2023 Evaluation, Measurement, and Verification Plan

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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 the Company 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.

The Company'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 in order to maximize value for ratepayers while minimizing costs. These studies are commissioned by the Company. 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 the installation of 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 the Company in consultation with the Rhode Island Energy Efficiency & Resource Management Council (EERMC) and the Office of Energy Resources (OER). The EERMC and OER follows each study closely and is involved in planning, work plan development, and review of interim work products and study results.

The Company'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 2023

2.1. Overview

The Company, with input from EERMC and OER, expects to complete seven Rhode Island-specific evaluation studies in 2022 that will be applied beginning in 2023 (see Section 2.2 below). The research studies include impact evaluations, process evaluation, 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 the Company's programs. Prior year studies that have been superseded by studies completed since the filing of the 2022 Energy Efficiency Plan have been removed from this list. These studies are available through a request of the EERMC, the Rhode Island Public Utilities Commission (PUC), or Rhode Island Energy.

Section 5 provides detailed descriptions, findings, and recommendations of each of the Rhode Island-specific studies listed in the next section, along with selected research studies completed in other regions and/or other jurisdictions. The results of the evaluations from other regions and jurisdictions, most commonly Massachusetts,[1] have been judged by the Company, in consultation with EERMC and OER, to be applicable to Rhode Island's energy efficiency programs. The Company is adopting the results of these studies in 2023 program planning due to similarity, either in the measures offered, or program structure or delivery.

2.2. Recent Rhode Island-Specific studies

Commercial

- C&I Lighting Market Characterization Study (RI-21-CE-LightMar; In progress)
- Impact Evaluation of PY2020 Custom Gas Installations (RI-21-CG-CustGasPY20; In progress)
- Impact Evaluation of PY2020 Custom Electric Installations (RI-21-CE-CustElecPY20; In progress)
- Rhode Island Cannabis Industry Standard Practice (RI-21-CX-ISPBaseline; In progress)

[1] 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.

Residential and Income-Eligible

- Nonparticipant Market Barriers Study (RI-21-RX-NPStudy)
- Participation and Multifamily Census Study (RI-21-RX-Participation)

Cross-cutting

- Rhode Island 2021 Energy Efficiency Workforce Analysis – Final Report

2.3. Recent Studies Adopted from Other Jurisdictions

THIS SECTION IS PRELIMINARY AND WILL BE UPDATED IN FINAL PLAN

Commercial

- C&I O&M and non-O&M NEI with Small Business Focus (MA20X10-B-CIOMNEI)
- C2
- C3

Residential and Income-Eligible

- Solar Inverter Power Factor Correction Demonstration (MA21DR03) Evaluation Memorandum
- R2
- R3

Cross-cutting

- X1
- X2
- X3

3. 2023 Planned Evaluation Studies

3.1. Overview

This section describes planned studies that focus on areas of interest to the Rhode Island energy efficiency programs and build on the deep history of evaluation studies commissioned by the Company over numerous years. To optimize the use of evaluation resources, where programs are considered to

be similar in program delivery and population served with those offered in Massachusetts, the Company will consider avenues to participate in Massachusetts studies.[2]

3.2. Summary

Table 2 lists evaluation studies that the Company plans to conduct in 2023 to inform the 2024 Annual Plan and future planning cycles. Barring changes to the 2024 Annual Plan schedule, studies that will be incorporated into the Annual Plan must be completed by August 2023. The proposed budget for evaluation study expenditures in 2023 is approximately $2.3 million ($1.7 million for electric and $0.6 million for gas), excluding staffing costs. The proposed budget for EM&V comprises approximately 1.5% of the total portfolio budget in 2023.

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

Table 1. Study Labeling Code Format

[State]	–	[Year Study Conducted]	–	[Sector]	[Fuel]	–	[Keyword]
RI		19		R = residential	E = electric		
		20		C = commercial	G = gas		
		21		X = cross sector	X = electric & gas		

Table 2. Planned Evaluation Studies in 2023

Sector	Study Code	Type	Affected Programs	Study Name	State Lead
C&I	RI-22-CX-Proc	Process	C&I	Small Business Process Evaluation (continued from 2022)	RI
C&I	RI-22-CX-Codes	Codes	C&I	C&I New Construction Baseline Study (continued from 2022)	RI
C&I	RI-22-CX-RTUOpt	Impact	C&I	Automated RTU Optimization Demonstration Evaluation (continued from 2022)	RI
C&I	RI-22-CG-CustGasPY21	Impact	C&I Gas	Impact Evaluation of PY2021 Custom Gas Installations (continued from 2022)	RI

