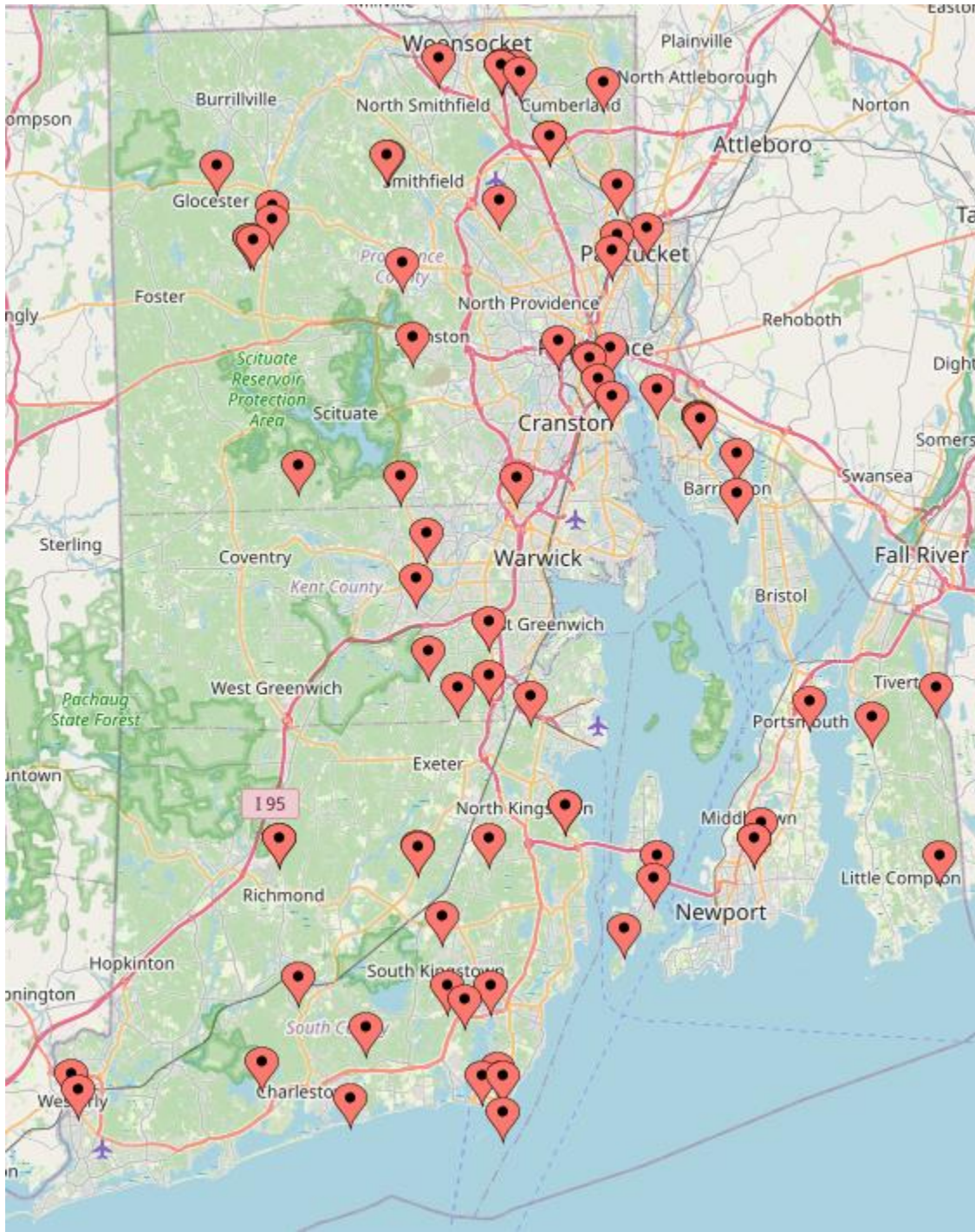
- 233 housing units were built to RNC Program standards
 - 232 units were new construction/full gut rehab (99.6%)
 - 1 was renovation/rehab (0.4%)
 - 172 units were market rate (74%)
 - 61 units were Income Eligible (26%)
 - 49 units had electric heat pumps (21%)
 - 171 units had gas heat (73%)
 - 13 units had either propane or hybrid heat pumps with propane (6%)
 - 110 homes achieved >25% savings over the Program baseline (47%)
 - 48 homes were ENERGY STAR and DOE Zero Energy Ready Homes certified and are being submitted to PHIUS for official Passive House Final Certification
- 9 newly planned housing units enrolled in the RNC Program

Total 2023 RNC Program Enrollments and Completed Units

- 470 housing units were built to RNC Program standards
 - 454 units were new construction/full gut rehab (97%)
 - 16 were renovation/rehab (3%)
 - 334 units were market rate (71%)
 - 136 were Income Eligible (29%)
 - 149 units had electric heat pumps (32%)
 - 256* units had gas heat (54%)
 - 65 units had either propane or hybrid heat pumps with propane (14%)
 - 199 homes achieved >25% savings over the Program baseline (42%)
 - 52 homes were ENERGY STAR and DOE Zero Energy Ready Homes certified and 48 are being submitted to PHIUS for official Passive House Certification
- 798 newly planned housing units enrolled in the RNC Program

*It should be noted that 208 of the 256 gas heated units reported (81%) are all one project consisting of four 52-unit buildings in East Providence.

2023 Map of RNC Program Participants



Q4 RNC Program Challenges

Completed Units Lower than Pre-Pandemic

- Construction Delays
 - New construction projects in planning and design phases in 2020 and 2021 got off to late starts due to delays with permitting, labor, material shortages, funding, etc.
 - These delays resulted in fewer completed units than anticipated in 2023

Signs of Improvement

- Completed units have increased since 2022
 - 2022 – 431
 - 2023 – 470

Current Project Pipeline

- In 2022 and 2023 the RNC Program Vendor enrolled a significant number of new projects in early planning and design phase into the program, including 873 in 2022, and 798 in 2023
 - A large pipeline of projects received support in 2023 that will result in completed units in 2024 and 2025
 - Many of these projects are multifamily affordable housing
 - Over 350 units are seeking DOE Zero Energy Homes or Passive House certification
- The RNC Program continued to provide training and perform inspections on projects currently under construction

Q4 RNC Program Event Highlights

Rhode Island PHIUS Chapter Events

In 2023 the RNC Program Vendor partnered with local builders and designers to establish a local Passive House chapter

- <https://passivehouseri.org/>
- The chapter's mission is to promote the Passive House Building Energy Standard in Rhode Island through public outreach, education, advocacy, and training
- Current members include architects, builders, consultants, designers, and the general public
- The first official training event was held in October just over the border in Stonington, CT
 - Topic: Deep Dive into Wood Fiber Insulation
 - Attendees: 55, including architects, builders, homeowners, and insulation reps, as well as a group of students from the Chariho Career and Tech Center
- The second inaugural event, Building Science & Beer, was held in South Kingstown in December with two panelists, the RNC Program Vendor and an RNC Program Passive House Builder
 - Over 30 people attended to discuss upcoming changes to the energy code, construction costs and best practices
 - Attendees included representatives from RI Housing, South County Habitat for Humanity and Church Community Housing Corporation

Special Rhode Island Code Event with
Passive House Rhode Island

phius
Passive House Rhode Island

Tomorrow!

Wednesdays, December 13th
5:30PM - 7:30PM
Whale Brewery
1174 Kingstown Rd, South Kingstown, RI

Join us tomorrow for our "Yes & Beer" event! In our state, a unique gathering where building science meets informal discussion over great beer and pizza! It's not just an event, it's the start of a conversation about the practical aspects of our work, informed by evolving building codes.

John Erickson
CHC, Energy Building Science Consultant at
CLEARBUILD
Discussion Leader

Stephen DeMetrick
CHC, Builder at Demetrick Housewrights
Discussion Leader

RISD Project Design Review Event

- The RNC Program Vendor participated as a design review panelist at an event hosted by RISD and attended by the RI Secretary of Housing
- The event was prompted by the success of the Sheridan Small Homes project, which initiated as a RISD design, and received technical support and incentives from the RNC Program
- The project focused on building a prototype for transitional housing for the homeless population
- Students were asked to create three 60-person designs for four sites around the city, which will be partially funded by IRA incentives
- While much of the focus of the panel was on architectural design, the RNC Program Vendor provided input on the critical design elements needed to

achieve energy efficiency, such as building orientation, window glazing and mechanical equipment.

Q4 RNC Program Zero Energy Highlights

Zero Energy Homes Pipeline

- The RNC Program Vendor continued to provide technical support for Zero Energy homes across the state, including 114 seeking Passive House certification and 240 seeking DOE Zero Energy Ready certification
- The number of Zero Energy Homes in the pipeline has increased by 100% since 2022
- Most homes in the pipeline are Income Eligible

Project Highlight – Brookside Terrace

- Four 24-unit Passive House Design Certified affordable apartment buildings were built on a formerly vacant site in East Greenwich, bringing much needed housing to a town with few affordable homes
- The Passive House design and construction of these homes will ensure lower operating costs and better indoor quality for residents
- Each of the four buildings is currently PHIUS Design Certified
 - <https://www.phius.org/certified-project-database/brookside-terrace-building>
 - <https://www.phius.org/certified-project-database/brookside-terrace-building-b>
 - <https://www.phius.org/certified-project-database/brookside-terrace-building-c>
 - <https://www.phius.org/certified-project-database/brookside-terrace-building-d>
- Phase I, which consists of the first two 24-unit buildings, completed in 2021
- Phase II, which also consists of two 24-unit buildings, completed in Q4 2023
- The RNC Program Vendor performed PHIUS Verifier inspections and testing and is currently working on the final submission to PHIUS to move the entire project from Design Certified to Final Certified
- In addition to receiving technical support and incentives from RI Energy this project was awarded funds from ZEOS, a partnership between RI Housing, RI Office of Energy Resources and RI Energy, aimed at supporting affordable, zero energy housing across the state
- RI Housing created and shared a drone video of the project

- <https://drive.google.com/file/d/1yAdYmm5fOq1wxC67t3vu26zrAsOwdm/kW/view>

Income Eligible Services (IES)

The Rhode Island Energy Income Eligible Services program achieved 34,471 net lifetime MWh of electric savings (143.1% of the lifetime goal) and 125,950 net lifetime MMBtu of gas savings (74.4% of the lifetime goal) through the fourth quarter of 2023.

