The Narragansett Electric Company
d/b/a/ Rhode Island Energy
Docket No. 24-XX-EE
2026 Annual Plan Attachment 3

2026 Evaluation, Measurement, and Verification Plan

TABLE OF CONTENTS

1. INTRODUCTION

Evaluation, Measurement, and Verification (EM&V) is an integral and required part of Rhode Island Energy's energy efficiency program planning process. EM&V provides independent verification of impacts to ensure that savings and benefits claimed by Rhode Island Energy through its energy efficiency programs are accurate and credible. EM&V also provides insight into market characteristics and guidance on energy efficiency program design to improve the delivery of cost-effective programs.

Rhode Island Energy's EM&V Plan continues to focus on evaluating Rhode Island projects, markets, and energy efficiency programs while leveraging as many resources as possible from evaluation studies in other jurisdictions to maximize value for ratepayers while minimizing costs. These studies are commissioned by Rhode Island Energy. They are conducted by independent evaluation firms, whose goal is to produce an accurate, complete, and transparent review of Rhode Island's energy efficiency programs and markets. The types of evaluation may include (but not limited to) the following:

- **Impact Evaluations:** Comparisons of claimed savings against actual realized savings using methods such as literature review, billing analyses, engineering methods and onsite data logging as a means of verification.
- **Process Evaluations:** Broad examinations of existing practices, such as program delivery methods, for the purpose of gathering information to draw conclusions about effectiveness of existing processes, highlight best practices, and offer suggestions for future improvements.
- **Market Assessment Studies:** Broad studies aimed at assessing changes in market conditions, such as evolving adoption rates of current energy efficiency technologies.
- **Net-to-Gross Evaluations:** Studies aimed at quantifying the rate of free-ridership and spillover associated with energy efficiency participants and non-participants.

  The free-ridership rate is the percentage of savings attributable to participants who would have installed the measures in the absence of program intervention while spillover includes the effects of two components:

  1. Participants in the program who install additional energy efficient measures outside of the program as a result of participating in the program, and
  2. Non-participants who install energy efficient measures as a result of being aware of the program

The study methodologies and savings assumptions from evaluation studies are documented in the Rhode Island Technical Reference Manual (TRM). The TRM is reviewed and updated annually to reflect changes in technology, baselines, and evaluation results.

The entire evaluation process is managed by Rhode Island Energy in consultation with the Rhode Island Energy Efficiency Resource Management Council (EERMC) and the Office of Energy Resources (OER). The

EERMC and OER follow each study closely and are involved in planning, work plan development, and review of interim work products and study results.

Rhode Island Energy's EM&V framework provides confidence among ratepayers and stakeholders that programs are effective and EM&V activities are independent and objective.

2. Evaluation Studies Applicable to 2026

2.1 Overview

Rhode Island Energy, with input from EERMC and OER, expects to complete ~~fifteen~~thirteen new (since the 2025 Annual Plan) Rhode Island-specific evaluation studies ~~in 2025~~ that will be applied beginning in 2026 ~~(~~; see Section 2.2 below~~).~~ for a list of these studies.[1] The research studies include impact evaluations, process evaluations, and market studies in the residential and commercial and industrial (C&I) sectors, as well as studies that are considered cross-cutting.

A complete list of historical research studies is provided in Section 4 along with a brief summary of the impact of those results in planning Rhode Island Energy's programs. Most of these studies are posted on the EERMC website.[2] Prior year studies that have been superseded by studies completed since the filing of the ~~2024~~2025 Energy Efficiency Plan have been removed from this list.

Section 5 provides detailed descriptions, findings, and recommendations of each of the Rhode Island-specific studies listed in the next section. In addition, selected research studies completed in other regions and/or other jurisdictions, most commonly Massachusetts,[3] are periodically reviewed for applicability to Rhode Island due to similarity with RI Energy's programs, either in the measures offered, or program structure or delivery. In some instances, the results of these other evaluations have been judged by Rhode Island Energy, in consultation with EERMC and OER, to be applicable to Rhode Island Energy's efficiency programs. Rhode Island Energy is adopting the results of these studies in 2026 program planning due to similarity, either in the measures offered, or program structure or delivery

2.2 Recent Rhode Island-Specific studies

The following studies have been completed since the 2025 Annual Plan filing or are expected to be completed before the end of 2025.

Commercial

- Process Evaluation of C&I New Construction Program (RI-24-CX-CINCProcess)

[1] Quantitative studies expected to be completed after approximately August 15, 2025, will not be used in program planning

[2] https://eec.ri.gov/data-and-publications/ then scroll to "Program Evaluation Studies."

[3] Prior to May 2022, Narragansett Electric Company was part of National Grid, which has affiliates in Massachusetts, and which facilitated the leveraging of evaluation studies.

- Process Evaluation of C&I Custom Approach (RI-24-CX-CustProcessEval)
- C&I New Construction Baseline Study (RI-22-CX-Codes)
- Market Characterization and Impact Evaluation of C&I Lighting Controls (RI-24-CE-Lighting)
- Impact Evaluation of PY2023 Custom Gas Installations (RI-24-CG-CustGasPY23)
- Impact Evaluation of PY2023 Custom Electric Installations (RI-24-CE-CustElecPY23)
- ~~C&I Industry Standard Practice Research (RI-25-CX-ISPResearch)~~
- C&I Lighting Impact Evaluation (RI-25-CE-CommLighting)

Residential and Income-Eligible

- Residential Market Research - Moderate Income Study (RI-24-RX-MarketResearch)
- Income Eligible Single Family Impact Evaluation (RI-24-RX-IncEligible)
- Multifamily Custom Measure Impact Evaluation (RI-24-XX-MultiFamCustom)
- ~~Residential Market Research (RI-25-RX-MarketResearch)~~
- Residential Products Impact and Market Effects Evaluation (RI-25-RE-Products)
- EnergyWise & Income-Eligible Multifamily Impact Evaluation -Prescriptive-focus (RI-25-RX-MultiFam)
- Residential & Income-Eligible QA/QC Process Evaluation (RI-25-RX-QAQCProc)

Cross-cutting

- None ~~at this time~~

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2.3 Recent Studies Adopted from Other Jurisdiction

Residential

- Massachusetts and Connecticut Heat Pump Metering Study[4]

3. 2026 Planned Evaluation Studies

3.1 Overview

This section describes planned studies that focus on areas of interest to Rhode Island Energy's energy efficiency programs and build on the deep history of evaluation studies commissioned by Rhode Island Energy over numerous years. To optimize the use of evaluation resources, where programs are similar in program delivery and the population served with those offered in Massachusetts, and timing and budget permit, Rhode Island Energy will consider avenues to participate in Massachusetts studies.[5]

[4] https://ma-eeac.org/wp-content/uploads/MA-HPMS-CT-R2246-Heat-Pump-Metering-Study-Final-Report_April_2025.pdf

[5] Despite no longer being part of National Grid, Rhode Island Energy plans to stay abreast of Massachusetts evaluation activities that may be beneficial and applicable in Rhode Island and follow through as appropriate.

3.2 Summary

Table 2 lists evaluation studies that Rhode Island Energy plans to conduct in 2026 to inform the 2027 Annual Plan and future planning cycles. Barring changes to the 2027 Annual Plan schedule, studies that will be incorporated into the Annual Plan must be completed by August 2026. The proposed budget for evaluation study expenditures in 2026 is approximately $2.~~6~~5 million ($2.0 million for electric and $0.~~6~~5 million for gas), including staffing costs. The proposed budget for EM&V comprises approximately 2.~~6~~7% of the total portfolio budget in 2026.

Study labeling codes take the general form shown in Table 1. For example, RI-~~17~~25-CG-CustGas refers to the Custom Gas Evaluation Study that started in ~~2017~~2025 in the commercial sector for gas, while RI-~~18~~24-RX-IESF refers to the evaluation study started in 2024~~2018~~ of the income eligible single-family program for electric and gas.