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

Sector	Study Code	Type	Affected Programs	Study Name	State Lead
C&I	RI-22-CE-CustElecPY21	Impact	C&I Elec	Impact Evaluation of PY2021 Custom Electric Installations (continued from 2022)	RI
C&I	RI-23-CG-CustGasPY22	Impact	C&I Gas	Impact Evaluation of PY2022 Custom Gas Installations	RI
C&I	RI-23-CE-CustElecPY22	Impact	C&I Elec	Impact Evaluation of PY2022 Custom Electric Installations	RI
C&I	RI-23-CX-FRSO	NTG	C&I	C&I Free-Ridership and Spillover Study	RI
C&I	RI-23-CE-LightingMM	Market	C&I	C&I Lighting 2023 Market Characterization Study	RI
C&I	RI-23-CX-Cook	Impact	C&I	Commercial Cooking Gas and Electric Impact Evaluation	RI
Residential	RI-23-RX-OutreachPilots	Market	Residential	Experimental Outreach Pilots	RI
Residential	RI-23-RX-NPSegmentation	Market	Residential	Nonparticipant Characterization and Segmentation Research	RI
Residential	RI-23-RX-OutreachCBO	Market	Residential	Community-Based Organization Outreach Workshops	RI
Residential	RI-23-RX-CentralHVAC	Impact	HVAC	Residential Central HVAC Impact Evaluation Study	RI
Residential	RI-23-RX-Dashboard	Market	Residential	Participation Study Dashboard Update	RI
Residential	RI-22-RE-HPMeter	Impact	HVAC Elec	Electric Heat Pump Metering Study (Continuation from 2022)	MA
Residential	RI-23-RX-EWisePY22	Impact	EnergyWise SF	Energy Wise PY2022 Impact Evaluation Study	RI
Cross-cutting	RI-23-XX-EcImpacts23	Policy	Multiple	Economic Impact Study	RI
Cross-cutting	RI-23-XX-Lifetime	Impact	Multiple	Comprehensive Measure Life Review	RI

The evaluation pathway for pilots, demonstrations, and assessments is based on each effort's scale, budget, scope, and the availability of external data. The Company'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 8. The evaluation will follow the same established evaluation framework used in evaluations

of established programs. This includes management of the independent evaluation vendor by the Company's EM&V team in consultation with the EERMC and OER. See Attachment 8 for further details on pilots, demonstrations, and assessments.

The EM&V team will follow the Company's standard procurement policy that cuts across programs in order to achieve the lowest cost procurement of required external services while enabling the Company to minimize administrative costs, deliver on program commitments, and meet time-sensitive regulatory deadlines. The Company's standard procurement policy is supported and enforced by 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.

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.[3]

3.3. Commercial and Industrial Planned Studies

RI-22-CX-Proc – Small Business Process Evaluation (continued from 2022)

The objective of this study is to assess the overall delivery of the Small Business Direct Install program. The study will assess the effectiveness of program delivery procedures. This evaluation will identify practical approaches to improve the overall effectiveness of the program in order to reach higher participation rates and deeper savings.

RI-22-CX-Codes – C&I New Construction Baseline Study (continued from 2022)

The objective of this study is to gather market data on new construction practices in Rhode Island. This data will be used to inform industry standard practice development and/or adoption and develop new construction baselines.

RI-22-CX-RTUOpt – Automated RTU Optimization Demonstration Evaluation (continued from 2022)

The objective of this demonstration project is to verify savings for the automated RTU optimization product described in Attachment 8, section 4.2. The demonstration will install new smart thermostats and provide the software integration for 10-15 sites. The evaluation will collect data provided by the software, billing data, and potentially on-site metering for an independent assessment of the savings

[3] https://rieermc.ri.gov/plans-reports/evaluation-studies/

above and beyond the thermostat savings. The results of the study will be used to develop deemed savings, if possible. This study began in spring 2022 and will conclude in 2023 to allow for assessment of heating savings.

RI-22-CG-CustGasPY21 – Impact Evaluation of PY2021 Custom Gas Installations (continued from 2022)

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 2021. 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 is scheduled to begin in late 2022 and continue into 2023.

RI-22-CE-CustElecPY21 – Impact Evaluation of PY2021 Custom Electric Installations (continued from 2022)

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 2021. 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 is scheduled to begin in spring 2021.

RI-23-CG-CustGasPY22 – Impact Evaluation of PY2022 Custom Gas Installations

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 2022. 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 is scheduled to begin in summer 2023 and continue into 2024.

RI-23-CE-CustElecPY22 – Impact Evaluation of PY2022 Custom Electric Installations

The objective of this impact evaluation is to provide verification of electric energy savings estimates for a sample of both lighting and 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 2022. 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 is scheduled to begin in spring 2023.

RI-23-CX-FRSO – C&I Free-Ridership and Spillover Study

C&I free-ridership and spillover values will be updated based on an assessment of the behavior of both participants and nonparticipants of C&I energy efficiency programs. The results will assist in quantifying the net impacts of C&I electric and natural gas energy efficiency programs in Rhode Island. This study will include both custom and prescriptive measures from new construction and retrofit programs. The study will begin in early 2023.