Challenges and Responses

In Q4, the Company focused on the appliance replacement process and worked with the appliance oversight vendor to make sure customers were served and that invoicing was completed, which has resulted in an increase in productivity in this area.

In preparation for the end of LED lamp installs and the transition to the comprehensive assessment in 2024, the Lead Vendor has been working with DHS to arrange training that will upskill Tier 1, the basic appliance management program (AMP) assessment, program specialists to the comprehensive audit. Most Auditors had been AMP auditors at the beginning of their career and the transition to the comprehensive assessment was learning the new process and dusting off old skills. Some AMP only Auditors have chosen to leave the program either to work in other facets of the CAP agency or for retirement.

In Q4, CAPs that were overperforming were allowed to overspend their budget allocation while there are still customers awaiting services in their territories. The Inter-Agency Referral program was established to assist CAPs that do not have staffing capacity to meet their goals. CAPs that can assist in the other under-resourced areas received referral services to serve customers in an under-resourced service area. The inter-agency referral program was expected to increase budget utilization, enable the CAP agencies to reach more customers, achieve greater energy savings, improve the health and wellness of many income-eligible households, and create a more equitable program.

In Q4, the CAP of Providence service territory, defined by zip code 02905, was assigned to Comprehensive CAP. Comprehensive CAP served 8 customers: 3 were completed in 2023 @ \$23,173; 2 were completed in 2024 @ \$23,590.36; three are in progress.

TriCounty was assigned to the Blackstone Valley city of Woonsocket. No units were completed.

CAP referrals are a challenge. Each CAP is focused on serving their catchment areas first. Additional work for another agency was completed as a secondary priority. This was a similar problem with using RISE to cover CAP agency work.

RI DHS completed a third-party comprehensive audit of all energy specialists participating in the WAP/IES program commissioned by the US Department of Energy. DHS used this opportunity to identify training needs based on the outcome. The majority of the identified issues were with heating systems (CAZ & gas leak testing). DHS has arranged with CHP to bring each Auditor to the Baltimore training facility for additional training.

In 2024, the Company is proposing that upgrades from the oil/propane heating systems that are identified as near end-of-life be replaced with efficient electric heat pump systems. The Company will work with supporting stakeholders (RI OER, DHS, DOE, and others) to identify funding and opportunities that can be leveraged to replace oil/propane heating systems with high efficiency heat pumps.

CLEAResult and DHS met with Abode, the contractor implementing the Clean Heat RI program for OER, on several occasions in Q4. Abode was concerned about verifying eligibility of IE customers, and information on weatherization at potential customers homes. Preliminary plans are being implemented to provide data to Abode on a case-by-case basis via email. Direct access to the DHS information in the Hancock system is being reviewed by DHS.

Customer Highlight

“I would like to take a moment to let you know what a great job the crew from Insulation R US did today for my mom. She lives alone so it's difficult times for her. Everyone that worked here was so respectful to her. They worked very quickly so the house would not get too cold. I feel that they went over and above what they were expected to do. I cannot find the words to thank all of you. I would definitely recommend this company and their workers.

Sincerely,
Diane for her mom Dorothy,”

11/28/2023

EnergyWise Single Family

The EnergyWise Single Family program achieved 15,016 net lifetime MWh of electric savings (88.6% of the lifetime goal) and 510,614 net lifetime MMBtu of gas savings (104.2% of the lifetime goal) through the fourth quarter of 2023.

The EnergyWise program conducted 3,444 home energy assessments and completed 1,514 weatherization projects in the fourth quarter.

Activities of interest include:

- The Lead Vendor hired two new Energy Specialists in the fourth quarter.
- The Heat Pump Concierge initiative resulted in one installation in the fourth quarter.
- Lead Vendor staff attended the New England Home Performance Conference.
- Lead Vendor and RIE presented on RIE programs at Warren Health Equity Zone meeting.
- Lead Vendor has two Spanish speaking Energy Specialists, and they conducted 46 home energy assessment in Spanish in the fourth quarter.

Challenges and Responses

Demand for Home Energy Assessments remains somewhat behind historic program averages in the fourth quarter. Electric savings were lower than expected with the shortfall likely due to the change in the lighting offer for 2023.

In the fourth quarter the Program continued to offer enhanced incentives including increased standard incentive from 50% to 75% and a 100% incentive for electrically heated homes. The rate of electric savings did improve in the fourth quarter.

Customer Highlights

Customer feedback themes from the HEA include:

- Many customers commented on the professionalism and technical knowledge exhibited by the auditor who conducted their HEA.
- Customer comments about the HEA include:
 - “Thank you. We had a great experience and appreciated the program.”
 - Great program! helps save homebuyers money and helps the environment plus gives local businesses work.”
 - “I thank you very much for this amazing program!”

- “The team were very professional, polite and explained everything to me. I would highly recommend your program and have already noticed a difference in my home.”

Customer feedback themes from weatherization contractors included:

- Many customers had strong praise for their contractors and Rise Engineering as well as the Energy Wise program as a whole.
- Customer comments about the Program include:
 - “It was a big job that turned out really well. Workers were very accommodating and well informed. Good job.”
 - “Everyone we interacted with was professional, and very polite. We are pleased with the work that was completed, the ease of scheduling, and the timeframes associated with the project. We wish we had done this sooner!”

EnergyWise Multifamily, Income Eligible Multifamily, C&I Multifamily

Friar Green Condominiums - Standard income weatherization project. Installed R-19 cellulose in participating unit's open attics, attic air sealing, attic hatch weatherstripping and insulation, exterior door weatherstripping, and pulldown attic therma-dome covers. The gas incentive for this project was \$17,834 with an estimated net lifetime therms savings of 10,385 therms.

Providence HA Kilmartin - Income eligible Variable Refrigerant Flow (VRF) project. Installed Fujitsu-J5 6-ton condenser, and Fujitsu VFG 7K wall mounted AHUS, as well as Fujitsu wired controls for 30 dwelling units. The electrical incentive for this project was \$549,007 and has an estimated 4,255,146 net lifetime kwh savings.

The Avis Block Apartments - Standard income weatherization project. Installed common attic R-49 cellulose insulation, as well as dense pack R-32 to the floored attic spaces, ventilated the bath exhaust fans to exterior, and insulated and weatherstripped the attic access points. In order to properly insulate and air-seal some of the attic spaces, temporary roof strip accesses needed to be created. The gas incentive for this project was \$10,878 with an estimated savings of 25,539 net lifetime therms.

Wampanoag Village Apartments - Income eligible domestic hot water and heating boiler project. Installed six new high efficiency heating and DHW boilers along with six high efficiency heating circulation pumps with variable frequency drives, and three high efficiency DHW circulation pumps with variable frequency drives. The gas incentive for this project was \$243,000 and has estimated 210,075 net lifetime therms savings. The electrical incentive was \$30,960 with an estimated 166,770 net lifetime kWh saved.

Challenges and Responses

The lead vendor heat pump team reported that the high cost of site power upgrades (sites that currently have insufficient power) has hampered some electrification projects from moving forward.

Workforce Development

Members of the lead vendor heat pump team participated in the following trainings:

- Manufacture heat pump training at Mitsubishi

ENERGYSTAR® HVAC (Heating and Cooling)

The ENERGYSTAR® HVAC (Heating and Cooling) program achieved 85,810 net lifetime MWh of electric savings (120.8% of the lifetime annual goal) and 382,739 net lifetime MMBtu of gas savings (73.9% of the lifetime goal) through the fourth quarter of 2023.

Q4 HVAC Contractor Trainings

A total of 13 trainings and events were held during the fourth quarter

- The HVAC Program offers several types of live virtual and on-site HVAC Check testing trainings and training modules
 - AC Check
 - MS Check (specifically for mini splits)
 - HVAC Check (which includes both MS Check and AC Check)
- During Q4 the HVAC Program delivered 8 MS Check trainings
- The HVAC Program offers right sizing training
 - Manual D – Duct Design
 - Manual J – Load Calculations
- During Q4 the HVAC Program delivered 2 Manual D trainings
- The HVAC Program offers Introduction to Heat Pump presentations
 - These are intended for a broad audience, including builders, contractors, homeowners, architects and building inspectors
 - They are aimed at raising general awareness of heat pump technology, understanding the importance of sizing, duct design and proper installation, and sharing best practices for operation
 - These were delivered in partnership with Rhode Island Energy's Codes and Standards Program
- During Q4 the HVAC Program delivered an Introduction to Heat Pump presentation at Viessmann Manufacturing in Warwick

- The HVAC Program offers Cold Climate Heat Pump trainings
 - These are intended for HVAC contractors, building officials and code inspectors
 - During Q4 the HVAC Program delivered this training to the New England Building Officials Education Association and at Supply New England in Pawtucket
- 10 trainings were held via live webinar
- 3 trainings were held in person at the following locations:
 - Supply New England, Warwick
 - New England Building Officials Education Association, Springfield
 - Viessmann Manufacturing Co., Warwick

Q4 HVAC Check Testing

The Program Vendor actively reaches out to HVAC contractors to encourage them to perform HVAC Check testing on both new systems and existing systems during preventative maintenance visits to ensure proper operation.