Table 1. Study Labeling Code Format

[State]	–	[Year Study ~~Conducted~~ Initiated]	–	[Sector]	[Fuel]	–	[Keyword]
RI		~~22~~ ~~23~~ 24 25 26		R = residential C = commercial X = cross sector	E = electric G = gas X = electric & gas		

Table 2. Planned Evaluation Studies in 2026[6]

	(a)	(b)	(c)	(d)	(e)
	Sector	**Study Code**	**Type**	**Affected Programs**	**Study Name**
1	C&I	RI-25-CE-CustElecPY24 RI-26-CE-CustElecPY25	Impact	C&I Elec	Impact Evaluation of Custom Electric Installations (continuing & starting)
2	C&I	RI-25-CX-ISPResearch	Impact	C&I	Commercial and Industrial Industry Standard Practice Research (continuing)
3	C&I	RI-26-CE-CINonLtgPresc	Impact	Large C&I Electric	Large C&I Electric Non-Lighting Prescriptive Impact Evaluation
~~4~~	~~C&I~~	~~RI-26-XX-CodeComp~~	~~Impact~~	~~All~~	~~Code Compliance Initiative~~
~~5~~	~~C&I~~	~~RI-26-CX-SBSImpact~~	~~Impact~~	~~Small C&I Electric & Gas~~	~~Small Business Services Program~~

[6] NOTE: Table 2 contain a list of possible studies for 2026 that are very preliminary and have not been fully vetted yet. Budget constraints and other considerations will likely reduce the number and/or scope of studies listed here that make it into the final 2026 EM&V Plan.

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					~~Non-lighting Impact Evaluation~~
~~6~~	~~C&I~~	~~RI-26-CG-GasPrescImpact~~	~~Impact~~	~~Large C&I Gas~~	~~Large Commercial Gas Prescriptive Impact Evaluation~~
~~7~~4	C&I	RI-26-CG-CustGasPY24/25	Impact	Large C&I Gas	Impact Evaluation of PY2024/2025 Custom Gas Installations (Starting)
~~8~~5	Residential	RI-25-RX-RMSS	Market	Residential	Residential Mechanical Systems Study (continuing)
~~9~~6	Residential	RI-26-RE-AppRecycImpact	Impact	Appliance Recycling	Residential Appliance Recycling Impact Evaluation
~~10~~7	~~Cross Cutting~~Residential	~~R_~~RI-26-~~XX-MeasResearch~~RX-Language Access	Market	Income Eligible~~All~~	~~Measure Research~~Language Access Needs Assessment Study
8	Residential	RI-26-RX-EquityAnalysis	Market	Income Eligible	Equity Analysis and Outreach Evaluation
~~11~~9	Cross- Cutting	RI-26-XX-CodeComp	Impact	All	Code Compliance Initiative
10	C&I	RI-26-DE-RefrigDemo	Demonstration	C&I	Refrigerant Swap Demonstration Evaluation

~~The evaluation pathway for pilots, demonstrations, and assessments is based on each effort's scale, budget, scope, and the availability of external data. Rhode Island Energy's EM&V team will provide guidance beginning at the Plan stage for all pilots, demonstrations, and assessments to ensure design and data collection are suitable to allow for effective evaluation. In cases where an independent evaluation is appropriate, the EM&V team will run the evaluation. For guidelines on the stakeholder review process and which pilots, demonstrations, and assessments will receive an independent evaluation, please see Attachment 7. The evaluation will follow the same established evaluation framework used in evaluations of established programs. This includes management of the independent evaluation vendor by Rhode Island Energy's EM&V team in consultation with the EERMC and OER. See Attachment 7 for further details on pilots, demonstrations, and assessments.~~

The EM&V team will follow Rhode Island Energy's standard procurement policy that cuts across programs to achieve the lowest cost procurement of required external services while enabling Rhode Island Energy to minimize administrative costs, deliver on program commitments, and meet time-sensitive regulatory deadlines. Rhode Island Energy's standard procurement policy is supported and enforced by a stand-alone internal procurement function. Contract characteristics below certain thresholds are eligible for sole sourcing while contract characteristics above thresholds require competitive procurement - unless it can be demonstrated to the procurement organization that securing multiple bids is not possible or practical.

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Final reports along with graphical executive summaries will be made publicly available upon completion of the evaluation studies. All complete graphical executive summaries will be provided as a handout at EERMC meetings and posted on the EERMC website.[7]

~~**NOTE: Sections 3.3 and 3.4 contain a list of possible studies for 2026 that are very preliminary and have not been fully vetted yet. Budget constraints and other considerations will likely reduce the number and/or scope of studies listed here that make it into the final 2026 EM&V Plan.**~~

The evaluation pathway for demonstrations, pilots, and assessments (DPA) is based on each effort's scale, budget, scope, and the availability of external data. Rhode Island Energy's EM&V team will provide guidance beginning at the Plan stage for all demonstrations, pilots, and assessments to ensure design and data collection are suitable to allow for effective evaluation. In cases where an independent evaluation is appropriate, the EM&V team will run the evaluation. For guidelines on the stakeholder review process and which pilots, demonstrations, and assessments will receive an independent evaluation, please see Attachment 7. The evaluation will follow the same established evaluation framework used in evaluations of established programs. This includes management of the independent evaluation vendor by Rhode Island Energy's EM&V team in consultation with the EERMC and OER. See Attachment 7 for further details on pilots, demonstrations, and assessments. Funds for PDA evaluations are included as part of the PDA budget, as opposed to the evaluation budget.

3.3 Commercial and Industrial Planned Studies

RI-25-CE-CustElecPY24 – Impact Evaluation of PY2024 Custom Electric Installations (continuing)

RI-26-CE-CustElecPY25 – Impact Evaluation of PY2025 Custom Electric Installations (starting)

The objective of this impact evaluation is to provide verification of electric energy savings estimates for a sample of non-lighting custom electric projects through site-specific inspection, metering, and analysis. The results of this study will be used to determine the realization rates for custom electric energy efficiency offerings based on installations from 2024. This will continue 'rolling' evaluation efforts, where each year will evaluate roughly 1/3 of the number of sites needed for a full sample and results will be combined with results from the previous two years, which will keep the realization rates updated yearly. This study began in summer 2025 and will continue into 2026, at which time a new cohort from 2025 will be studied.

RI-25-CX-ISPResearch - Commercial and Industrial Industry Standard Practice Research (continuing)

The objective of this study is to better understand what the baseline or industry standard practice (ISP) is for certain technologies. There are a few potential areas of investigation: One area is air compressors, where many projects use load/no load as the baseline, but VFD (variable frequency drive) compressors are ever more common and could be standard practice. ~~We will be studying compressor ISP jointly with~~

[7] https://EERMC.ri.gov/data-and-publications/ scroll down to Program Evaluation Studies

~~Massachusetts. The second potential area is a cannabis grow facility ISP study, particularly with regards to horticulture lighting. This is an emerging area in the state with great potential for efficiency. However, since it is emerging, there are varying views about what baseline practices are. These questions could be resolved with an ISP study.~~ We are studying compressor ISP jointly with Massachusetts. Other areas under consideration are variable frequency drives and changes related to adoption of the IECC 2024 building code. Rhode Island Energy will determine the specific area(s) for investigation in 2025/26.

RI-26-CE-CINonLtgPresc – Large C&I Electric Non-Lighting Prescriptive Impact Evaluation

Non-lighting prescriptive measures have not been studied since 2016, ~~so~~and this category of measures provide an appreciable amount of savings after the custom and lighting categories. Therefore, an impact evaluation to verify the savings achieved and to update measure savings parameters and/or the realization rates ~~may be~~is timely and warranted.

~~**RI-26-CX-SBSImpact – Small Business Services Program Non-Lighting Impact Evaluation**~~

~~Rhode Island Energy is still assessing the need for and interest in this study to assess the savings parameters and/or realization rates for the non-lighting custom and prescriptive measures in the Small Business Services Program.~~

~~**RI-26-CG-CIGasImpact – Large Commercial Gas Prescriptive Impact Evaluation**~~

~~Rhode Island Energy is still assessing the need for and interest in this study to assess the savings parameters and/or realization rates for the Large Commercial Gas prescriptive measures, both retrofit and new construction.~~

~~RI~~RRI-26-CG-CustGasPY24/25 - Impact Evaluation of PY2024/2025 Custom Gas Installations (Starting)

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The objective of this impact evaluation is to provide verification of natural gas energy savings estimates for a sample of custom gas projects through site-specific inspection, metering, and analysis. The results of this study will be used to determine the realization rates for custom gas energy efficiency offerings based on installations from 2024 and 2025. For the first time we are skipping the stand-alone evaluation of the PY2024 participants and will instead evaluate two years of participants for program years 2024 and 2025. These results will then be combined with the PY2023 analysis completed in 2025.

This study will begin in summer 2026 and will continue into 2027. After that, the next cohort for gas will not begin until 2028 for the 2026 and 2027 program years.