RI-23-CE-LightMar – C&I Lighting 2023 Market Characterization Study

The primary objective of this study is to calculate the adjusted measure lives (AML) for C&I custom and prescriptive lighting measures. To understand the future baselines needed to calculate the AMLs, this study will convert an existing stock turnover model, utilized in Massachusetts and Connecticut, with Rhode Island specific inputs. The model will be calibrated using annual market share (percent of sales) estimates. Rather than collecting primary sales data from distributors, this study will seek to collect primary interviews to determine market share estimates in Rhode Island. In addition to producing future baselines for AMLs, the model results will help the study team understand the current and historical Rhode Island lighting saturation by submarket and technology, forecast the Rhode Island C&I lighting market trajectory, and estimate the remaining opportunities to generate program savings.

RI-23-CX-CommCook – Commercial Cooking Gas and Electric Impact Evaluation

Savings for many commercial cooking measures are currently calculated using EnergyStar calculators and assigned a realization rate of 100%. This subprogram has not been studied previously. This study will draw a sample of both electric and commercial equipment and develop a realization rate. It is anticipated that site surveys, runtime, and spot consumption metering will be used.

3.4. Residential and Income-Eligible Planned Studies

RI-23-RX-OutreachPilots – Experimental Outreach Pilots

In response to lower response rates in recent evaluations, the Participation Study completed in 2022 generated a list of less traditional research outreach approaches to engage customers/participants in evaluations and market research. In this study, Rhode Island Energy will leverage the prior study and, in conjunction with the propensity score from the Participation Study, test the efficacy of different approaches at reaching select historically hard-to-reach groups. Including these customer segments in future research will lead to better customer representation.

RI-23-RX-NPSegmentation – Nonparticipant Characterization and Segmentation Research

The Nonparticipant Market Barriers Study completed in 2022 included a survey with over 1,000 respondents. In this study, RI Energy will use survey responses and other demographic data to: (1) explore the characteristics of nonparticipants (both survey respondents and overall population) further; (2) analyze differences in preferences and barriers of survey respondents by demographics (age, income, home type); and (3) use cluster analysis to uncover structure and patterns in nonparticipant responses to identify natural, common groupings of customers; develop personas; and make recommendations for communication and outreach.

RI-23-RX-OutreachCBO – Community-Based Organization Outreach workshops

The Nonparticipant Market Barriers Study included interviews with Community-Based organizations. Some organizations were unfamiliar with energy efficiency programs, while several expressed keen interest in working with the utility to help their communities access utility programs. Through participatory focus group/design thinking workshops with community-based organizations (CBOs), the RI Energy team will facilitate co-creating a communication and outreach model to use to engage CBOs.

RI-23-RX-CentralHVAC – Residential Central HVAC Impact Evaluation Study

The objective of this study is to perform an impact evaluation of central heating and cooling equipment in order to update results that are currently over 5 years old. The study may include detailed metering of participating customers. The goals for this study would be to update the savings estimates for the current rebate offerings for central heating and cooling systems (excluding heat pumps which have been studied extensively in recent years). The heating equipment evaluation will involve a representative sample of different fuels. Heating and cooling were last studied in 2016 with a study of equivalent full load hours.

RI-23-RX-Dashboard – Participation Study Dashboard Update

The dashboard created as part of the recent Participation and Multifamily Census study included program data through 2020. The dashboard has already shown itself to be useful in planning. Adding 2021 and 2022 data will keep the dashboard relevant and can extend the life of Rhode Island Energy's investment in the tool at a relatively low incremental cost.

RI-22-RE-HPMeter – Electric Heat Pump Metering Study (Continuation from 2022)

The goals for this study would be to update the savings estimates for the current rebate offerings for heat pumps. The study would include detailed metering of participating customers in order to update results that are currently over 5 years old. This study would be in collaboration with MA and possible other states in the New England area. The study goal would be looking to update the savings for mini-split heat pumps, both going from standard heat pumps to high efficiency heat pumps and electric resistance to heat pumps, and ducted heat pumps going from standard heat pumps to high efficiency

heat pumps in RI. The study is being led by Massachusetts Program Administrators and will include Connecticut in addition to Rhode Island.

RI-23-RX-EWisePY22 – EnergyWise PY 2022 Impact Evaluation Study

This study will be an impact-only study to update values from the PY2019 single-family impact and process evaluation completed in 2020. Given the importance of residential weatherization in meeting state and Company climate objectives, an update of the PY2019 study is warranted. This study will be completed in time to inform the 2024 planning process assuming timely/complete data and a minimized reporting process. This study may include the impact of secondary heat sources on evaluated savings in the EnergyWise Single Family Program. This study may include literature review, analysis of program data and participant surveys to understand the prevalence of secondary heating in participating homes and to assess any impacts that may not be accounted for in the previous EnergyWise impact evaluation.