- HVAC Check testing can only be performed in warmer weather months
- With warm temperatures extending into the fall HVAC contractors were able to perform 150 HVAC Check tests in Q4

Q4 Weekly HVAC Contractor Newsletter

The HVAC Program Vendor prepares and distributes a weekly HVAC Program newsletter for 650+ HVAC companies, contractors, technicians, distributors, trade allies and other industry stakeholders

- Q4 topics included
 - Links to 2023 Rebate Forms
 - Year-end rebate submission reminders
 - Links to upcoming HVAC Check trainings
 - Links to updated HVAC Check Test Forms
 - Industry best practices
 - Links to Clean Heat RI
 - Links to Federal Tax Credits
 - Availability of program support in Spanish



Q4 HVAC Program Highlights

The HVAC Program Vendor presented at several national, regional, and local conferences and events.

- ACEEE’s 2023 National Conference on Energy Efficiency as a Resource, October 16-18, Philadelphia, PA
 - Overview of RI Energy’s HVAC Program & Case Studies
- 2023 New England Building Performance Association Conference & Trade Show, November 7-8, Springfield, MA
 - Overview of Heat Pumps
- 2023 New England Building Officials Education Association, October 2-4, Amherst MA (58 Building Officials)
 - Overview of Heat Pumps
- The Granite Group, October 18, Providence, RI (47 HVAC contractors)
 - Overview of RI Energy’s HVAC Rebates



Pictured above: HVAC Contractors at the Granite Group event in Providence

Q4 High Efficiency Gas Program Support

The HVAC Program Vendor continued to promote Rhode Island Energy’s high efficiency gas rebates to distributors, gas equipment factory representatives and contractors through the weekly newsletter

Q4 HVAC Program Updates, Challenges and Solutions

Challenges

The HVAC Program continued to handle changes with the introduction of new equipment SEER2 and HSPF2 standards

- DOE released new standards for rating the efficiency of heat pumps
- Existing systems need to be tested and re-rated but can continue to be sold under previous standards through 2024
- There is still a mix of SEER/HSPF and SEER2/HSPF2 rated equipment in the marketplace, with different AHRI numbers, which has created challenges for verifying rebate eligibility
- To ease the transition the HVAC Program has accepted both ratings in 2023
- Q4 feedback from distributors indicated a significant volume of equipment has not yet been re-rated

ENERGY STAR 6.1 Cold Climate certification standards are now available for heat pumps

- Qualifying systems must be rated under the new DOE guidelines (SEER2/HSPF2) and some types of systems have a higher minimum efficiency level than currently required by the HVAC Program
- MA and CT intend to incentivize only ENERGY STAR 6.1 certified systems beginning in 2024
- Demand for ENERGY STAR 6.1 systems will increase within the region, which will likely put pressure on supply, and create challenges with meeting customer demand and RI HVAC Program goals

Solutions

The HVAC Program plans to continue to allow qualifying systems to be rated under either standard in 2024 (SEER/HSPF or SEER2/HSPF2).

The HVAC Program plans to include ENERGY STAR 6.1 as a rebate-eligible option, but not as the only rebate eligible option in 2024.

This will provide time for manufacturers, distributors, and contractors to adjust to both changes, re-rate more systems and avoid potential disruption to the supply of rebate eligible equipment in Rhode Island.

Updates

The RI HVAC Program continued to support Clean Heat RI

- Clean Heat RI, launched in September by the Office of Energy Resources, offers additional incentives for new construction and customers displacing fossil fuel heat with high efficiency heat pumps
- As customers are eligible to apply for rebates from both Rhode Island Energy and Clean Heat RI, the HVAC Program is actively encouraging contractors and customers to apply for both through weekly newsletters and updates made to the website and rebate portal, which all include links to Clean Heat RI
- RI HVAC and Clean Heat RI worked together in Q4 to continue to align offerings through 2024

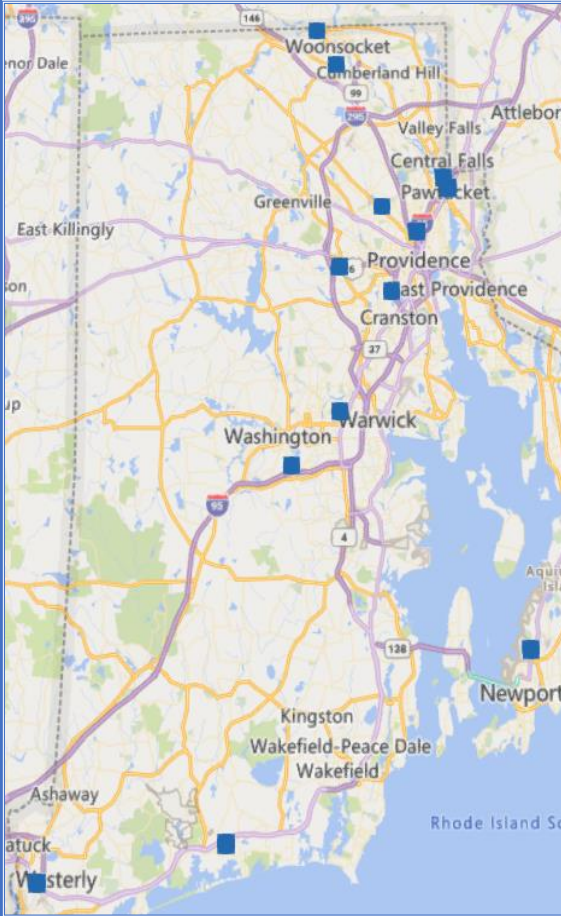
Residential Consumer Products

The Residential Consumer Products program achieved 14,632 net lifetime MWh of electric savings (46.2% of the lifetime goal) through the third quarter of 2023.

Recycling:

The dehumidifier recycling events ended at the end of October. The year ended with a record total of 1,517 old, inefficient, units being taken out of service. As a comparison, 2022 was a record year as well with 1,020 dehumidifiers recycled. These units were collected over fourteen (14) events during the course of the year. Rhode Island Energy made a concerted effort to target diverse communities and scheduled the events throughout the state. Please see on the next page.

Event Date	City	State
3/25/2023	Woonsocket	RI
4/1/2023	Providence	RI
4/29/2023	N. Smithfield	RI
5/6/2023	Warwick	RI
5/27/2023	Middletown	RI
6/3/2023	N. Providence	RI
6/24/2023	Coventry	RI
7/1/2023	N. Kingston	RI
7/29/2023	Cranston	RI
8/26/2023	Central Falls	RI
9/2/2023	Westerly	RI
9/9/2023	Pawtucket	RI
10/21/2023	Charlestown	RI
10/28/2023	Johnston	RI



Customers continue to be delighted with the service provided by the events sponsored by Rhode Island Energy. During the event customers are also provided with materials covering other programs as well as appliance incentives.

Home Dept: Johnston, Rhode Island 10/28/2023



Consumer Education:

The implementation vendor continues to promote the energy efficient products offered under the Rhode Island Energy program by staffing educational tables at Big Box Retailers such as Lowe’s, Home Depot and Walmart. These events provide an opportunity for RIE customers to ask questions and gain information about a broad range of energy efficiency programs.

Below, supporting an educational table at Home Depot in Middletown, RI



Promoting Energy Star “Most Efficient” (ESME) Products:

Building off the progress of the midstream offering at Home Depot, Rhode Island Energy is partnering with Lowe’s who issued an invoice in December for a total of 77 ESTAR Most Efficient Washers, Dryers and Refrigerators. The trend is expected to continue upward.

In addition, RI Energy is looking to add two new products ENERGY STAR Most Efficient room AC’s and dehumidifiers to this offering in early 2024. These exciting new program offerings will make it easy for the consumer to select and purchase popular Energy Star

Rhode Island Code & Standards Technical Support Initiative (CSTS) Quarterly Report - Quarter 4, 2023

Overview

The Codes & Standards Initiative continues to provide training, circuit riders, resources such as FAQs, technical bulletins and checklists, and a helpline offering technical support, plan review and on-site training.

The Initiative provides support with meeting the current energy code and is preparing the industry for the next energy code that will be adopted in Rhode Island. New trainings have been developed and delivered to address the upcoming requirements associated with the 2024 IECC, which the state intends to adopt in full, without amendments. The 2024 IECC is still under review by the ICC and should be finalized in early 2024. The Initiative will develop an updated toolkit and suite of resources once the 2024 IECC has been finalized.

Overview of Trainings

Q4 Trainings

- 18 training events with 299 attendees were held during the fourth quarter
 - 15 residential trainings, with 220 attendees
 - 3 commercial trainings, with 79 attendees