RI-26-DE-RefrigDemo - Refrigerant Swap Demonstration Evaluation

This will be an evaluation of the proposed C&I refrigerant swap demonstration. It is currently anticipated to be a pre/post metering study of commercial refrigeration (grocery stores) swap outs from R404a to R448a, and new construction projects involving CO2 as refrigerant.

3.4 Residential and Income-Eligible Planned Studies

RI-25-RX-RMSS – Residential Mechanical Systems Study (continuing)

This study began in 2025 but will be finalized in 2026. The study will provide Rhode Island Energy ~~(RI Energy)~~ with an updated characterization of the heating, cooling, and water heating equipment (mechanical systems) in the state's housing stock. In addition, this study aims to assess the home types and characteristics of electrically heated homes and provide ~~RI~~Rhode Island Energy with tools to identify and target such homes for energy efficient upgrades. The study will also assess readiness for heat pump water heaters for a subset of respondents.

RI-26-RE-AppRecycImpact – Residential Appliance Recycling Impact Evaluation

~~Rhode Island Energy is still assessing the need for~~ This study was last completed in 2021 and ~~interest in this study~~ refrigerator recycling continues to ~~assess~~be a significant component of the portfolio. Since a new vendor was introduced in late 2024, it is a good time to update the impact evaluation for savings parameters and/or realization rates.

RI-26-RE-LanguageAccess– RI-26-RX-Language Access Needs Assessment

This research would benchmark Rhode Island Energy's language access in the Income Eligible program against best practices in language access to identify what's working well and where there are opportunities to improve. The evaluation team's experience with language access studies in other states like Massachusetts equips the team with a pre-existing baseline for ~~the Appliance Recycling Program.~~ comparison to Rhode Island Energy's programs. Research activities include a benchmarking assessment and either a focus group or individual interviews with program leads.

RI-26-RE-EquityAnalysis – Equity Analysis and Outreach Evaluation

Rhode Island Energy has established metrics centered on equity as described in Section 2.6.1 of the Main Text. As data on these metrics is collected, such as related to participation or effectiveness in Environmental Justice communities, Rhode Island Energy anticipates that, pending analysis of results, it may be desirable to pair data analysis with customer interviews or focus groups to facilitate an adjustment of strategies. To enable a full analysis of the program year 2025 data, this study would not launch sooner than the middle of 2026.

3.5 Cross-sector or Other Planned Studies

RI-26-XX-CodeComp - Code Compliance Initiative

The last Code Compliance Study was conducted in 2017, so an updated study of compliance and possible savings is warranted, for both C&I and Residential. This study involves reviewing code compliance official actions in a sample set of towns to determine the impact of Rhode Island Energy's code official training efforts.

~~**RI-26-XX-MeasResearch – Measure Research**~~

~~Rhode Island Energy is still assessing the need for and interest in this study. Secondary research would be conducted to find out what other utilities are doing with regard to several possible C&I and/or residential topics. For example, what C&I lighting will look like in 2027 and how we can reach that market; what other states/program administrators (PAs) are doing instead of lighting, both electrification and non-electrification; what C&I and residential measures (both gas and electric) are available and which can be ramped up most effectively; what is the best delivery mechanism; and what are the barriers that implementation faces. Primary research with PAs or program vendors may be conducted.~~

4. Historic Evaluation Studies

This section contains a list of all historic studies still being used by Rhode Island Energy as the basis of claimed savings in the ~~2024~~2025 Program Plan and in the Technical Reference Manual. An at-a-glance summary in *Table 3* shows the studies by program, followed by the more detailed *Table 4* summarizing the relevant studies. These studies are available through the EEC, the PUC, and Rhode Island Energy. Table 3 also highlights in blue the studies that are included in the 2026 evaluation plan.

Table 3. Historic Evaluation Studies

	(a)	(b)	(c)	(d)	(e)	(f)
	Sector/Program	Impact	Market	Process	Policy	For ~~2025~~2026 studies, year of prior study
1	**Residential**					
2	**EnergyWise Multifamily**			2020		
3	*Custom*	2025~~2024~~				
4	*Prescriptive*	2025*				~~2020~~

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5	**EnergyWise Single Family**	2020		2020		
6	*Weatherization*	2023				
7	**Home Energy Reports**	2020		2017		
8	**Residential Consumer Products**		2025*			~~2018~~
9	*Appliance Recycling*	~~2021~~2026				2021
10	*Non-Recycling and Refrigeration*	2025*				~~2019~~
11	**Residential HVAC**					
12	*Heat Pumps*	2025*	2024			~~2016~~
13	**Residential New Construction**	2023				
14	*Code Compliance*	2017				
15	**Income Eligible**					
16	*Equity*		2026			
17	*Language Access*		2026			
~~16~~18	**Income Eligible Multifamily**			2020		
~~17~~19	*Custom*	2025~~2024~~				
~~18~~20	*Prescriptive*	2025*				~~2020~~
~~19~~21	**Income Eligible Single Family**	~~2024~~2025				
~~20~~22	**Commercial & Industrial**					
~~21~~23	**Large C&I New Construction**			~~2024~~2025		
~~22~~24	*Code Compliance*	2017				
~~23~~25	*Baseline/ ISP*		~~2024~~2025			
~~24~~26	**Large C&I Retrofit**					
~~25~~27	*Commissioning*			2025*		~~None~~
~~26~~28	**Large C&I Custom**			2024		
~~27~~29	*C&I Custom Electric*	~~2025~~2026		-2025		~~2024~~2025

~~28~~30	*C&I Custom Gas*	~~2024~~2026		-2025		~~2023~~2025
~~29~~31	*C&I Custom CDA*	2018				
~~30~~32	**Large C&I ISP**	2025				~~2023~~
~~31~~33	**Large C&I Prescriptive**					
~~32~~34	*C&I Lighting Controls*	2025*	2025*			~~None~~
~~33~~35	*C&I Lighting*	2025*	2024~~2022~~			~~2021~~
~~34~~36	*C&I ~~Heat Pump~~ Non-Lighting*	-2026	~~2025~~			~~2020~~
~~35~~37	*C&I Other*	2023				
~~36~~38	**Small Business Direct Install**			2023		
~~37~~39	*Electric*	2020				
~~38~~40	*Gas*	2019				
~~39~~41	**C&I Multifamily**					
~~40~~42	*Custom*	~~2024~~2025				
~~41~~43	*Prescriptive*	2025*				~~2020~~
~~42~~44	**Cross Cutting/Other**					
~~43~~45	*Avoided Cost*				2024	
~~44~~46	*C&I Free Ridership/Spillover*		2024			
47	*Code Compliance*	2026				
~~45~~48	*Economic Impacts*	2023				
~~46~~	~~*Gas Peak Demand*~~	~~2021~~				
~~47~~49	*Measure Life*	2024				
~~48~~50	*Non-Participant*		2022			
~~49~~51	*Piggybacking*			2020		
~~50~~52	*Potential Study*		2020			
~~51~~53	*~~RASS~~RMSS*		2025*			~~2018~~
~~52~~54	*Resi & Income Eligible QA/QC*			2025*		~~None~~

~~53~~55	*Resi Participation*		2022			
~~54~~56	*TMY3 to TMYx*	2025				~~None~~
~~55~~57	*Workforce Analysis*		2023			

** These studies are on-going and expected to be completed in 2025*

Table 4. Completed Evaluation Studies Applicable in 2025

	2025		
	(a) Study	(b) Impact Descriptions	(c) Sector
1	Resource Innovation (Cadeo) and Illume, Weatherization Motivations: Moderate Income, January 2025	The objective of this study was to understand the motivations, barriers, and willingness to pay for weatherization. Study recommended setting out-of-pocket cost to below $300 for weatherization	Res
2	Resource Innovation (Cadeo) Multifamily Custom Programs Impact Evaluation, March 2025	The objective of this study was to assess and review the electric and gas energy savings multifamily programs. Study recommended adjusted realization rate.	**Cross-Cutting**
3	Cadeo, Income Eligible Single Family Impact Evaluation, January 2025	Updated and reviewed the gross per-unit energy savings for all measures in Rhode Island Energy's Income Eligible Single Family (IESF) Program using data from 2021–2023.	**IE**
4	Resource Innovation (Cadeo) and NMR Group, C&I New Construction Program Process Evaluation, January 2025	This study evaluated RIE's C&I New Construction Program to assess its design, operations, and customer experience.	**C&I**
5	DNV, Rhode Island Non-Residential New Construction Industry Standard Practice Study, March 2025	This study aimed to assess standard building practices and energy code compliance for selected measures in buildings permitted under IECC 2015. Study updated adjusted ISP factor	**C&I**
6	Cadeo, Large C&I Retrofit Program (Custom Pathway) Process Evaluation, May 2025	The evaluation aimed to assess program performance, identify improvement opportunities, and support future program planning.	**C&I**
	2024		
	(a) Study	(b) Impact Descriptions	(c) Sector
7	Cadeo, Comprehensive Measure Life Review II, September 2024	The study reviewed prescriptive measure life assumptions and ensured they aligned with recent research, Rhode Island evaluation studies, and industry best	Cross-Cutting