3.5. Cross-sector or Other Planned Studies

RI-23-XX-Lifetime – Comprehensive Measure Life Review

Measure life assumptions used in calculating lifetime savings are critical with Rhode Island's focus on lifetime savings. This study would include a comprehensive literature review of Technical Reference Manuals and research in other jurisdictions to identify potential updates to effective useful lifetime assumptions

RI-23-XX-EcImpacts23 – Economic Impact Study

The objective of this study will be to update the multipliers used to estimate the economic impacts – chiefly job-years and state GDP – resulting from investments in energy efficiency. The multipliers were last updated in "Review of RI Test and Proposed Methodology" prepared for the Company by the Brattle Group, January 31, 2019. An updated study is planned to begin in late 2022 and be completed for use in 2024-2026 planning.

4. Historic Evaluation Studies

This section contains a list of all historic studies still being used by the Company as the basis of claimed savings in the 2023 Program Plan and in the Technical Reference Manual. An at-a-glance summary shows the studies by program, followed by a more detailed table summarizing the relevant studies.

THIS TABLE WILL BE UPDATED IN FINAL PLAN

Sector	Program	Study type	2014	2015	2016	2017	2018	2019	2020	2021	2022 Plan
Residential	EnergyWise SF	Impact									
	EnergyWise SF	Process					HEAT Loan				
	Income Eligible SF	Impact									
	Income Eligible SF	Process									
	EnergyWise MF	Impact									
	EnergyWise MF	Process									
	Income Eligible MF	Impact									
	Income Eligible MF	Process									
	Home Energy Reports	Impact									
	Home Energy Reports	Process									
	EnergyStar Lighting	Impact/Market									
	EnergyStar Products	Impact									
	HVAC	Impact								Demo	
	HVAC	Process/Market									
	Connected Solutions	Impact/Process									
Cross-cutting/ Special	Potential study	Market									
	Workforce	Impact/Market									
	Avoided Cost	Benefits									
	REMI	Benefits									
	Participation	Market									
	Non-Participant	Market									
	RASS	Market									
	Gas Peak Demand	Impact									
	Piggybacking Study	Process									
	Heat Pumps Study	Market									
	ES Homes/Codes&Standards	Impact/Market									
	Legislated M&V Study	Market									
C&I Electric	Custom	Impact									
	HVAC	Impact									
	Industrial Process	Impact									
	CAIR	Impact									
	Refrigeration, Motors, Other	Impact									
	Custom Lighting	Impact									
	Street Lighting	Impact									
	CDA	Impact									
	CHP	Impact									
	Prescriptive Lighting	Impact									
	Upstream Lighting	Impact									
	Upstream Lighting	Process									
	Prescriptive HVAC	Impact			chillers						
	Prescriptive VSD	Impact									
	Prescriptive CAIR	Impact									
	Connected Solutions	Impact									
	All	NTG									
C&I Gas	Custom	Impact									
	Prescriptive	Impact		steam trap		steam trap	steam trap				
	All	NTG									
Small Business	Lighting	Impact		presc.							
	Non-Lighting Electric	Impact									
	All	Process									
	All	NTG									

These studies are available through the EERMC , the PUC , and Rhode Island Energy.

Table 3: Completed Evaluation Studies Applicable in 2023

THIS TABLE WILL BE UPDATED IN FINAL PLAN, adding 2022 studies and dropping superseded studies

2021	
Study	**Impact Descriptions**
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.
DNV, Impact Evaluation of PY2019 Custom Gas Installations, September 2021	The study updated realization rates for custom gas projects, as part of a rolling effort that incorporated results from PY2017, PY2018, and PY2019.
DNV, Impact Evaluation of PY2018 Custom Electric Installations, September 2021	The study updated realization rates for custom electric projects, as part of a rolling effort that incorporated results from PY2016, MA PY2017/18, and PY2018.
DNV, Impact Evaluation of PY2019 Custom Electric Installations, September 2021	The study updated realization rates for custom electric projects, as part of a rolling effort that incorporated results from PY2016, PY2018, and PY2019.
Cadeo, Appliance Recycling Impact Factor Update, June 2021	This study updated the gross kWh savings, realization rates and NTG factors for refrigerator and freezer recycling measures.
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.
DNV, Lifetime Gross AML Adjustment Analyses, July, 2021 (Leveraged study from MA)	This study updated Adjusted Measure Lives (AML) for lighting applications, excluding New Construction and stand-alone controls. Overall the programs are seeing decreased AMLs as market adoption accelerates.
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.