Q4 Training Topics

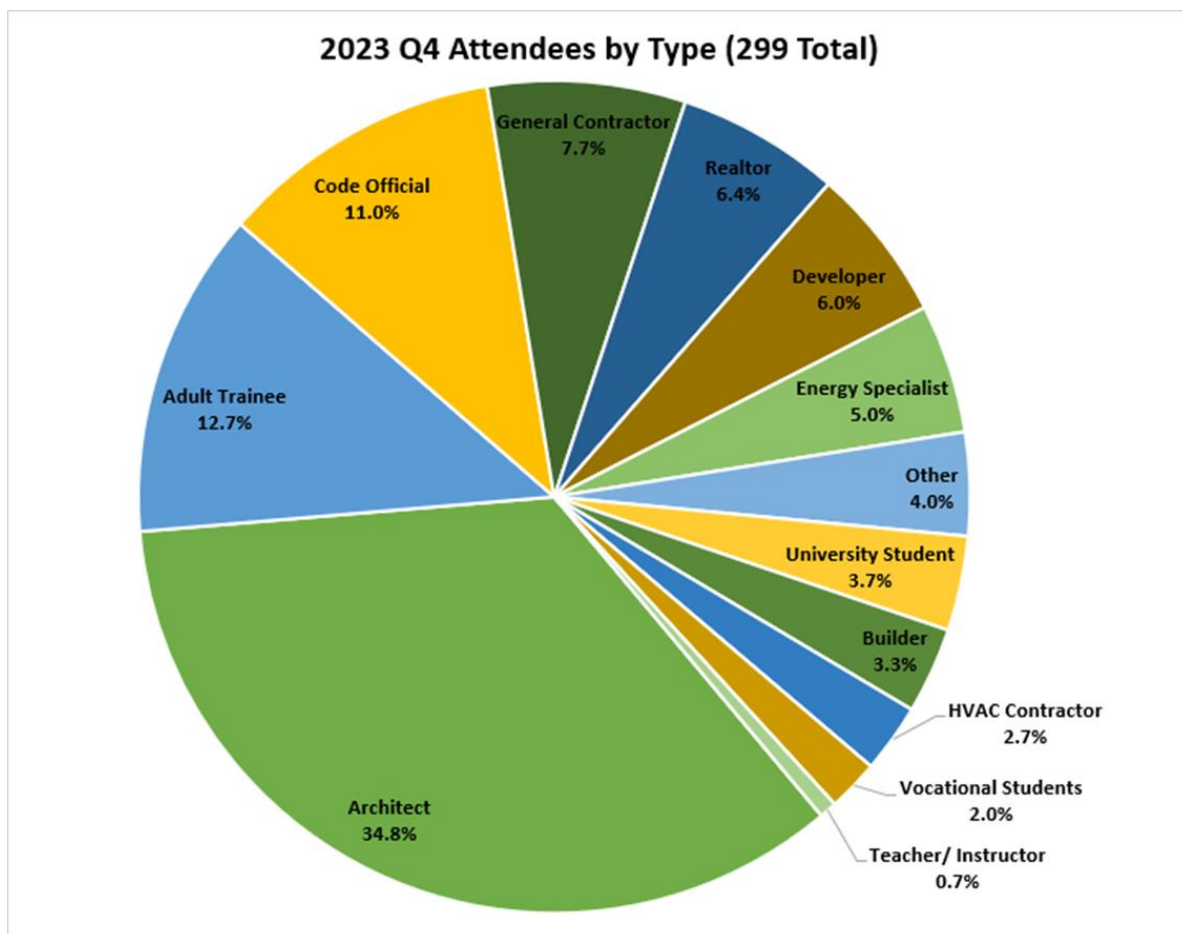
- Residential
 - 2024 IECC Update
 - Introduction to Residential Air Source Heat Pumps
 - Healthy Homes & Indoor Air Quality
 - Chapter 11 – 1 & 2 Family Dwelling Energy Code
 - Home Comfort - Heating, Cooling & Ventilation
 - Weatherization and Building Science
 - Advanced Building Science and Zero Energy Homes
 - Green Building Fundamentals
 - Blower Door Demonstration
- Commercial
 - Introduction to Commercial Air Source Heat Pumps
 - The Lindemann Performing Arts Center - Virtual Tour & Training
 - Commercial Passive House

Q4 Training Locations

Some trainings continue to be delivered virtually, particularly those in partnership with AIA-RI, RIBA, and the RI Association of Realtors, who integrate these trainings into the education curriculum for their members

- 10 trainings were held in person (56%) at the following locations
 - Viessmann Manufacturing Co., Warwick
 - Taco Comfort Solutions, Cranston
 - RI Housing, Providence
 - WaterFire Arts Center, Providence
 - Rhode Island Builders Association, Providence
 - Union Studio Architects, Providence
 - Residential Construction Workforce Partnership, Coventry
 - Arnold Lumber, West Kingston

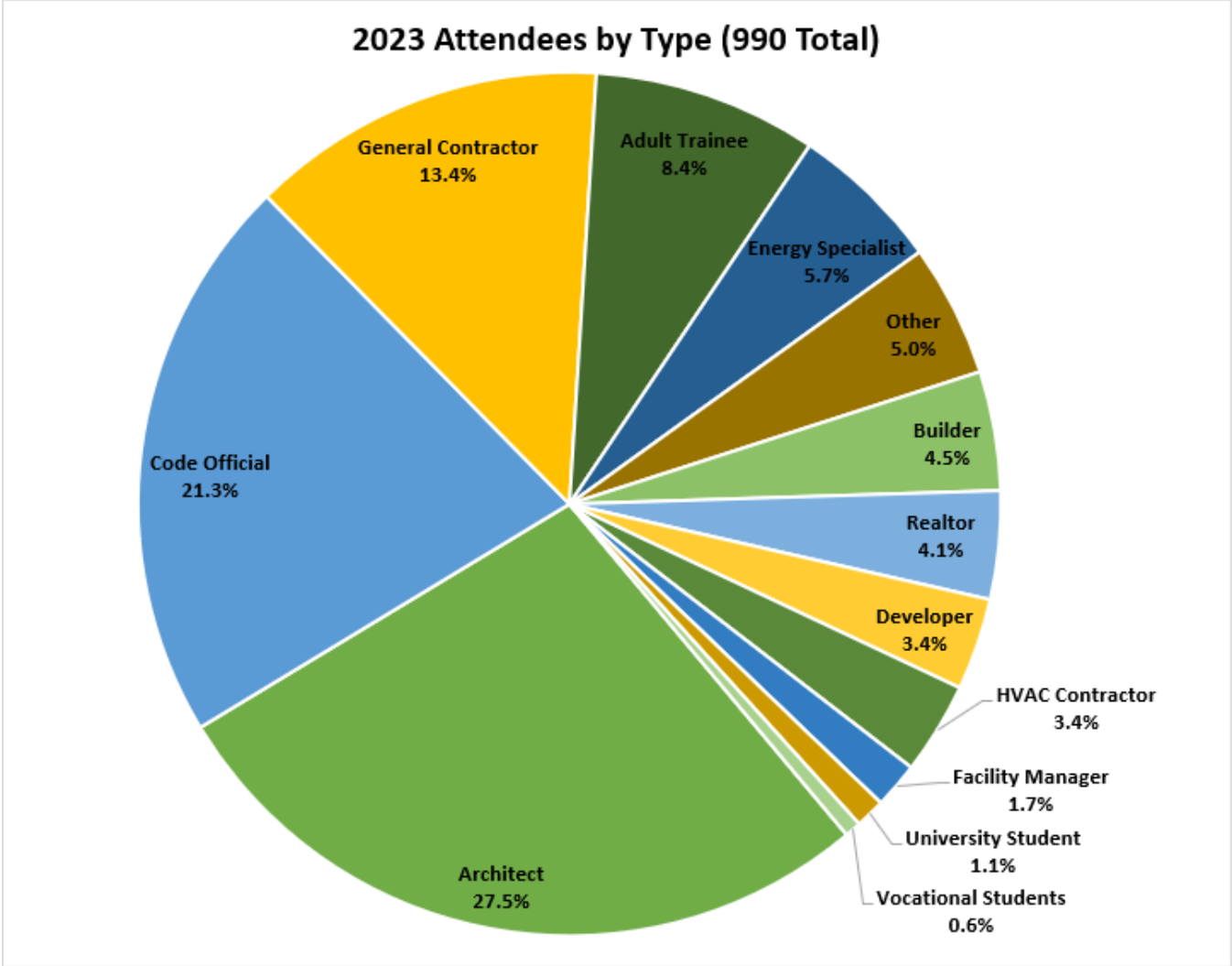
Q4 Training Participants



Total 2023 Trainings

A total of 61 training events were held in 2023, with 990 attendees

- 52 residential trainings with 743 attendees
- 9 commercial trainings with 247 attendees



Q4 Industry Stakeholder Partnership Support, Engagement & Training Highlights

Rhode Island Builders Association (RIBA)

The CSTS Vendor continued to partner with RIBA to deliver energy code trainings as part of their Contractor Training & Development Program

- Q4 topics
 - October: Healthy Homes & Indoor Air Quality
 - November: Residential Energy Code Update
 - December: Advanced Building Science and Zero Energy Homes
- These trainings are approved for RI Contractor Registration & Licensing Board CEUs

The CSTS Vendor continued to submit articles for RIBA's monthly magazine during the quarter

- Topics included
 - Zero Energy Homes Case Study – Cottrell Farms
 - Zero Energy Homes Case Study – Wood Soup Way
 - Heat Pump Incentives

American Institute of Architects - Rhode Island (AIA-RI)

CSTS continued to partner with AIA-RI to offer AIA accredited trainings as part of their monthly Continuing Education virtual Lunch and Learn series

- Q4 topics
 - October: Commercial Passive House
 - November: Chapter 11 – 1 & 2 Family Dwelling Energy Code
 - December: The Lindemann Performing Arts Center - Virtual Tour & Training
- Attendee feedback
 - ***"You have the best AIA continuing education offerings!"*** – JD, School Building Authority, State of Rhode Island

Rhode Island Association of Realtors (RIAR)

CSTS continued to partner with RIAR to offer training as part of their membership's education curriculum

- In Q4 CSTS held trainings on Home Comfort – Heating, Cooling & Ventilation and Green Building Fundamentals

Residential Construction Career Training

This [20-week evening pre-apprentice training course](#), funded through the RI Department of Labor and Training and Rhode Island Builders Association, is being offered through the [Residential Construction Workforce Partnership](#) (RCWP).

The course provides the basic skills and training needed for entering a career in energy efficiency, including soft skills, introduction to building science, weatherization, and HVAC. The goal is to provide employment opportunities for participants by connecting them with companies and organizations such as CAP agencies who often struggle to attract and retain skilled energy auditors.

Several RI Energy programs collaborate to support this course.