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		practices. The study also recommended measure life updates when appropriate.	
8	Illume, Electric Resistance Heat Characterization Study, December 2024	The study identified the needs of homeowners and landlords with electric resistance heat and ways to overcome barriers heat pump adoption.	Res
9	DNV, Rhode Island Swarm Thermostats – Technology Evaluation Pilot, March 2024	The evaluation calculated the impacts of installing the Swarm Logic control technology at four sites equipped with HVAC units controlled by Wi-Fi thermostats.	C&I
10	~~2024~~Synapse Energy Economics, Avoided Energy Supply Components in New England 2024 Report, February 2024	The study developed new estimates of avoided costs associated with energy efficiency measures for program administrators throughout New England States. Rhode Island used the avoided costs of energy, capacity, natural gas, fuel oil, environmental costs and demand reduction induced price effects resulting from this study for 2025 program planning.	All
11	Tetra Tech, 2022 Commercial and Industrial Programs Free-Ridership and Spillover Study, January 2024	The study updated free-ridership and spillover rates for the C&I program.	C&I
12	DNV, LightingPLUS Market Characterization. A joint Program Administrator Study, December 2024	The study aimed to assess the remaining energy savings potential in the commercial and industrial lighting market and evaluate six emerging "NextGen" lighting technologies.	**C&**
13	DNV, Impact Evaluation of PY2022 Custom Gas Installations, August 2024	The study updated realization rates for custom electric projects, as part of a rolling effort that incorporated results from PY2020, PY2021, and PY2022.	C&I
14	DNV, Impact Evaluation of PY2022 Custom Electric Installations, August 2024	The study updated realization rates for custom gas projects, as part of a rolling effort that incorporated results from PY2020, PY2021, and PY2022.	C&I
15	DNV, MA Impact Shape Final, February 2024 (Leveraged from MA)	The study updated commercial loadshapes for end uses such as refrigeration, compressed air, food service, water heating, etc.	C&I
		2023	
	(a) Study	(b) Impact Descriptions	**(c) Sector**

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~~1~~16	Cadeo & NMR, Residential New Construction and Code Compliance Study, May 2023 ~~Cadeo, Comprehensive Measure Life Review II, September 2024~~	The study updated the User Design Reference Home baseline measure level efficiencies, observed how building practices have changed over time, and identified the level of code compliance.~~The study reviewed prescriptive measure life assumptions and ensured they aligned with recent research, Rhode Island evaluation studies, and industry best practices. The study also recommended measure life updates when appropriate.~~	~~All~~Res
~~2~~	~~Illume, Electric Resistance Heat Characterization Study (Draft)~~	~~The study identified the needs of homeowners and landlords with electric resistance heat and ways to overcome barriers heat pump adoption~~	~~Res~~
~~3~~	~~DNV, Rhode Island Swarm Thermostats – Technology Evaluation Pilot. March, 2024~~	~~The evaluation calculated the impacts of installing the Swarm Logic control technology at four sites equipped with HVAC units controlled by Wi-Fi thermostats.~~	~~C&I~~
~~4~~	~~Synapse Energy Economics, Avoided Energy Supply Components in New England 2024 Report. February, 2024~~	~~The study developed new estimates of avoided costs associated with energy efficiency measures for program administrators throughout New England States. Rhode Island used the avoided costs of energy, capacity, natural gas, fuel oil, environmental costs and demand reduction induced price effects resulting from this study for 2025 program planning.~~	~~All~~
~~5~~	~~Tetra Tech, 2022 Commercial and Industrial Programs Free Ridership and Spillover Study, January 2024~~	~~The study updated free ridership and spillover rates for the C&I program.~~	~~C&I~~
~~6~~	~~DNV, Impact Evaluation of PY2022 Custom Gas Installations, August 2024~~	~~The study updated realization rates for custom electric projects, as part of a rolling effort that incorporated results from PY2020, PY2021, and PY2022.~~	~~C&I~~
~~7~~	~~DNV, Impact Evaluation of PY2022 Custom Electric Installations, August 2024~~	~~The study updated realization rates for custom gas projects, as part of a rolling effort that incorporated results from PY2020, PY2021, and PY2022.~~	~~C&I~~
~~8~~	~~DNV, ISP Recommendations: Ultra-Low Temperature Freezers, September 2023 (Leveraged from MA)~~	~~The study investigated industry standard practice for ultra-low temperature freezers and updated the baseline from the results.~~	~~C&I~~
~~9~~17	~~Cadeo, Non-~~NMR Group, Residential ~~Technical Reference Manual Review, October 2022~~Heat Pump NEIs Study, July 2023 (Leveraged from MA)	The study ~~performed a comprehensive review of the non-residential prescriptive~~updated NEIs for heat pump related measures ~~in the MA TRM and recommended updates for key parameters~~.	~~C&I~~Res

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~~10~~	~~Steam Traps and Boiler Efficiency Research Phase II, November 2022 (Leveraged from MA)~~	~~The study conducted research of steam trap projects practices and boiler plant efficiency measurements to improve project accuracy.~~	~~C&I~~
~~11~~18	**Guidehouse, MA Residential Building Use and Equipment Characterization – Phase 7, December 2023 (Leveraged from MA)**	**The study collected saturation, characterization, and usage behavior data for major appliances, HVAC equipment, and electronics in MA homes. The study updated residential load shapes based on the findings.**	**Res**
~~12~~	~~DNV, MA Impact Shape Final, February 2024 (Leveraged from MA)~~	~~The study updated commercial loadshapes for end uses such as refrigeration, compressed air, food service, water heating, etc.~~	~~C&I~~
~~13~~	~~NMR Group, Residential Heat Pump NEIs Study, July 2023 (Leveraged from MA)~~	~~The study updated NEIs for heat pump related measures.~~	~~Res~~

~~2023~~

	~~(a) Study~~	~~(b) Impact Descriptions~~	~~(c) Sector~~
~~14~~	~~Cadeo & NMR, Residential New Construction and Code Compliance Study, May 2023~~	~~The study updated the User Design Reference Home baseline measure level efficiencies, observed how building practices have changed over time, and identified the level of code compliance.~~	~~Res~~
~~15~~19	**Cadeo, Comprehensive Measure Life Review, August 2023**	**The study reviewed prescriptive measure life assumptions and ensured they aligned with recent research, Rhode Island evaluation studies, and industry best practices. The study also recommended measure life updates when appropriate.**	Cross-Cutting
~~16~~20	Cadeo, EnergyWise Single Family Weatherization Impact Evaluation, August 2023	The study updated the gross energy savings for EWSF's weatherization measures, for both primary and secondary heating and cooling. The evaluation accounted for energy savings associated with natural gas, electricity and/or delivered fuels (oil, propane, and wood).	Res
~~17~~21	DNV, Impact Evaluation of PY2021 Custom Gas Installations, August 2023	The study updated realization rates for custom gas projects, as part of a rolling effort that incorporated results from PY2019, PY2020, and PY2021.	C&I
22	DNV, ISP Recommendations: Ultra Low Temperature Freezers, September 2023 (Leveraged from MA)	The study investigated industry standard practice for ultra-low temperature freezers and updated the baseline from the results.	C&I

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~~18~~23	DNV, Impact Evaluation of PY2021 Custom Electric Installations, August 2023	The study updated realization rates for custom electric projects, as part of a rolling effort that incorporated results from PY2019, PY2020, and PY2021.	C&I
~~19~~24	DNV, Rhode Island Commercial Food Service Equipment ISP, August 2023	The study characterized industry standard practice in RI for commercial kitchen equipment by incorporating the 2023 appliance standards and prevalence of used equipment in the marketplace.	C&I
~~20~~25	Cadeo, Small Business Program Process Evaluation, August 2023	The study assessed program activities and identified opportunities for program enhancement for the small business program.	C&I
~~21~~26	BW Research Partnership, Rhode Island Energy Workforce Development, August 2023	The study quantified the current energy efficiency workforce in RI, identified needs and opportunities for the future, highlighted workforce development gaps and potential solutions, and identified potential roles for RI Energy in supporting energy efficiency workforce development in RI.	Cross-Cutting