DNV, Ground Source Heat Pump eTRM Measure Review, March 2021 (Leveraged study from MA)	This study recommended that GSHPs be broken out from ASHPs into their own category offering in order to allow the program to attribute savings, baselines, and lifetimes in a more defensible way. It also recommended the GSHP lifetime be updated to 25 years.
DNV, NRNC Market Characterization Study, June 2021 (Leveraged study from MA)	This study produced factors to be applied to IECC 2015-based code LPD to determine baseline LPD requirements.
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.
DNV, C&I HVAC NTG & Market Effects Measurement, 2021 (Leveraged study from MA)	This study established Net to Gross Ratios for six technologies supported by the Upstream HVAC Initiative.
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.
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.
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.
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.

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.
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.
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.
Guidehouse, Impact Analysis of Residential Wi-Fi Thermostats, Jun 2021 Results Presentation (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.
RI-20-XG-GasPeak – C&I Gas Peak Demand Savings	This study supplied peak gas demand daily percentages of energy consumption by end use and building type for the C&I sector. These results could be used to calculate the gas daily energy savings that have occurred as a result of C&I program activity.
RI-20-XG-GasPeak – Residential Gas Peak Demand Savings	This study supplied peak gas demand daily percentages of energy consumption by end use for the residential sector. These results could be used to calculate the gas daily energy savings that have occurred as a result of residential program activity.
Net-to-Gross Research of RCD and Select Products Measures (MA20R28)	For RI, the study applied new NTG results for the residential gas and electric HVAC programs.
Synapse Energy Economics, Avoided Energy Supply Components in New England 2021 Report. May 2021.	This 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 2022 program planning.

2020	
Study	**Impact Descriptions**
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.
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.
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.
Cadeo, Impact Evaluation of Home Energy Reports Program 2017-2019, September 2020.	This study updated realization rates for the Home Energy Reports program.
NMR, Lighting Hours of Use Study, March 2020. (Leveraged study from MA)	This study reviewed and updated the HOU used to calculate the lighting savings measures in MA. Rhode Island adopted the results to update savings assumptions for the lighting measures in RI.
NMR, LED Delta Watts Update, March 2020. (Leveraged study from MA)	This MA study updated delta watts for lighting measures. Rhode Island adopted the results to update gross savings calculation for its Residential Lighting measures.
Guidehouse, Residential Wi-Fi Thermostat DR Evaluation, April 2020. (Leveraged study from MA)	This study reviewed and updated the savings being used In MA for the Wi-Fi DLC program offering. Rhode Island adopted the results to update savings for Wi-Fi DLC offering in RI.
Guidehouse, 2019/2020 Residential Energy Storage Demonstration, February 2020. (Leveraged study from MA)	This study reviewed and verified the savings being used In MA were accurate for the Residential demand response battery storage offering. Rhode Island adopted the results for residential battery storage demand response offering in RI.

ERS, Evaluation of 2019-2020 Cross-State DR Program, February 2020. (Leveraged study from MA)	This study reviewed and updated the summer demand realization rate being used In MA for the C&I targeted dispatch program offering. Rhode Island adopted the results for the C&I targeted dispatch demand response offering in RI.
DNV GL, Impact Evaluation of PY2017 Custom Gas Installations. May 2020.	The study updated realization rates for custom gas projects, as part of a rolling effort that incorporated results from PY2016 and PY2017.
DNV GL, Impact Evaluation of PY2018 Custom Gas Installations. September 2020.	The study updated realization rates for custom gas projects, as part of a rolling effort that incorporated results from PY2016, PY2017, and PY2018.
DNV GL, Impact Evaluation of PY2018 Custom Electric Installations. Interim Findings August 2020.	The study updated realization rates for custom electric projects, as part of a rolling effort that incorporated results from RI PY2016, MA PY2017-18, and RI PY2018.
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.
DNV GL, C&I Measure Life Study. March 2020.	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.
Tetra Tech, C&I Free-Ridership and Spillover Study. Anticipated September 2020.	This study updated free-ridership and spillover rates for the C&I program
2019	
Study	**Impact Descriptions**
NMR, RLPNC 17-9 2019-21 Planning Assumptions: Lighting Hours-of-Use and In-Service Rate. July 2018. (Leveraged study from MA)	This study recommended planning values for hours of use and in-service rates for general service lamps, specialty and reflectors. Rhode Island adopted the results to update impacts for its Residential Upstream Lighting program.