- Income Eligible Services (IES)
 - The IES Program Vendor provides training on weatherization and the software tools needed to participate in the program
 - They connect successful graduates with employment opportunities at local CAP agencies
- High Efficiency HVAC
 - The HVAC Vendor provides training on heat pumps and high efficiency heating, cooling, and domestic hot water equipment
- Residential New Construction (RNC)
 - The RNC Vendor provides training on building science and zero energy homes
- CSTS
 - The CSTS Vendor provides training on the energy code, including building science and air and duct leakage testing verification

Classes are held on weeknights from 5.30 pm to 8.30 pm.

During Q4 the CSTS Vendor held a Blower Door Demonstration training.

38 students attended the training

Pictured right and below: Jon Erickson, CSTS Program Vendor, with RCWP students – Blower Door Demonstration





Viessmann Manufacturing, Co.

RI CSTS continued its longstanding partnership with Viessmann in Warwick. They offer their training space and integrate other trainings into the schedule.

In Q4 the CSTS Vendor provided two days of training covering Residential Heat Pumps and Commercial Heat Pumps, and Viessmann provided training on High Efficiency Condensing Theory and Maximizing Condensing Boiler Performance.

The events included tours of their facility and training labs.

Attendees included a group of 6 students from Providence Career & Technical Academy's HVAC & Plumbing Program.

Pictured right: Training at Viessmann Manufacturing Co.



2024 IECC Trainings

To help prepare the industry for the anticipated adoption of 2024 IECC in Rhode Island CSTS developed trainings outlining the content currently under review by the International Code Council (ICC).

- 7 trainings were held at multiple locations in Q4
 - Taco Comfort Solutions, Cranston
(pictured right)
 - RI Housing, Providence
 - Arnold Lumber Contractor Appreciation Event, WaterFire Arts Center, Providence
 - Arnold Lumber, West Kingston
 - Union Studio Architects, Providence



CSTS Updates, Challenges & Solutions

Code Update – Moving from 2018 IECC with RI Amendments to 2024 IECC

- Recent legislature requires the state to adopt 2024 IECC, without weakening amendments
 - RI General Assembly passed H6101/S0855 Sub A:
<http://webserver.rilegislature.gov/BillText/BillText23/SenateText23/S0855A.pdf>
- 2024 IECC, currently under final review by the ICC, will likely be published soon and adopted in Rhode Island by mid-2024
 - Weakening residential amendments, which have been in place since the state's adoption of 2012 IECC in 2013, will finally be removed
 - The removal of these amendments, as well as the adoption of the new base code will result in a steep learning curve for the industry
- CSTS is working closely with key industry stakeholders including the Building Commissioner and RIBA to support the transition
- In advance of adoption, CSTS developed and delivered new presentations to prepare the industry for significant changes in the residential energy code, including how designers, builders, and contractors will need to comply with 2024 IECC, as well as changes for code inspectors to verify compliance
- Once 2024 IECC has been finalized, the CSTS Vendor will update existing toolkits and resources such as FAQs, checklists, and technical bulletins for distribution

Large Commercial New Construction

The Large Commercial New Construction program achieved 119,167 net lifetime MWh of electric savings (75.6% of goal) and 6,755,560 net lifetime therms of gas savings (94.3% of goal) through the fourth quarter of 2023.

There are currently 95 active projects in Q4 2023, of which 40 leads we are working to obtain more information for project qualification.

- **95 Active Projects**
 - 55 of 95 project represent 5,808,281 SF of building space
 - 40 projects waiting on building size or more project details
 - 20 of 95 have a TA Study “in progress”
 - 46 of 95 “TBD” for Program Pathway
 - 17 of 95 “Path 1/low-EUI/Path 2”
 - 11 of 17 Path 1/ZNE/low-EUI
 - 9 applications status “Post Installation”
 - 15 applications status “Application Created” or “Under Construction”

Large Commercial Retrofit

The Large Commercial Retrofit program achieved 264,912 net lifetime MWh of electric savings (108.1% of goal) and 6,762,495 net lifetime therms of gas savings (66.5% of goal) through the fourth quarter of 2023.

Industrial Initiative

Measure Description: The customer planned on installing (2) chillers to provide process cooling water at 77F for up to 60 process machines. The proposed full cooling load at full load buildout is 247.5 tons. Initially the cooling load is expected to be only ~½ (120 Tons) the full buildout load. The free-cooler in the proposed case is capable of handling the full build out load and the chillers proposed are only capable of 120 tons or about ½ the buildout load. The design will utilize a glycol loop cooled by the air-cooled chillers with heat transferred through a plate and frame heat exchanger indoors. The process loop will be water and passed through the heat exchanger for cooling at 77°F. In the current configuration, (2) 15HP chiller pumps and (2) 25HP process pumps with VFDs are used, with each set of pumps operating with (1) pump used as load and (1) pump as standby.

Operating Hours: Three (3) shifts per day, 5 days per week, 50 weeks per year or 6,000 hours per year.

Base Case: The base case is (2) 60-ton Carrier model 30RAP060 air-cooled liquid chillers. Each unit will have a capacity of 873.6 MBH of refrigeration, cooling 30% propylene glycol from 70 °F to 60 °F at an entering condenser air temperature of 90 °F. Under these conditions, the full load efficiency is 12.17 EER (0.986 kW/ton) and the IPLV efficiency is 16.28 EER (0.737 kW/ton). The process cooling load is provided by the chillers.

Proposed Case: In the proposed case, the same (2) 60-ton Carrier model 30RAP060 will provide the cooling load at ambient temperatures above 64F. Additionally, (1) free cooler is installed capable of cooling 672 GPM of 30% glycol from 82F to 74F at an ambient air temperature of 64F. The free cooler provides the cooling required at ambient temperatures below 64F. The approximate nominal cooling capacity of the free cooler is 226.6 tons and the free cooler includes (14) fans.

Savings Methodology: Savings are calculated based on 8,760 weather bin data for Providence, RI and the cooling load is estimated based on the 120 tons as ½ the buildout load. The electric savings in the proposed case result from the lower electric use required to provide cooling using the free cooler rather than the chillers at ambient temperatures below 64F. Manufacturer-provided kW/ton values for the chillers will be used in this model.

Industrial Initiative	Electric (kWh)	Gas (Therms)
2023 Goal	11,000,000 kWh	400,000 therms
2023 Achieved	10,036,509 kWh	309,244 therms
Percent of Goal Achieved	91%	77%

EnergySmart Grocer Initiative

Grocer Coil Cleaning: A large grocery chain proceeded with retro-commissioning measures through Rhode Island Energy’s Equipment & Systems Performance Optimization (“ESPO”) program. The rooftop unit and condenser coils across the customer’s 26 stores in Rhode Island were cleaned, resulting in approximately 700,000 kWh of energy savings and \$16,000 in rebates.

Grocer Major Remodel: A grocer completed a comprehensive renovation of a store which included energy efficiency improvements such as night covers, lids on low temperature coffin cases, no heat doors for medium temperature cases, no/low heat doors for low temperature cases, and a high performance 25-ton roof-top unit with heat reclaim. The project resulted in energy savings of approximately 135,00 kWh and 2,000 therms and \$25,000 in rebates.



New lids on low temperature coffin cases and no heat doors for low and medium temp cases.

Strategic Energy Management Partnerships (SEMP)

In Q4, the Company signed a Strategic Energy Management Partnership Memorandum of Understanding with a large retail business with headquarters in Rhode Island.

Small Business Direct Install

The Small Business Direct Install (SBDI) program achieved 47,842 net lifetime MWh of electric savings (82.8% of goal) and 829,570 lifetime therms of gas savings (63.7% of goal) through the fourth quarter of 2023.

Enhanced reporting

To show progress on priority initiatives, the Company is reporting the number of weatherization projects and LED retrofit kits and luminaires (with and without controls).

There were 5 gas weatherization projects in Q4 2023 for a total of 23 in 2023.

The table below shows the number of luminaires and retrofit kits with controls for 2020, 2021, 2022 and through Q4 of 2023.

Period	Luminaires	Luminaires with controls	Retrofit kits	Retrofit kits with controls
2020	13,032	149	17,260	450
2021	12,804	246	15,932	908
2022	9,918	2,256	8,675	856
2023	9100	1,152	6,009	589

Project Highlights

A real estate company that owns several buildings in RI completed lighting and variable speed drive projects with kWh savings of approximately 25,000 kWh and rebates totaling approximately \$22,000. This customer has participated repeatedly in Rhode Island Energy’s energy efficiency programs.

An assisted senior living facility in Warwick RI had energy efficiency lighting installed and demand circulators upgraded, resulting in savings of approximately 150,000 kWh and 4,000 therms and rebates totaling approximately \$75,000.

Challenges and Responses

We have seen a consistent uptick in savings attributed to VFD controls and weatherization measures and have proposals with customers for energy efficient transformer projects. We continue to seek additional staff experienced with weatherization measures and audits.

Evaluation, Measurement, and Verification

The Commercial and Industrial Free Ridership and Spillover Study was completed at the end of the fourth quarter. Study results will be incorporated into the 2025 annual plan, where applicable.

The *Commercial and Industrial (C&I) Free Ridership and Spillover Study* assessed free-ridership and spillover for the C&I electric and gas upstream and downstream energy efficiency programs. The study updated the net-to-gross ratios for all C&I programs based on pathway and program type.

A few studies remain in progress at the end of the quarter:

- C&I New Construction Baseline Study
- Automated RTU Optimization Demonstration Evaluation
- Residential Nonparticipant Characterization and Segmentation Research
- Impact Evaluation of Program Year (PY) 2022 Custom Gas Installations
- Impact Evaluation of Program Year (PY) 2022 Custom Electric Installations

The Company will provide further updates on these studies throughout 2024.