2022

(a) **Study**	(b) **Impact Descriptions**	(c) **Sector**
~~22~~27 DNV, C&I Lighting Market Characterization and Adjusted Measure Life Study, August 2022	The study calculated adjusted measure lives for non-residential custom and prescriptive lighting measures for RI.	C&I
~~23~~28 ~~DNV, Impact Evaluation of PY2020 Custom Gas Installations, August 2022~~ Cadeo, Non-Residential Technical Reference Manual Review, October 2022 (Leveraged from MA)	~~The study updated realization rates for custom gas projects, as part of a rolling effort that incorporated results from PY2018, PY2019, and PY2020.~~ The study performed a comprehensive review of the non-residential prescriptive measures in the MA TRM and recommended updates for key parameters.	C&I
~~24~~29 Steam Traps and Boiler Efficiency Research Phase II, November 2022 (Leveraged from MA)~~DNV, Impact Evaluation of PY2020 Custom Electric Installations, August 2022~~	The study ~~updated realization rates for custom electric~~conducted research of steam trap projects~~, as part of a rolling effort that incorporated results from PY2018, PY2019,~~ practices and ~~PY2020~~boiler plant efficiency measurements to improve project accuracy.	C&I

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~~25~~30	DNV, Rhode Island Cannabis Industry Standard Practice, August 2022	The study identified industry standard practices for the medical market cannabis industry with a focus on horticultural lighting, lighting controls, cultivation area HVAC, HVAC controls, and dehumidification.	Cross- Cutting
~~26~~31	Cadeo, Nonparticipant Market Barriers Study, June 2022	The study characterized the customer groups not participating in Rhode Island Energy's energy efficiency programs, determined barriers to participation, and identified opportunities to engage nonparticipants.	Cross- Cutting
~~27~~32	Cadeo, Participation and Multifamily Census Study, June 2022	The study identified trends and drivers in participation and the likelihood of nonparticipants opting into a residential program in the future. The study also developed an algorithm to identify multifamily buildings suitable for RIE's multifamily programs.	Cross- Cutting
~~28~~	~~2021 DNV, O&M and Non-O&M NEI Study (MA20X10-B-CIOMNEI), October 2021.~~	~~This study developed O&M and non-O&M non-energy impacts (NEIs) across all C&I measures and programs.~~	~~C&I~~

~~2021~~

	(a) Study	(b) Impact Descriptions	(c) Sector
~~29~~33	DNV, Impact Evaluation of PY2019 Upstream Lighting Program, July 2021	This study updated prospective realization rates and impact factors for the C&I Upstream lighting program. The values reflect decreasing ISR values for Screw-in products and increasing ISRs for linear products. These will be applicable for 2022, 2023, and beyond.	C&I
~~30~~34	DNV, Franchise Controls Deemed Savings Study, March 2021 (Leveraged study from MA)	This study recommended a deemed savings value of 5,344 kWh for a building automation system (BAS) measure that controls small individual food service appliances.	C&I
35	DNV, O&M and Non-O&M NEI Study (MA20X10-B-CIOMNEI), October 2021	This study developed O&M and non-O&M non-energy impacts (NEIs) across all C&I measures and programs.	C&I
~~31~~36	DNV, Upstream Lighting NTG, June 2021 (Leveraged study from MA)	This study updated NTG values for upstream lighting technologies and adjusted the values down significantly due to heavy free ridership.	C&I
~~32~~37	DNV, Ground Source Heat Pump eTRM Measure Review,	This study recommended that GSHPs be broken out from ASHPs into their own category offering to allow the program to attribute savings, baselines, and	C&I

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	March 2021 (Leveraged study from MA)	lifetimes in a more defensible way. It also recommended the GSHP lifetime be updated to 25 years.	
~~33~~38	DNV, Energy Management System ISP Study, 2021 (Leveraged study from MA)	This study identified industry standard practices for energy management systems, with a particular focus on criteria for determining when an existing system should be considered failed.	C&I
39	NMR Group, Inc., Rhode Island Appliance Recycling, November 2021	This study updated the gross kWh savings, realization rates and NTG factors for refrigerator and freezer recycling measures.	Res
~~34~~40	Guidehouse, RCD Virtual Assessment Study, March 2021 (Leveraged study from MA)	This study found that in-service rates are lower for self-installed measures. Rhode Island leveraged results from this study to update the in-service rates for instant savings measures in the EnergyWise Single Family program.	Res
~~35~~41	Guidehouse, Comprehensive TRM Review, April 2021 (Leveraged study from MA)	This study updated savings assumptions and effective useful lives (EUL) of several residential measures in MA. Rhode Island adopted the results from this study to update savings and EUL assumptions for several measures in the residential programs.	Res
~~36~~42	NMR, Low Income Multifamily Health NEI (TXC 50), July 2021 (Leveraged study from MA)	This study produced NEI values associated with energy efficiency programs in Income Eligible, Multifamily buildings. A total of 4 health and safety NEIs were monetized as part of this study. Arthritis, Thermal Stress (cold), Home Productivity, and reduced fire risk were all found to have Annual Per unit values of $49, $1,426, $49, and $13, respectively, totaling $1536. These values are allocated to all applicable air sealing, insulation, and heating measures.	Res
~~37~~43	NMR, Residential New Construction Quick Hit NEI Study (MA20X14-RNCNEI), September 2021 (Leveraged study from MA)	The study produced updated NEI values for heating related measures offered through the Residential New Construction program. The total Heating NEIs for RNC went from an Annual Per Unit value of $117 to $142.33 due to increases in thermal comfort and noise reduction related impacts.	Res
~~38~~44	NMR, Residential Downstream/Upstream Products Net-to-Gross Study, June 2021 (Leveraged study from MA)	This study yielded prospective net-to-gross ratios and retrospective and prospective in-service rates for products supported by the Residential Retail or Residential Coordinated Delivery Initiatives. Rhode Island adopted the results from this study to update 2022 planning assumptions for ENERGY STAR Products program.	Res
~~39~~45	NMR, Low-rise Residential New Construction Net-to-Gross Study, July 2021 (Leveraged study from MA)	This study yielded prospective and retrospective net-to-gross ratios for measures supported by the Low Rise Residential New Construction offering. Rhode Island adopted the results from this study to update 2022 planning assumptions.	Res

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~~40~~46	NMR, Renovations and Additions Net-to-Gross Study, July 2021 (Leveraged study from MA)	This study yielded prospective and retrospective net-to-gross ratios for measures supported by the Renovations and Additions Residential New Construction offering. Rhode Island adopted the results from this study to update 2022 planning assumptions.	Res
~~41~~47	Guidehouse, Impact Analysis of Residential Wi-Fi Thermostats, September 2021 (Leveraged study from MA)	This study updated savings assumptions for programmable and Wi-Fi thermostats delivered through retail and direct install channels. Rhode Island adopted the draft results from this study to update savings for programmable and Wi-Fi thermostat measures in the residential HVAC and retrofit programs.	Res
~~42~~48	Net-to-Gross Research of RCD and Select Products Measures (MA20R28) (Leveraged from MA)	For RI, the study applied new NTG results for the residential gas and electric HVAC programs.	Res

2020			
	(a) **Study**	(b) **Impact Descriptions**	(c) **Sector**
~~43~~49	Cadeo, Impact and Process Evaluation of EnergyWise Single Family Program, September 2020.	This study updated gross savings, in-service rates, and net-to-gross ratios for the EnergyWise Single Family program.	Res
~~44~~50	Cadeo, Impact and Process Evaluation of EnergyWise Multi Family Program, September 2020.	This study updated gross savings, realization rates, in-service rates, and net-to-gross ratios for the EnergyWise Multi Family program.	Res
~~45~~51	Cadeo, Impact and Process Evaluation of Income Eligible Multi Family Program, September 2020.	This study updated gross savings, realization rates and in-service rates for the Income-Eligible Multi Family program.	Res
~~46~~52	Cadeo, Impact Evaluation of Home Energy Reports Program 2017-2019, September 2020.	This study updated realization rates for the Home Energy Reports program.	Res
~~47~~53	DNV GL, Impact Evaluation of 2017 Small Business Electric Installations, March 2020.	The study updated electric non-lighting impact factors for the Small Business initiative. RI leveraged the MA study of this initiative.	C&I
~~48~~54	DNV GL, C&I Measure Life Study, March 2020. (Leveraged Study from MA)	This study informed Effective Useful Lives and Remaining Useful Lives for key C&I energy efficiency measures, updating the commercial boiler EUL. RI leveraged the MA study of this initiative.	C&I
~~49~~55	The Brattle Group, The Road to 100% Renewable Energy by 2030 in Rhode Island, December 2020.	This study provided a high-level economic analysis of the key factors that will guide RI to meet 100% of the state's electricity demand by 2030 through renewable generation and efficiency. The study updated economic impact multipliers to quantify the	~~All~~Cross-Cutting