NMR, RLPNC 17-3 Advanced Power Strip Metering Study (Revised). March 2019. (Leveraged study from MA)	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.
Navigant, Wi-Fi Thermostat Impact Evaluation Secondary Research Study. September 2018. (Leveraged study from MA)	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.
DNV GL, Impact Evaluation of PY2016 Custom Electric Installations. January 2020.	The study updated realization rates for custom electric projects, as part of a study leveraging the MA study of the same program element.
2018	
Study	**Impact Descriptions**
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.
DNV GL, Impact Evaluation of PY 2015 Rhode Island Commercial and Industrial Upstream Lighting Initiative. September 2018.	The study updated impact factors for the Upstream Lighting initiative. The RI study leveraged the MA study of the same initiative.
DNV GL, Rhode Island Commercial & Industrial Impact Evaluation of 2013-2015 Custom Comprehensive Design Approach. October 2018.	The study updated the realization rate for the CDA initiative. The RI study leveraged the MA study of the same initiative.
DNV 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.
DNV GL, Prescriptive C&I Loadshapes of Savings. March 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.

DNV GL, P78 Upstream LED Net-to-gross Analysis. August 2018.	This MA study updated net-to-gross values for the C&I Upstream Lighting initiative for 2019, 2020, and 2022.
DNV GL, P86 Lighting Hours of Use Study. April 2019.	This MA study used lighting hours of use data from several previous studies to determine hours of use by building type for the C&I Upstream Lighting program.
DNV GL, P81 Process Evaluation of C&I Upstream Lighting Initiative. September 2018.	The MA study updated in-service rates for the C&I Upstream Lighting initiative.
Synapse Energy Economics, Avoided Energy Supply Components in New England 2018 Report. March 2018.	This 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 2019 program planning.
Navigant, 2017 Residential Wi-Fi Thermostat Demand Response. April 2018.	This study evaluated the controllable thermostats as a demand response technology offered through Massachusetts and Rhode Island ConnectedSolutions programs. The study found average demand savings of 0.44 kW per thermostat in Massachusetts and 0.52 kW per thermostat in Rhode Island.
NMR, Rhode Island Residential Appliance Saturation Survey. October 2018	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.
Cadeo, Rhode Island Impact Evaluation of Income Eligible Services Single Family Program, August 2018	This study deemed savings values and realization rates for electric and gas participants using billing and engineering analysis. The Company adopted the deemed savings values in the 2019 program plan.
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.

NMR, RLPNC 17-4/17-5 Products Impact Evaluation of In-service and Short-term Retention Rates Study. March 2018. (Leveraged study from MA)	This study yielded estimates of in-service rates (ISRs) and short-term retention rates for products currently offered through the Residential Consumer Products Core Initiative or the Mass Save® Home Energy Assessment (HEA) Programs. Rhode Island adopted the result from this study to inform savings for measures offered through Residential Products program.
NMR/Tetra Tech, TXC34 Massachusetts Residential HVAC Net-to-Gross and Market Effects Study. July 2018. (Leveraged study from MA)	This study yielded recommended net-to-gross ratios for selected heating, cooling, and water heating measures that will receive Mass Save® Standard rebates in 2019-2022. Rhode Island adopted the result from this study to inform savings for measures offered through Residential HVAC/HEHE programs.
Tetra Tech, Market-Rate Multifamily NEI – Phase I Final Memo. March 2018.	This MA study reviewed non-energy impacts associated with market-rate multifamily properties, including whether or not any additional NEIs should be applied, whether NEI values differ based on type and ownership of building, and whether there is double counting of NEIs.
Tetra Tech, Non-Energy Impact Framework Study Report. January 2018.	This MA study reviewed the current status of NEIs and had the following recommendations: do not count existing property value NEIs, review the BCR-model-related differences highlighted in the study and determine whether there is a reason for each, and, in cases where an NEI for one initiative or measure is applied to a different initiative or measure, provide clear public documentation of how the decision was made.
DNV GL, Evaluation of 2017 Demand Response Demonstration: C&I ConnectedSolutions. February 2018.	This MA study reviewed the baseline application and impacts calculated by the AutoGrid system, examine the effectiveness of the Connected Solution baseline, and assess ex-post impacts. It was also designed to understand customer acceptance and experience with the intervention, readiness of systems for larger deployment, and PA and vendor success in delivery.
2017	
Study	**Impact Descriptions**
NMR, 2017 Rhode Island Single-Family Code Compliance/Baseline Study, July 2017	This study yielded the final agreed upon baseline values to update the User Defined Reference Home (UDRH) in Rhode Island