ConnectedSolutions

ConnectedSolutions for Batteries

Over 752 residential batteries are enrolled in the ConnectedSolutions Battery Pathway, which offers homeowners a way to get paid for doing their part in reducing peak energy use, reduce air pollution, and lower electricity costs. The number of participating customers has nearly doubled from 2022 to 2023. During the summer 2023 season, 28 demand response events were called. While 2023 saw improved battery performance across all participating customers we fell short of the 2023 load shed target of 3.30MW, coming in at 2.86MW. Continued expansion of the battery partner ecosystem alongside both utility-led and partner-led marketing campaigns; improved in-app experiences, pushing battery partners for better performance, and increased communication with customers could continue to drive and improve battery performance. All participating customers have been paid their 2023 season performance incentive.

ConnectedSolutions for Thermostats

Over 10,000 residential thermostats are enrolled in the ConnectedSolutions Thermostat Pathway, which allows homeowners to enroll and earn annual payments based on participation in several annual peak events. During the events, RIE remotely controls customer thermostats by adjusting the temperature by a few degrees to reduce energy consumption. The number of participating customers continues to grow. During the summer 2023 season, 18 demand response events were called. We exceeded the 2023 load shed target of 4.25MW, coming in at 6.50 MW. Two rounds of connectivity optimization greatly improved connectivity and load shed. Connectivity optimization sends automated email notifications to customers whose devices have been offline for more than 14 days. Continued growth in adding new devices; ensuring devices are connected; focused marketing on increasing program awareness and device adoption; and partner marketing throughout the year could continue to drive and improve thermostat performance. In 2024, RIE will also continue to utilize capacity and load forecasting tools to help determine peaks. Events on hot days will yield higher load shed.

ConnectedSolutions for Commercial and Industrial (C&I) Customers

There are 139 customers enrolled in the C&I ConnectedSolutions program track. Participating in the Commercial ConnectedSolutions program allows large customers and businesses to receive an

annual incentive for reducing their energy usage during the highest peak load hours of the summer. Participation in ConnectedSolutions events helps reduce emissions, infrastructure costs, and utility prices. C&I customers may opt to participate in either the Daily Dispatch or Targeted Dispatch program pathways, or they may participate in both (dual enrollment). Of the enrolled 2023 ConnectedSolutions customers, 10 participated in Daily Dispatch only, 83 participated in Targeted Dispatch only, and 46 participated in both options. There were 25 Daily Dispatch events, 3 Targeted Dispatch events, and 3 combined Daily and Targeted Dispatch events during the 2023 season for a total of 31 C&I ConnectedSolutions events. The total contracted average load shed per event was about 25.4MW for Daily Dispatch and 54.3MW for Targeted Dispatch. Actual customer participation fell short of these contracted amounts, resulting in an average hourly load shed that totaled around 14.5MW and 12.2MW per Daily Dispatch event and Targeted Dispatch event, respectively. The total participant load shed during the highest peak event of the summer was over 60MW. Participant incentives are determined on a pay-for-performance basis. RI Energy will continue to develop a robust C&I ConnectedSolutions track during the 2024-2026 program years by utilizing forecasting tools, enrollment information, and meter data to better predict load shed during events, increase efficiency and accuracy of performance calculations, and maximize peak load reduction on the grid.

Demonstrations, Pilots, Assessments

PDA Name		Q1-Q4 2023 Updates
<u>Final Gas Appliances - Assessment - Resi</u>	Date	8/7/2023
	Stage	Final
	Recent Activity	Study report finalized.
	Next steps	Apply study results to program design
<u>Gas DR - Pilot - C&I</u>	Date	11/6/2023
	Stage	Demonstrate
	Recent Activity	Analyzed winter program performance
	Next steps	Prepare for Winter 2023-24
<u>Gas Leak Survey - Demonstration - C&I</u>	Date	5/9/2023
	Stage	Demonstrate
	Recent Activity	Working with vendors to determine savings calculation assumptions and post-verification procedures.
	Next steps	Test post verification procedures at sites.
<u>Rightsizing RTUs - Assessment - C&I</u>	Date	5/5/2023
	Stage	Plan
	Recent Activity	Completed assessment, which ID'd strategies for RTU right-sizing

	Next steps	Integrate strategies into program design and implementation
<u>Automated RTU Optimization - Demonstration - C&I</u>	Date	11/6/23
	Stage	Demonstrate
	Recent Activity	Measured winter performance
	Next steps	Measure summer performance
<u>Commercial Weatherization - Assessment - C&I</u>	Date	5/5/2023
	Stage	Demonstrate
	Recent Activity	Completed Wx Training with Vendors, gathering feedback and research ongoing for offering development
	Next steps	Develop Express Tool
<u>Air Curtains - Demonstration - C&I</u>	Date	1/26/2023
	Stage	Qualify
	Recent Activity	Opted to develop measure offering, in line with MA PA's.
	Next steps	Collaborate with MA develop program offering and develop go-to-market plan
<u>Smart Valves for Chilled Water Systems - Demonstration - C&I</u>	Date	7/28/2023
	Stage	Plan
	Recent Activity	Final reported submitted
	Next steps	Review report and develop plan on next steps

Rhode Island Energy Efficiency – Equity Update

Fourth Quarter Equity Update

Rhode Island Energy continued to track the following 2022 Equity metrics in Q4 of 2023:

- Assessment and Weatherization participation by town
- Single family participation in EnergyWise and Income Eligible Services programs by town

Municipality	EnergyWise HEA Participation 2023 through Q4
Adamsville	4
Albion	4
Ashaway	26
Barrington	288
Bradford	19
Bristol	300
Burrillville	34
Carolina	15
Central Falls	65
Charlestown	166
Chepachet	56
Coventry	423
Cranston	943
Cumberland	492
East Greenwich	322
East Providence	255
Esmond	60
Exeter	73
Forestdale	9
Foster	62
Foster Center	1
Glendale	5
Glocester	53
Greene	24
Greenville	74
Harmony	2
Harrisville	4
Hope	52
Hope Valley	49



Rhode Island Energy Efficiency – Equity Update

Hopkinton	22
Jamestown	142
Johnston	328
Kenyon	5
Kingston	31
L Compton	19
Lincoln	249
Little Compton	83
Manville	21
Mapleville	10
Middletown	169
Misquamicut	1
N Smithfield	1
Narragansett	272
Newport	277
North Kingstown	355
North Providence	325
North Scituate	77
North Smithfield	132
Oakland	7
Pawtucket	781
Peace Dale	44
Peacedale	8
Portsmouth	301
Providence	1582
Prudence Isl	7
Prudence Island	3
Richmond	17
Riverside	239
Rockville	4
Rumford	143
S Kingstown	1
Saunderstown	83
Scituate	47
Shannock	3
Slatersville	12
Smithfield	62
South Kingstown	39
Tiverton	240
Wakefield	308
Warren	132



Rhode Island Energy Efficiency – Equity Update

Warren	1
Warwick	1024
Watch Hill	1
Weekapaug	2
West Greenwich	94
West Kingston	68
West Warwick	274
Westerly	301
Wood River Jt	4
Wood River Junction	2
Woonsocket	383
Wyoming	21

Municipality	EnergyWise Weatherization Participation 2023 through Q4
Albion	1
Ashaway	6
Barrington	125
Bristol	132
Burrillville	6
Carolina	4
Central Falls	7
Charlestown	43
Chepachet	19
Clayville	1
Coventry	188
Cranston	355
Cumberland	183
East Greenwich	110
East Providence	84
Esmond	20
Exeter	24
Forestdale	4
Foster	24
Foster Center	1
Glendale	1
Glocester	24
Greene	8



Rhode Island Energy Efficiency – Equity Update

Greenville	34
Harmony	1
Hope	17
Hope Valley	9
Hopkinton	5
Jamestown	47
Johnston	127
Kenyon	1
Kingston	12
L Compton	8
Lincoln	72
Little Compton	24
Manville	6
Mapleville	6
Middletown	70
Misquamicut	1
Narragansett	107
Newport	81
North Kingstown	137
North Providence	105
North Scituate	30
North Smithfield	40
Oakland	2
Pawtucket	195
Peace Dale	16
Peacedale	3
Portsmouth	130
Providence	422
Prudence Isl	3
Prudence Island	1
Richmond	11
Riverside	72
Rumford	53
Saunderstown	35
Scituate	13
Slatersville	2
Smithfield	25
South Kingstown	18
Tiverton	74
Wakefield	105
Warren	66



Rhode Island Energy Efficiency – Equity Update

Warwick	408
Weekapaug	1
West Greenwich	38
West Kingston	22
West Warwick	95
Westerly	82
Woonsocket	76
Wyoming	7

Municipality	Income Eligible Services HEA Participation 2023 through Q4
ASHAWAY	6
AVONDALE	1
BARRINGTON	21
BRADFORD	6
BRISTOL	17
BURRILLVILLE	4
CAROLINA	1
CENTRAL FALLS	6
CHARLESTOWN	18
CHEPACHET	16
CLAYVILLE	1
COVENTRY	38
CRANSTON	409
CUMBERLAND	14
EAST GREENWICH	9
EAST PROVIDENCE	48
ESMOND	29
EXETER	3
FISKEVILLE	2
FOSTER	17
FOSTER CENTER	1
GLENDALE	1
GLOCESTER	14
GREENE	2
GREENVILLE	31
HARMONY	1



Rhode Island Energy Efficiency – Equity Update

HOPE	12
HOPE VALLEY	7
HOPKINTON	4
JAMESTOWN	8
JOHNSTON	205
L COMPTON	7
LINCOLN	10
MANVILLE	1
MAPLEVILLE	4
MIDDLETOWN	8
NARRAGANSETT	13
NEWPORT	10
NORTH KINGSTOWN	38
NORTH PROVIDENCE	245
NORTH SCITUATE	18
NORTH SMITHFIELD	4
OAKLAND	7
PAWTUCKET	61
PEACE DALE	6
PORTSMOUTH	23
PROVIDENCE	273
RIVERSIDE	36
RUMFORD	8
SAUNDERSTOWN	3
SCITUATE	4
SHANNOCK	1
SMITHFIELD	7
TIVERTON	39
WAKEFIELD	29
WARREN	25
WARWICK	116
WEST GREENWICH	13
WEST KINGSTON	12
WEST WARWICK	41
WESTERLY	40
WOONSOCKET	7
WYOMING	6