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		benefits of future EE programs in the Rhode Island economy.	
56	2019DNV, Rhode Island Piggybacking Diagnostic Study, January 2020	The study developed guidance on when it is appropriate to "piggyback" on MA studies.	Cross-Cutting

	2019(a) Study	(b) Impact Descriptions	(c) Sector
50	NMR, RLPNC 17-3 Advanced Power Strip Metering Study (Revised). March 2019. (Leveraged study from MA)(a) Study	This study yielded recommended gross electric savings and realization rates from advanced power strips offered through the Home Energy Services and upstream programs. Rhode Island adopted the result from this study to inform savings for Tier 1 and Tier 2 advanced power strips offered through its Retail Products program. (b) Impact Descriptions	Res(c) Sector

5157	Navigant, Wi-Fi Thermostat Impact Evaluation Secondary ResearchNMR, RLPNC 17-3 Advanced Power Strip Metering Study. September 2018. (Revised). March 2019. (Leveraged study from MA)	This study yielded recommended annual savings values of 31 therms for combustion heating, 97 kWh forgross electric resistance heating, savings and 64 kWh for central air conditioning for Wi-Fi thermostats. realization rates from advanced power strips offered through the Home Energy Services and upstream programs. Rhode Island adopted these resultsthe result from this study to updateinform savings assumptions for Wi-Fi thermostats in HVAC and residential retrofit programs. for Tier 1 and Tier 2 advanced power strips offered through its Retail Products program.	Res
58	2018DNV GL, Impact Evaluation of PY2016 RI C&I Small Business Initiative: Phase I. June 2019.	The study updated impact factors for the Small Business initiative. The RI study leveraged the MA study of the same initiative.	C&I

	(a) Study2018	(b) Impact Descriptions	(c) Sector
52	Energy & Resource Solutions, Two-Tier Steam Trap Savings Study, April 2018.	This MA study recommends a two-tier approach for prescriptive steam traps. It calculates deemed savings to be 8.4 MMBtu/yr. for system operating pressure ≤15 psig, and 35.6 MMBtu/yr. for system operating pressure is >15 psig.	C&I(c) Sector

5359	Energy & Resource Solutions, Two-Tier Steam Trap Savings Study, April 2018.DNV GL, Impact Evaluation of PY 2015 Rhode Island Commercial and	This MA study recommends a two-tier approach for prescriptive steam traps. It calculates deemed savings to be 8.4 MMBtu/yr. for system operating pressure ≤15 psig, and 35.6 MMBtu/yr. for system operating pressure is >15 psig.The study updated	C&I

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	~~Industrial Upstream Lighting Initiative. September 2018.~~	~~impact factors for the Upstream Lighting initiative. The RI study leveraged the MA study of the same initiative.~~	
~~54~~60	~~DNV GL, Rhode Island Commercial & Industrial~~Navigant, Wi-Fi Thermostat Impact Evaluation ~~of 2013-2015 Custom Comprehensive Design Approach. October~~Secondary Research Study. September 2018. (Leveraged study from MA)	~~The study updated the realization rate for the CDA initiative. The RI study leveraged the MA study of the same initiative.~~This study recommended annual savings values of 31 therms for combustion heating, 97 kWh for electric resistance heating, and 64 kWh for central air conditioning for Wi-Fi thermostats. Rhode Island adopted these results to update savings assumptions for Wi-Fi thermostats in HVAC and residential retrofit programs.	~~C&I~~Res
~~55~~61	DNV GL, Impact Evaluation of ~~PY2016 RI C&I Small Business~~PY 2015 Rhode Island Commercial and Industrial Upstream Lighting Initiative~~: Phase I. June 2019~~. September 2018.	The study updated impact factors for the ~~Small Business~~Upstream Lighting initiative. The RI study leveraged the MA study of the same initiative.	C&I
~~56~~62	DNV GL, Rhode Island Commercial & Industrial Impact Evaluation of 2013-2015 Custom Comprehensive Design Approach. October 2018.~~DNV GL, Prescriptive C&I Loadshapes of Savings. March 2018.~~	The study updated the realization rate for the CDA initiative. The RI study leveraged the MA study of the same initiative.~~This MA study pooled known sources of 8,760 savings loadshapes in an interactive tool to estimate general prescriptive measure loadshapes over customizable time periods.~~	C&I
~~57~~63	DNV GL, Prescriptive C&I Loadshapes of Savings. March 2018.~~NMR, Rhode Island Residential Appliance Saturation Survey. October 2018~~	This MA study pooled known sources of 8,760 savings loadshapes in an interactive tool to estimate general prescriptive measure loadshapes over customizable time periods.~~This study developed an inventory of residential end-uses, including appliances, consumer electronics, heating and cooling equipment, thermostats, water heating, and building characteristics. Findings from this study will be used to inform program planning and support future potential studies in Rhode Island.~~	~~Res~~C&I
~~58~~64	~~Cadeo~~NMR, Rhode Island ~~Impact Evaluation of~~ Residential Appliance Saturation Survey. October~~Income Eligible Services Single Family Program, August~~ 2018	~~This study produced deemed savings values and realization rates for electric and gas participants using billing and engineering analysis. Rhode Island Energy adopted the deemed savings values in the 2019 program plan.~~This study developed an inventory of residential end-uses, including appliances, consumer electronics, heating and cooling equipment, thermostats, water heating, and building characteristics. Findings from this study will be used to inform program planning and support future potential studies in Rhode Island.	Res

~~59~~65	Navigant, MA Residential Electric Loadshape and Baseline Study (Heating and Cooling Season report). July 2018. (Leveraged study from MA)	This study collected saturation, penetration, and usage behavior data for all major electric and gas appliances in Massachusetts. Rhode Island adopted the end use load shapes determined by this study.	Res
~~60~~66	NMR/DNV GL, TXC29 Market-Rate Rental Property NEI Study (Phase 1), March 2018	This study identified and analyzed NEIs associated with market-rate multifamily properties.	Res

2017			
	(a) Study	(b) Impact Descriptions	(c) Sector
~~61~~	~~ICF, 2017 Rhode Island Residential Code Savings Analysis~~	~~This study found that the average Rhode Island home could attain annual electric savings of 3,690 kWh and gas savings of 10 MMBtu if it fully complied with the state's building energy code.~~	~~Res~~
~~62~~67	**NMR, 2017 Rhode Island Code Compliance Enhancement Initiative Attribution and Savings Study**	**The study found residential and commercial attribution factors of 23% and 46%, respectively, which were used along with study results on average savings as well as construction activity projections to calculate the CCEI's projected savings from 2018-2020.**	C&I
~~63~~	~~DNV-GL, Gas Boiler Market Characterization Study Phase II: Final Report, March 2017~~	~~This study updated C&I condensing boiler savings estimates.~~	~~C&I~~
~~64~~68	**DNV-GL, MA45 Prescriptive Programmable Thermostats, March 2017**	**This study updated programmable thermostat deemed gas savings for C&I programs.**	C&I
69	Illume, Rhode Island Home Energy Report Program Impact and Process Evaluation, 2017	The study found that the program is working effectively. The study recommended continued segmentation and message testing to further enhance program impact.	Res

2016			
	(a) Study	(b) Impact Descriptions	(c) Sector
~~65~~70	DNV-GL, Impact Evaluation of 2014 RI Prescriptive Compressed Air Installations Final Report, July 2016	This study yielded an energy realization rate for prescriptive compressed air compressors, dryers, and EE accessories.	C&I