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.
NBI, 2017 Rhode Island Commercial Code Savings Analysis	This study found that the average Rhode Island commercial building could attain annual electric savings of 0.73 kWh/sf and gas savings of 0.90 MMBtu/sf if it fully complied with the state's building energy code.
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.
New Buildings Institute, Energy Impacts of Commercial Building Code Compliance in Rhode Island, July 2017	This study quantified the energy impacts of energy code compliance patterns from field data collection and analysis of building characteristics.
The Cadmus Group, Inc., Ductless Mini-Split Heat Pump Impact Evaluation, 2016	This study estimated savings from various types of heat pumps.
DNV-GL, Impact Evaluation of 2014 Custom HVAC Installations, September 2017	The study updated realization rates for custom electric HVAC projects, as part of a study leveraging the MA study of the same program element.
DNV-GL, 2014 RI Custom Process Impact Evaluation, December 2017	The study updated realization rates for custom process projects, as part of a study leveraging the MA study of the same program element.
TetraTech, C&I Programs Freeridership & Spillover Study, September 2017	This study updated free-ridership and spillover values for the C&I electric and gas programs.
DNV-GL, MA C&I Steam Trap Evaluation Phase 2, Feb, 2017	This study updated steam trap savings estimates.
DNV-GL, Gas Boiler Market Characterization Study Phase II: Final Report, March 2017	This study updated C&I condensing boiler savings estimates.
DNV-GL, MA45 Prescriptive Programmable Thermostats, March 2017	This study updated programmable thermostat deemed gas savings for C&I programs.

2016	
Study	**Impact Descriptions**
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.
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.
Massachusetts Special and Cross-Cutting Research Area: Low-Income Single-Family Health- and Safety-Related Non-Energy Impacts (NEIs) Study. Prepared by the NMR Group and Three3, Inc. for the Massachusetts Program Administrators. August 5, 2016.	This study developed Non Energy Impacts for low income programs, based on USODE's Weatherization Assistance Program tailored to MA context. Dollar benefits rose substantially over prior values primarily based on avoidance of deaths due to thermal stress.
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.
Ductless Mini-Split Heat Pump (DMSHP) Final Heating Season Results; Ductless Mini-Split Heat Pump (DMSHP) Cooling Season Results, COOL SMART Impact Evaluation Team, 2015 / 2016	Heating and cooling memos that describe the number of full load hours found with field installed systems in MA and RI; these hours were used with historic data on incentivized systems to come up with average savings per unit.

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.
2015	
Study	**Impact Descriptions**
Cadmus, Inc., High Efficiency Heating Equipment Impact Evaluation: Final Report, March 2015	The study determined revised deemed savings values for each furnace and boiler measure, including condensing boilers and early replacement of heating equipment. The study also reflected the increasing baseline for standard efficiency heating equipment.
DNV-GL, Retrofit Lighting Controls Measure Summary of Findings: Final Report (MA), October 2014	The study examined trends in lighting control savings and noted a decrease in savings over previous program years. It recommended updated coincidence factors as well as potential program and technology areas that may yield higher savings. Finally, the study recommended a change in the savings calculation algorithm for lighting controls.
DNV-GL, Massachusetts 2013 Prescriptive Gas Impact Evaluation; Steam Trap Evaluation Phase 1, March 2015	The study concluded that there should continue to be both prescriptive and custom pathways for steam trap retrofit incentives, and further recommended that a group convene to review and revise the deemed savings estimate for steam traps. The study also recommended the use of a six year lifetime for steam traps.
Cadmus, Inc., Cool Smart Incremental Cost Study: Final Report, July 2015	This incremental cost study estimates how manufacturing production costs (MPCs) and purchase prices of residential air conditioning (AC) and heat pump (HP) equipment change as equipment efficiency increases. The results support Cool Smart program enhancements and cost-effectiveness analysis, as well as potential upstream residential upstream heating, ventilation and air conditioning (HVAC) incentive programs.

Cadmus, Inc., Lighting Interactive Effects Study Preliminary Results – Draft, April 2015	This memo details the preliminary findings of the Lighting Interactive Effects study evaluated for the Massachusetts (MA) Program Administrators to better understand and report the true impact of energy efficient lighting retrofits. It recommended factors for electric and gas energy to be applied to residential program savings.
2014	
Study	**Impact Descriptions**
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.
National Grid, Macroeconomic Impacts of Rhode Island Energy Efficiency Investments REMI Analysis of National Grid's Energy Efficiency Programs	This study quantifies the macroeconomic impacts of National Grid's 2014 EE Program Plan for Rhode Island and provides updated economic impact multipliers to quantify the benefits of future EE programs in the Rhode Island economy. This updates the multipliers from an economic impact study conducted by Environment Northeast (ENE) in 2009. Superseded by 2020 Brattle Group study that revised methods.
2013	
Study	**Impact Descriptions**
KEMA, Inc., Impact Evaluation of 2011 Rhode Island Prescriptive Lighting Installations KEMA, Inc., Impact Evaluation of 2011 Rhode Island Custom Lighting Installations	The Custom and Prescriptive Lighting studies involved the impact evaluation of components of the Large Commercial and Industrial electric efficiency programs. The studies included on-site engineering and end-use metering of a statistically drawn random sample of participants. The custom portion of the study was coupled with the results of the 2013 Massachusetts Custom Lighting study.