Rhode Island Energy Efficiency – Equity Update

Municipality	Income Eligible Services Weatherization Participation 2023 through Q4
ASHAWAY	3
AVONDALE	1
BARRINGTON	8
BRADFORD	1
BRISTOL	2
BURRILLVILLE	1
CAROLINA	1
CENTRAL FALLS	8
CHARLESTOWN	1
CHEPACHET	6
COVENTRY	20
CRANSTON	154
CUMBERLAND	17
EAST PROVIDENCE	15
ESMOND	8
EXETER	2
FOSTER	5
GLENDALE	1
GLOCESTER	7
GREENE	1
GREENVILLE	7
HARMONY	1
HOPE	6
HOPE VALLEY	1
HOPKINTON	1
JAMESTOWN	5
JOHNSTON	42
L COMPTON	1
LINCOLN	6
MANVILLE	1
MAPLEVILLE	4
MIDDLETOWN	7
NARRAGANSETT	3
NEWPORT	3
NORTH KINGSTOWN	11
NORTH PROVIDENCE	34
NORTH SCITUATE	7



Rhode Island Energy Efficiency – Equity Update

NORTH SMITHFIELD	5
OAKLAND	1
PAWTUCKET	71
PEACE DALE	2
PORTSMOUTH	15
PROVIDENCE	168
RIVERSIDE	21
RUMFORD	10
SAUNDERSTOWN	1
SCITUATE	2
TIVERTON	18
WAKEFIELD	4
WARREN	11
WARWICK	75
WEST GREENWICH	4
WEST KINGSTON	3
WEST WARWICK	23
WESTERLY	6
WOOD RIVER JT	1
WOONSOCKET	18

Rhode Island Energy Efficiency – Equity Update

- EnergyWise and Income Eligible Services single family owner versus renter information

Through Q4 2023, EnergyWise had 12.4% renter participation in HEAs and 9.8% landlord/renter weatherization participation.

The Income Eligible Services program had 26.1% renter participation in HEAs and 15.8% renter/landlord weatherization participation.

- Energy Efficiency outreach and education with community organizations
 - Outreaches at Customer Assistance Expos include:
 - Davinci Center – Providence
 - Woonsocket Public Library – Woonsocket
 - Blackstone Valley Prep – Cumberland
 - West Warwick Senior Center – West Warwick- co-sponsored with Representative Noret
 - East Providence Public Library – East Providence
 - Earth Day Employee event at Ocean State Job Lot
 - Aging in Place Resource Fair – Jamestown
 - Non-Violence Institute Resource Fair – Providence
 - Carbon Footprint Fair – Cumberland
 - Ocean State Center for Independent Living Lunch and Learn – Warwick
 - VA Career Fair – Providence
 - Progresso Latino – Central Falls
 - RI Department of Health
- Organizations targeting to conduct EE training:
 - Davinci Center
 - Woonsocket/Pawtucket YMCA
 - Providence YMCA
 - Project Hope/Diocese of Providence
 - Progresso Latino
 - Housing Network of RI
 - Housing Works RI

Rhode Island Energy Efficiency – Equity Update

- Dorcas
- East Providence Senior Center
- Cranston YMCA
- United Way 2-1-1
- Family Service of RI
- City of East Providence Constituent Services
- Woonsocket Constituent Services
- Central Falls Constituent Services
- Habitat for Humanity

Equity Working Group (EWG) Update

In Q4 2023, the Company began an assessment to identify which equity metrics it will track starting in Q2 2024. It conducted a comprehensive review of the metrics, suggested by the Equity Working Group in Year 3, to better understand tracking feasibility and explore relevance and usefulness to achieving program priorities.

The Company also worked with Green and Healthy Homes Initiative to put together a timeline and strategy to achieve the following goals with the Year 4 Equity Working Group:

1. Uplift more voices from Rhode Island’s underserved & underrepresented communities
 - a. Conduct recruitment of residents, businesses, and organizations in these communities in Q1 2024
 - b. Provide an effective mechanism (e.g. through meeting facilitation practices, an additional forum to accommodate schedules) for these voices to be elevated and heard in the EWG
2. By end of Q1, agree on a shortlist of equity strategies and metrics for Rhode Island Energy to adopt and track for the remainder of 2024 (and beyond, if applicable)



Rhode Island Energy Efficiency – Equity Update

3. Identify and prioritize long-term equity strategies and metrics that Rhode Island Energy can work towards adopting in future years
 - a. Based on the Year 4 EWG findings, provide a refreshed (ie. updated, not new) list of equity recommendations for Rhode Island Energy to consider in its 2025 energy efficiency plan

4. Work with the Energy Efficiency Resource Management Council (EERMC) to continue a clear line of communication with EWG (e.g., councilor(s) listening in at EWG meetings, identification of councilor representing low-income users, mid-year equity update)

RHODE ISLAND ENERGY ENERGY-EFFICIENCY PROGRAMS IN RHODE ISLAND
Table 2: Summary of Gas 2023 Target and Preliminary 4th Quarter Results

GAS PROGRAMS Sector and Program	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(16)	(10)	(11)	(12)	(17)	(13)	(14)	(15)
	Energy Savings (Annual MMBtu)			Customer Participation			Expenses (\$ 000)				Energy Savings (Lifetime MMBtu)				\$/Lifetime MMBtu		Peak Hour Gas Demand Savings (MMBtu)
	Target	Year To Date	Pct Achieved	Target	Year To Date	Pct Achieved	Budget	Year To Date	Pct Achieved	Year End Forecast	Planned	Year To Date	Pct Achieved	Year End Forecast	Planned	Year to Date	Year to Date
Commercial and Industrial																	
Large Commercial New Construction	48,823	51,352	105.2%	62	19	30.9%	\$ 2,818.7	\$ 3,812.4	135.3%	135.3%	716,705	675,556	94.3%	94.3%	\$ 3.93	\$ 5.64	25.68
Large Commercial Retrofit	94,766	62,588	66.0%	59	69	116.9%	\$ 4,639.6	\$ 2,645.4	57.0%	57.0%	1,016,519	676,249	66.5%	66.5%	\$ 4.56	\$ 3.91	31.29
Small Business Direct Install	9,723	8,271	85.1%	146	110	75.6%	\$ 689.8	\$ 308.3	44.7%	44.7%	130,193	82,957	63.7%	63.7%	\$ 5.30	\$ 3.72	4.14
Commercial & Industrial Multifamily	4,249	2,871	67.6%	488	13	2.7%	\$ 891.2	\$ 681.8	76.5%	76.5%	64,645	68,956	106.7%	106.7%	\$ 13.79	\$ -	1.44
Commercial Pilots							\$ -	\$ 64.1	0.0%	0.0%							
Community Based Initiatives - C&I							\$ 31.2	\$ 7.8	25.1%	25.1%							
Commercial Workforce Development							\$ 67.5	\$ 3.6	5.3%	5.3%							
SUBTOTAL	157,561	125,082	79.4%	755	211	27.9%	\$ 9,138.0	\$ 7,523.5	82.3%	81.6%	1,928,063	1,503,719	78.0%	78.0%	\$ 4.74	\$ 5.00	62.54
Income Eligible Residential																	
Single Family - Income Eligible Services	8,230	6,298	76.5%	797	585	73.4%	\$ 5,429.0	\$ 4,437.7	81.7%	81.7%	169,180	125,950	74.4%	74.4%	\$ 32.09	\$ 35.23	3.15
Income Eligible Multifamily	11,075	8,020	72.4%	2,742	1,422	51.9%	\$ 3,215.4	\$ 2,915.3	90.7%	90.7%	172,464	194,849	113.0%	113.0%	\$ 18.64	\$ 14.96	4.01
SUBTOTAL	19,305	14,317	74.2%	3,539	2,007	56.7%	\$ 8,644.4	\$ 7,353.0	85.1%	85.1%	341,644	320,799	93.9%	93.9%	\$ 25.30	\$ 22.92	7.16
Non-Income Eligible Residential																	
EnergyWise	20,697	22,481	108.6%	1,716	3,587	209.1%	\$ 9,873.1	\$ 7,820.4	79.2%	79.2%	490,013	510,614	104.2%	104.2%	\$ 20.15	\$ 15.32	11.24
Energy Star® HVAC	27,030	19,393	71.7%	2,904	1,868	64.3%	\$ 3,586.9	\$ 2,723.4	75.9%	75.9%	517,571	382,739	73.9%	73.9%	\$ 6.93	\$ 7.12	9.70
EnergyWise Multifamily	5,358	1,160	21.6%	3,453	13	0.4%	\$ 1,485.4	\$ 439.0	29.6%	29.6%	110,428	25,534	23.1%	23.1%	\$ 13.45	\$ 17.19	0.58
Home Energy Reports	91,640	119,780	130.7%	130,585	135,020	103.4%	\$ 360.5	\$ 334.8	92.9%	92.9%	91,640	93,892	102.5%	102.5%	\$ 3.93	\$ 3.57	59.89
Residential New Construction	3,287	1,736	52.8%	460	256	55.6%	\$ 621.5	\$ 737.2	118.6%	118.6%	58,476	40,724	69.6%	69.6%	\$ 10.63	\$ 18.10	0.87
Comprehensive Marketing - Residential							\$ 69.1	\$ 71.6	103.6%	103.6%							
Community Based Initiatives - Residential							\$ 93.5	\$ -	0.0%	0.0%							
SUBTOTAL	148,013	164,549	111.2%	139,117	140,745	101.2%	\$ 16,090.0	\$ 12,126.4	75.4%	75.4%	1,268,128	1,053,503	83.1%	83.1%	\$ 12.69	\$ 11.51	82.27
Regulatory																	
EERMC							\$ 396.9	\$ 283.4	71.4%	88.3%							
OER							\$ 595.3	\$ 595.3	100.0%	100.0%							
RI Infrastructure Bank							\$ 1,262.5	\$ 1,262.7	100.0%	100.0%							
SUBTOTAL							\$ 2,254.7	\$ 2,141.5	95.0%	97.9%							
TOTAL	324,879	303,948	93.6%	143,411	142,963	99.7%	\$ 36,127.1	\$ 29,144.4	80.7%	80.7%	3,537,835	2,878,021	81.3%	81.3%	\$ 10.21	\$ 10.13	151.97