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~~66~~71	**DNV-GL, Impact Evaluation of 2012 National Grid-Rhode Island Prescriptive Chiller Program Final Report, July 2016**	**This study yielded an energy realization rate for prescriptive chillers.**	C&I
~~67~~	~~Cadmus Group; Large Commercial and Industrial On-Bill Repayment Program Evaluation, September, 2016~~	~~National Grid commissioned this study to evaluate the financing component of the large commercial and industrial (LCI) energy efficiency program. Cadmus evaluated the program design, performance, and sustainability; the overall market for the program; and the program's penetration of that market to date.~~	~~C&I~~
~~68~~72	**DNV GL, Stage 2 Results—Commercial and Industrial New Construction Non-Energy Impacts Study—Final Report, prepared for the Massachusetts Program Administrators, March 2016**	**The purpose of this study was to quantify the dollar value of participant NEIs for C&I NC projects completed in 2013, and to estimate gross NEIs per unit of energy savings resulting from NC electric and gas measures separately.**	C&I

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2014

(a) Study	(b) Impact Descriptions	(c) Sector
~~69~~73 DNV GL, 2014, Impact Evaluation of National Grid Rhode Island C&I Prescriptive Gas Pre-Rinse Spray Valve Measure	The evaluation examined the gas and water savings associated with the installation of reduced-flow pre-rinse spray valves. The results are based on site measurements from MA and RI facilities. The final gross gas and water savings are 11.4 MMBtu and 6,410 gallons per spray valve respectively.	C&I

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2012

(a) Study	(b) Impact Descriptions	(c) Sector
~~70~~74 TetraTech, Final Report – Commercial and Industrial Non-Energy Impacts Study, (prepared for Massachusetts Program Administrators), June 29, 2012	This report provides a comprehensive set of statistically reliable non-energy impact (NEI) estimates across the range of C&I prescriptive and custom retrofit programs offered by the MA electric and gas Program Administrators (PAs). The analytical methods used allow this report's findings to be applicable to RI.	C&I

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2011

(a) Study	(b) Impact Descriptions	(c) Sector
~~71~~75 KEMA, Inc., C&I Unitary HVAC Loadshape Project Final Report, Prepared for the Regional Evaluation, Measurement, and Verification Forum, June 2011	This study produced updated diversity and equivalent full load hours for unitary HVAC measures using end use metering.	C&I
~~72~~76 NMR/TetraTech, MA Special and Cross Sectors Studies Area,	This study quantified NEIs that apply to residential and low-income programs.	Res

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Residential and Low-Income NEI
Evaluation, August 2011

5. 2025 Evaluation Study Findings

5.1 Rhode Island-Specific Studies

~~**RI-23-CX-FRSO – 2022 Commercial and Industrial Programs Free-Ridership and Spillover Study**~~

RI-24-RX-Market Research - Moderate Income Study: Weatherization Motivations

Type of Study: ~~Impact Evaluation~~ Market Research
Conducted by: ~~Tetra Tech~~ Resource Innovations (Cadeo) and Illume
Date Evaluation Conducted: January ~~2024~~2025

Evaluation Objective and High-Level Findings:
The primary objective of this study was to ~~quantify~~understand the ~~net impacts of~~ motivations, barriers, and willingness to pay for weatherization among Rhode Island Energy's ~~2022 commercial and industrial electric and natural gas upstream and downstream energy efficiency programs.~~moderate-income customers (60–80% of State Median Income). The study ~~conducted surveys with a sample of 2022~~aimed to inform future program ~~participants, market actors, and distributors within~~design by evaluating customer preferences, income verification comfort levels, and awareness of weatherization benefits. The research found that 70% of moderate-income customers would be willing to pay up to $300 out-of-pocket for weatherization services, making this the ~~gas and electric commercial and industrial programs to determine~~optimal price point for maximizing participation

Programs to which the ~~free-rider and spillover participants.~~

~~The following table presents the results of the study:~~

~~Table 5. C&I Free-Ridership and Spillover~~ **Results** ~~Summary~~**of the Study Apply:**

	~~(a)~~	~~(b)~~	~~(c)~~	~~(d)~~	~~(e)~~
	~~Program Type and Delivery~~	~~Free-Ridership~~	~~Participant Spillover~~	~~Non-Participant Spillover~~	~~Net to Gross Ratio~~
~~1~~	~~Large C&I Upstream Prescriptive Measures~~	~~32.9%~~	~~7.7%~~	~~0.0%~~	~~74.8%~~
~~2~~	~~Large C&I Downstream Prescriptive Measures~~	~~17.4%~~	~~4.3%~~	~~2.6%~~	~~89.6%~~
~~3~~	~~Large C&I Custom Measures~~	~~18.6%~~	~~7.5%~~	~~0.0%~~	~~88.9%~~
~~4~~	~~Small Business~~	~~19.9%~~	~~1.5%~~	~~1.0%~~	~~82.5%~~
~~5~~	~~**Overall**~~	~~**24.4%**~~	~~**4.7%**~~	~~**0.7%**~~	~~**81.0%**~~

~~**Programs to which the Results of the Study Apply:**~~

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The results of this study are applicable to the ~~C&I~~moderate-income customers in Residential programs.

Evaluation Recommendations included in the Study:
The study recommends ~~adopting~~setting out-of-pocket costs at or below $300 for weatherization measures and expand eligibility criteria to include customers up to 110% of State Median Income.

Explain Whether or Not Rhode Island Energy (RIE) Decided to Adopt Recommendations from the Study:
Rhode Island Energy will consider applying the recommendations from the study when and if it develops a moderate income offering; this offering will not be part of the 2026 Annual Plan.

Savings Impact: If adopted, the recommendations could increase participation by making weatherization more accessible to moderate-income households.

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Multifamily Custom Programs Impact Evaluation

Type of Study: Impact Evaluation
Conducted by: Resource Innovation (Cadeo)
Date Evaluation Conducted: March 2025

Evaluation Objective and High-Level Findings:
~~NTG ratios in Table X for~~ The primary objective of this study was to assess the electric and natural gas ~~C&I~~energy savings attributable to Rhode Island Energy's 2022–2023 multifamily custom energy efficiency programs. These programs include five distinct pathways: Electric EnergyWise Multifamily (EWMF), Gas EWMF, Electric Income-Eligible Multifamily (IEMF), Gas IEMF, and Commercial & Industrial Multifamily (CIMF). The evaluation focused exclusively on custom, non-lighting measures. Verified realization rates were 100.1% for electric projects and 100.4% for natural gas projects, indicating that reported savings closely matched actual savings.

Table 5. Electric Multifamily program impact savings in 2022 and 2023

	(a)	(b)	(c)
	Program Type and Delivery	Evaluated Energy Savings (kWh)	Realization Rate
1	Electric EnergyWise Multifamily	220,948	115.3%
2	Electric Income Eligible Multifamily	1,407,164	100.1%
3	**Total**	**1,628,112**	**101.9%**

Table 6. Gas Multifamily program impact savings in 2022 and 2023

	(a)	(b)	(c)
	Program Type and Delivery	Evaluated Energy Savings (Therms)	Realization Rate
1	Gas EnergyWise Multifamily	7,092	100.0%
2	Gas Income Eligible Multifamily	166,804	101.3%
3	Gas Commercial and Industrial Multifamily	44,437	101.0%
4	**Total**	**218,332**	**100.4%**

Programs to which the Results of the Study Apply:
The results of this study are applicable to Multifamily Residential and Income Eligible programs.

Evaluation Recommendations included in the Study:
The study recommends applying adjusted realization rates, conducting cost-effectiveness, NTG research, and improving data entry and tracking practices for future evaluations.

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Explain Whether or Not Rhode Island Energy (RIE) Decided to Adopt Recommendations from the Study:
~~RI Energy is adopting recommendations from this study.~~

Rhode Island Energy has adopted the adjusted realization rates and is looking into data entry and tracking practices for Multifamily Custom projects.

Savings Impact: The ~~adoption of the NTG ratios from~~recommendations could improve reliability and slightly increase the ~~study will impact the net~~reported savings ~~for the C&I programs.~~and support more effective program planning and evaluation.

~~5.2 Massachusetts Study Summaries~~

~~**MA23C02-B-ISPREPOS – ISP Recommendations: Ultra-Low Temperature Freezers**~~
RI-24-RX-IncEligible: Income Eligible Single Family Impact Evaluation

Type of Study: Impact Evaluation
~~**Evaluation Conducted by:** DNV~~
~~**Date Evaluation Conducted:**~~ **Evaluation Conducted by:** Cadeo
Date Evaluation Conducted: January 2025

Evaluation Objective and High-Level Findings:

This impact evaluation updates the gross per-unit energy savings for all measures (refer to Table ES-2 in the study[8]) in Rhode Island Energy's Income Eligible Single Family (IESF) Program using data from 2021–2023. The study employed billing analysis, and TRM-based engineering algorithms. Key findings include a 25% decline in weatherization savings compared to the previous evaluation. Despite this, weatherization and heating system retrofits remain the dominant sources of energy savings.