KEMA, Inc., Impact Evaluation of 2011 Prescriptive Gas Measures	On-site monitoring and verification of installation provided updated impacts for four major prescriptive gas measures. Programs and measures are similar between National Grid affiliates in MA and RI, and results are applied to RI. The overall realization rate for the four measures was approximately 102% and the relative precision was about ±15%.
KEMA, Inc., and DMI, Inc., Impact Evaluation of 2011-2012 Prescriptive VSDs	This evaluation provided a new estimate of the impacts of prescriptive variable speed drives, based on pre-post metering of measures installed in 2011 and 2012. Programs and measures are similar between National Grid affiliates in MA and RI, and results are applied to RI. Key findings include an annual kWh realization rate was 94% with a relative precision of +/- 23%, and identification of factors that influenced the realization rate.
KEMA, Inc., Impact Evaluation of 2010 Prescriptive Lighting Installations	The RI Prescriptive lighting study listed above did not examine case lighting separately from other lighting systems. To complement the RI-specific results, this MA study provided impact updates on case lighting.
2012	
Study	**Impact Descriptions**
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.
2011	
Study	**Impact Descriptions**

KEMA, Inc., C&I Lighting Loadshape Project, Prepared for the Regional Evaluation, Measurement, and Verification Forum, June 2011.	A compilation of lighting loadshape data from the Northeast. The study provided updated coincidence factors for the Energy Initiative and Small Business Lighting programs. The Small Business program summer coincidence factor went from 0.80 to 0.79, while the Energy Initiative summer coincidence went from 0.88 to 0.89
KEMA, Inc., C&I Unitary HVAC Loadshape Project Final Report, Prepared for the Regional Evaluation, Measurement, and Verification Forum, June 2011.	From end use metering, the study produced updated diversity and equivalent full load hours for unitary HVAC measures
2010	
Study	**Impact Descriptions**
ADM Associates, Inc., Residential Central AC Regional Evaluation, Final Report, October 2009	kWh and kW savings figures for the installation of efficient residential CAC systems

5. 2022 Evaluation Study Findings

THIS SECTION WILL BE UPDATED IN FINAL PLAN; section below is example retained from 2022 Plan

5.1. Rhode Island Specific studies

Example: Impact Evaluation of PY2019 Rhode Island C&I Upstream Lighting Initiative

Type of Study: Impact
Evaluation Conducted by: DNV
Date Evaluation Conducted: 7/15/21

Evaluation Objective and High-Level Findings:

DNV carried out the Impact Evaluation of the Project Year 2019 Rhode Island C&I Upstream Lighting Initiative for Narragansett Electric from December 2020 to June 2021. The study's overall purpose was

to build on prior research to understand the extent to which program performance is meeting program and policy goals and objectives.
The study was designed to answer the following research questions in three categories:
Baseline information:

- Was the site new construction or a major renovation event?
- What type, wattage, and count of lamps/fixtures were replaced by measures supported by the initiative? This question includes the proportion of T12 systems or lamps replaced by program measures

Savings factor results and their application:

- What are the updated savings factors for Narragansett Electric to use prospectively?
- How much savings can be attributed to controls induced by the initiative?
- How has the quantity of light fixtures/lamps increased or decreased since participating in the program? For example, where TLEDs were installed, were extra linear T8s installed to make up for the less than expected light output?
- Update the building type HOU values

Programs to which the Results of the Study Apply:
The results of this study are applicable to the Upstream Lighting measures alone.

Evaluation Recommendations included in the Study:
The study team proposed updated ISR, and kW saved per unit. When applied and combined with existing and unchanging HVAC interactive effects, and Delta Watts adjustment factors, the new RR values are show in the following table:

Category	kWh RR	Summer kW RR	Winter kW RR	Non Electric RR
Screw-In LEDs	50.47%	57.82%	46.06%	50.47%
LED Stairwell Kits	86.00%	86.00%	86.00%	86.00%
Linear LEDs	97.92%	110.40%	95.04%	97.92%
Linear LEDs w/ Controls	98.94%	111.55%	96.03%	98.94%
Linear Fixtures LEDs	99.96%	112.70%	97.02%	99.96%
Linear Fixture LEDs w Controls	99.96%	112.70%	97.02%	99.96%
High Bay / Low Bay	92.82%	104.65%	90.09%	92.82%
Exterior LEDs	95.00%	95.00%	95.00%	95.00%
High Bay / Low Bay w Controls	92.82%	104.65%	90.09%	92.82%
Exterior LEDs w Controls	95.00%	95.00%	95.00%	95.00%

Explain Whether or Not Narragansett Electric Decided to Adopt Recommendations from the Study:
Narragansett Electric is adopting these results.

Savings Impact:
These realization rates are broadly an increase across all categories, hold screw-in lighting applications.

Name 2

Name 3

Etc.

5.2. Studies Adopted from Other Jurisdictions

Name 1

Name 2

Name 3

ETC.

6.