NOTES
(1)(4) Targets from Docket 22-33-EE- Attachment 6, Table G-7, Refiled January 23, 2023.
(3) Pct Achieved is Column (2)/ Column (1).
(4) Participation was planned and is reported in 'net' terms which takes into account free-ridership and spillover.
(6) Pct Achieved is Column (5)/ Column (4).
(7) Approved Implementation Budget from Docket 22-33-EE, Attachment 6 Table G-3, Refiled January 23, 2023.
(8) Year To Date Expenses include Implementation expenses.
(9) Pct Achieved is Column (8)/ Column (7).
(13) Planned \$/lifetime MMBtu from Docket 22-33-EE- Attachment 6, Table G-5, Refiled January 23, 2023 - adjusted to reflect format of quarterly report. Program Implementation Expenses/lifetime MMBtu.
(14) \$/lifetime MMBtu = Column (8)*1000/Column (11)
(15) Peak Hour Gas Demand Savings is a test metric in 2022 and represents a rough approximation of peak-hour gas demand impacts. Column(2) *0.01 *0.05
(16) (17) Year End Spending and Energy Savings forecasts are best estimates based on the information available and may change throughout the year.
Values in quarterly reports are preliminary and subject to change. Data is finalized in the Year-End Report.

RHODE ISLAND ENERGY ELECTRIC ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table 3: Rhode Island Energy 2023 Revolving Loan Funds

Large C&I Electric Revolving Loan Fund

Small Business Electric Revolving Loan Fund

<u>Income Statement</u>		<u>Income Statement</u>	
(1) 2023 Funds Available	\$10,419,391	(1) 2023 Funds Available	\$3,328,586
(2) 2023 Loan budget	\$14,000,000	(2) 2023 Loan budget	\$1,500,000
(3) Committed	\$0	(3) Committed	\$0
(4) Paid	\$4,442,160	(4) Paid	\$688,804
(5) Repayments	\$7,090,063	(5) Repayments	\$914,499
(6) Available 12/31/23	\$13,067,294	(6) Available 12/31/23	\$3,554,281
(7) Outstanding loan volume	\$13,028,376	(7) Outstanding loan volume	\$427,200
(8) Loan defaults during period (\$)	\$0	(8) Loan defaults during period (\$)	\$0
(9) Arrears over 120 days at period end (\$)	\$26,128	(9) Arrears over 120 days at period end (\$)	\$10,534
<u>Program Impact</u>		<u>Program Impact</u>	
(10) Number of loans	498	(10b) Participants	427
(10b) Participants	362	(11) Annual Savings (Gross MWh)	7,778
(11) Annual Savings (Gross MWh)	39,057	(12) Annual Savings (Net MWh)	6,486
(12) Annual Savings (Net MWh)	39,504	(13) Lifetime Savings (Gross MWh)	60,459
(13) Lifetime Savings (Gross MWh)	336	(14) Lifetime Savings (Net MWh)	47,842
(14) Lifetime Savings (Net MWh)	257,873	(15) Annual Savings (Gross kW)	1,277
(15) Annual Savings (Gross kW)	28	(16) Annual Saving (Net kW)	1,030
(16) Annual Saving (Net kW)	21	(17) Total associated incentive volume (\$)	\$3,433,592
(17) Total associated incentive volume (\$)	\$18,882,050	(18) Total annual estimated energy cost savings (\$)	\$1,148,020
(18) Total annual estimated energy cost savings (\$)	\$6,992,208		

Rhode Island Public Energy Partnership (RI PEP)

<u>Income Statement</u>	
(1) 2023 Funds Available	\$54,162
(2) 2023 Loan budget	\$0
(3) Committed	\$0
(4) Paid	\$0
(4a) Funds Returned to OER	\$0
(5) Repayments	\$0
(6) Available 12/31/23	\$54,162
(7) Outstanding loan volume	\$0
(8) Loan defaults during period (\$)	0
(9) Arrears over 120 days at period end (\$)	\$0
<u>Program Impact</u>	
(10) Number of loans	0
(10b) Participants	0
(11) Annual Savings (Gross MWh)	0
(12) Annual Savings (Net MWh)	0
(13) Lifetime Savings (Gross MWh)	0
(14) Lifetime Savings (Net MWh)	0
(15) Annual Savings (Gross kW)	0
(16) Annual Saving (Net kW)	0
(17) Total associated incentive volume (\$)	\$0
(18) Total annual estimated energy cost savings (\$)	\$0

Notes

- 1 Amount available as of January 1, 2023. Includes line (6) "Available 12/31/23" plus line (3) "Committed" in Table E-6 and G-6 of the 2022 Year End Report.
 - 2 Budget adopted by Sales Team for 2023 operations. Budget includes projections of repayments made during 2023.
 - 3 As of December 31, 2023.
 - 4 As of December 31, 2023. This includes all projects paid through December 31, 2023 and the OBR associated with those projects. OBR payment are processed once the associated incentive has been paid, usually in batches.
 - 4a Funds returned to RI OER.
 - 5 As of December 31, 2023. This includes all projects paid through December 31, 2023 and the OBR associated with those projects. OBR payments are processed once the associated incentive has t
 - 6 Fund balance as of December 31, 2023. Committed funds are subtracted from this amount.
 - 7 Total outstanding loan balance. Loans lent out that still need to be paid back. This includes loans from previous years.
 - 8 Total loan value in default during period.
 - 9 Total loan value in arrears for over 120 days as of December 31, 2023.
 - 10 As of December 31, 2023
Unique customer names for large business (one customer name can have multiple sub accounts as is in the case of a franchise). Customer accounts used for small business
 - 10b (not adjusted for net-to-gross).
 - 11 As of December 31, 2023
 - 12 As of December 31, 2023
 - 13 As of December 31, 2023
 - 14 As of December 31, 2023
 - 15 As of December 31, 2023
 - 16 As of December 31, 2023
 - 17 Incentives paid out with loans.
 - 18 Estimated energy cost savings to loan fund participants.
- Values in quarterly reports are preliminary and subject to change. Data is finalized in the Year-End Report.

RHODE ISLAND ENERGY GAS ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table 4: Rhode Island Energy 2023 Revolving Loan Funds

Large C&I Gas Revolving Loan Fund

<u>Income Statement</u>		
(1)	2023 Funds Available	\$591,417
(2)	2023 Loan budget	\$2,500,000
(3)	Committed	\$0
(4)	Paid	\$119,920
(5)	Repayments	\$697,393
(6)	<u>Available 12/31/23</u>	<u>\$1,168,890</u>
(7)	Outstanding loan volume	\$975,625
(8)	Loan defaults during period (\$)	\$0
(9)	Arrears over 120 days at period end (\$)	\$0
<u>Program Impact</u>		
(10)	Number of loans	10
(10b)	Participants	10
(11)	Annual Savings (Gross MMBtu)	4,954
(12)	Annual Savings (Net MMBtu)	4,668
(13)	Lifetime Savings (Gross MMBtu)	476,263
(14)	Lifetime Savings (Net MMBtu)	446,382
(15)	Total associated incentive volume (\$)	\$75,160
(16)	Total annual estimated energy cost savings (\$)	\$95,713

Notes

- 1 Amount available as of January 1, 2023. Includes line (6) "Available 12/31/23" plus line (3) "Committed" in Table E-6 and G-6 of the 2022 Year End Report.
- 2 Budget adopted by Sales Team for 2023 operations. Budget includes projections of repayments made during 2023.
- 3 As of December 31, 2023. This includes all project paid through December 31, 2023 and the OBR associated with those projects. OBR payment are processed once the associated incentive has been paid usually in batches.
- 4 As of December 31, 2023. This includes all project paid through December 31, 2023 and the OBR associated with those projects. OBR payment are processed once the associated incentive has been paid usually in batches.
- 5 As of December 31, 2023
- 6 Fund balance as of December 31, 2023. Committed funds are subtracted from this amount.
- 7 Total outstanding loan balance. Loans lent out that still need to be paid back. This includes loans from previous years.
- 8 Total loan value in default during period.
- 9 Total loan value in arrears for over 120 days as of December 31, 2023.
- 10 As of December 31, 2023
- 10b Unique customer names for large business (one customer name can have multiple sub accounts as is in the case of a franchise).
- 11 As of December 31, 2023
- 12 As of December 31, 2023
- 13 As of December 31, 2023
- 14 As of December 31, 2023
- 15 Incentives paid out with loans.
- 16 Estimated energy cost savings to loan fund participants.

Values in quarterly reports are preliminary and subject to change. Data is finalized in the Year-End Report.

Table 2: Summary **Table 5**
Rhode Island Energy
2023 Test Metrics
Carbon Reduction¹

	CO2 (Electricity)	CO2 (Natural Gas)	CO2 (Oil)	CO2 (Propane)	CO2 (Total)
Residential	13,758	9,626	1,896	71	25,350
Income Eligible	1,171	838	523	26	2,558
C&I	19,912	7,317	(31)	-	27,198
Total	34,840	17,781	2,388	97	55,106

NOTES

¹ Carbon emissions values are from AESC 2021, Appendix G Table 159.

Values in quarterly reports are preliminary and subject to change. Data is finalized in the Year-End Report.