Programs to which the Results of the Study Apply:
~~September 2023~~

~~**Evaluation Objective and High-Level Findings:**~~
~~The primary objective of this study was to investigate the industry standard practice for the purchase of ultra-low temperature freezers. The ISP study found that the Energy Star ratings assumed a freezer operating at -75°C whereas the most common freezer operating temperature if -80°C. Thus, the savings should be adjusted to account for the most common freezer operating temperature.~~

~~**Programs to which the Results of the Study Apply:**~~

[8] Table ES-2 can be found on page 7: https://eec.ri.gov/wp-content/uploads/2025/02/RI-IESF-Impact-Evaluation-Final-Report_FINAL_23JAN2025.pdf

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The results of this study are applicable to ~~the Large C&I New Construction Ultra Low Temperature Freezer measure.~~Income Eligible Residential programs.

Evaluation Recommendations included in the Study:

~~The ISP study recommends updating the savings for the ultra-low temperature freezer measure based on the different freezer temperatures that are the basis for the ISP and Energy Star performance. The ISP study also recommends that the minimum performance threshold for the ultra-low temperature freezer measure to follow the new Energy Star threshold once it is finalized in 2024. Once that is updated, it is recommended to update the ISP baseline performance to the current Energy Star threshold of 0.55 kWh/day/ft^3.~~

The study recommends updating gross per unit energy savings for measures, establishing reliable baseline HVAC efficiency value and standardize subcategories for weatherization measures.

Explain Whether or Not Rhode Island Energy (~~RI Energy~~RIE) Decided to Adopt Recommendations from the Study:

~~RI Energy is adopting the savings update for the Ultra Low Temperature Freezer measure. RI Energy will continue to review the updated Energy Star standard once it is finalized and update the savings accordingly.~~[9]

Rhode Island Energy is adopting the gross per unit energy saving results, updating HVAC baseline value, and standardizing subcategories for weatherization measures.

Savings Impact:

~~The measure~~Income Eligible program savings has decreased with the adoption of gross per unit energy savings.

[9] ~~ENERGY STAR Version 2.0 Laboratory Grade Refrigerators and Freezers Draft 2 Specification~~

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LightingPLUS Market Characterization. A joint Program Administrator Study
Type of Study: Market Research
Evaluation Conducted by: DNV
Date Evaluation Conducted: ~~for the Ultra Low Temperature Freezer will decrease by approximately 10%.~~

December 2024

Evaluation Objective and High-Level Findings:
The LightingPLUS study aimed to assess the remaining energy savings potential in the commercial and industrial lighting market and evaluate six emerging "NextGen" lighting technologies. It found that LED adoption has reached the late majority stage, with LEDs comprising about 60% of linear fixtures and 75% of national sales. Remaining legacy stock is concentrated in smaller buildings and underserved communities. While traditional retrofit opportunities are declining, the study identified viable NextGen options such as high-efficacy LEDs and advanced lighting controls. These offer meaningful savings but often at higher costs and with more complex delivery requirements.

Programs to which the Results of the Study Apply:
The results of this study are applicable to C&I programs.

Evaluation Recommendations included in the Study:
The study recommends program administrators to shift their focus from traditional low-cost LED retrofits to higher efficacy products and advanced lighting controls. It also advises prioritizing underserved markets. The study also provided a market model for the remaining lighting opportunities in Rhode Island as well as a next generation savings model.

Explain Whether or Not Rhode Island Energy (RIE) Decided to Adopt Recommendations from the Study:
Rhode Island Energy has shared the findings from the study with its program strategy and implementation teams; final action relating to adoption of the study's recommendations is pending and will be related in the final draft of the 2026 Annual Plan.

Savings Impact: If adopted, the recommendations could increase energy savings for lighting measures.

RI-24-CX-CINCProcess: C&I New Construction Program Process Evaluation

Type of Study: Process Evaluation
Evaluation Conducted by: Resource Innovation (Cadeo) and NMR Group
Date Evaluation Conducted: January 2025

Evaluation Objective and High-Level Findings:

This study evaluated Rhode Island Energy's Commercial & Industrial (C&I) New Construction Program to assess its design, operations, and customer experience. Key findings show that participants were generally satisfied with project outcomes and communication but found the process complex and burdensome.

Early engagement with the program led to deeper energy savings. The study cited administrative challenges and limited understanding of the program as barriers.

Programs to which the Results of the Study Apply:
The results of this study are applicable to C&I New Construction programs.

Evaluation Recommendations included in the Study:
The study recommends increasing program awareness, simplifying processes, enhancing support for design teams, revising incentive structures, and improving internal coordination and documentation to boost participation and energy savings.

Explain Whether or Not Rhode Island Energy (RIE) Decided to Adopt Recommendations from the Study:
Rhode Island Energy has shared the findings from the study with its program strategy and implementation teams; final action relating to adoption of the study's recommendations is pending and will be related in the final draft of the 2026 Annual Plan.

Savings Impact: If adopted, the recommendations could capture missed project opportunities which could increase total program savings.

Rhode Island Non-Residential New Construction Industry Standard Practice Study

Type of Study: Industry Standard Practice (ISP) Study
Evaluation Conducted by: DNV
Date Evaluation Conducted: March 2025

Evaluation Objective and High-Level Findings:

This study aimed to assess standard building practices and energy code compliance for selected measures in buildings permitted under IECC 2015. The study found that standard practice in Rhode Island exceeds code requirements for several key measures, including interior and exterior lighting power density (LPD), above-grade wall insulation, hot water boilers, air-cooled air conditioning, and heat pump heating. These findings support updates to baseline assumptions for program planning and evaluation. The study also developed updated ISP adjustment factors for application relative to IECC 2024.

Table 7. Recommended ISP Code adjustment factors to IECC 2024 Code

	(a)	(b)	(c)
	Equipment type	Recommended Code adjustment factor	Notes
1	Above-grade wall insulation	1.14	Fourteen percent better than Code.
2	Interior Lighting	0.42	Fifty-eight percent better than Code.

3	Exterior Lighting	0.27	Seventy-three percent better than Code.
4	Hot water boilers	1.20	Twenty percent better than Code. Observed boilers were all condensing, which appears to be standard practice in NC.
5	Heat pumps- heating	1.03	Three percent better than Code. Includes all heat pumps (air-source heat pumps, VRF heat pumps) except for packaged terminal heat pumps
4	Air conditioning	1.05	Five percent better than Code. Includes multiple sized systems.

Programs to which the Results of the Study Apply:
The results of this study are applicable to Commercial programs.

Evaluation Recommendations included in the Study:
The study recommends adopting new ISP adjustment factors for use in savings calculations and program planning under IECC 2024. It also advises targeted training, improved data collection, and further research into envelope and control system practices.

Explain Whether or Not Rhode Island Energy (RIE) Decided to Adopt Recommendations from the Study:
Rhode Island Energy is adopting the adjusted ISP factors.

Savings Impact: The savings decrease for the measures impacted by the new ISP adjusted factor.

Large C&I Retrofit Program (Custom Pathway) Process Evaluation

Type of Study: Process Evaluation
Evaluation Conducted by: Cadeo
Date Evaluation Conducted: May 2025

Evaluation Objective and High-Level Findings:

The evaluation aimed to assess program performance, identify improvement opportunities, and support future program planning. Findings confirm that the Custom Pathway is well-regarded and delivers meaningful financial and operational benefits. Key strengths include strong customer engagement, effective use of scoping studies, and positive perceptions of financial incentives. Opportunities remain to improve program tracking and support deeper energy savings.

Programs to which the Results of the Study Apply:
The results of this study are applicable to C&I Retrofit Custom projects.

Evaluation Recommendations included in the Study:
Recommendations include enhancing customer engagement, maintaining strong financial incentives, simplifying administrative processes, and improving program tracking systems.

Explain Whether or Not Rhode Island Energy (RIE) Decided to Adopt Recommendations from the Study:
Rhode Island Energy has shared the findings from the study with its program strategy and implementation teams; final action relating to adoption of the study's recommendations is pending and will be related in the final draft of the 2026 Annual Plan.

Savings Impact: There is no savings impact from this study.

5.2 Massachusetts Study Summaries

We are currently reviewing recent studies in Massachusetts for potential adoption.

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