STATE OF RHODE ISLAND
ENERGY EFFICIENCY & RESOURCE MANAGEMENT COUNCIL

CONSULTANT TEAM

2020 EERMC Retreat

Presented By: EERMC Consultant Team

Date: September 21, 2020

Agenda & Overview

9:00 - 9:15 AM	15 min	Welcome, Ice Breaker and Overview	
9:15 – 9:30 AM	15 min	Discussion on Council Member Experience (suggested change of order)	
9:30 – 9:45 AM	15 min	2021-2023 3YP and 2021 Annual Plan Overview and Process	
9:45 – 10:30 AM	45 min	Key Considerations for Vote on Plans	
		10 min	LCP standards requirements for annual plan & 3YP
		15 min	State policy goals related to annual plan & 3YP
		20 min	Relationship of saving targets to annual plan & 3YP
10:30 – 10:40 AM	10 min	* B R E A K *	
10:40 – 11:45 AM	65 min	Key Considerations for Vote on Plans (Cont'd)	
		20 min	C&I Sector efficiency savings & cost
		20 min	Residential Sector efficiency savings & cost
		30 min	Deep Dive: Codes & performance incentives
11:45 – 12:00 PM	15 min	Wrap Up - Preliminary thoughts, outstanding questions, next steps	

Retreat Goals

Council Members understand the key considerations related to the proposed Annual and Three-Year Plans and feel prepared to vote on them.

Council Members walk away with core pieces of information to help answer key questions leading up to the vote:

- Do the proposed savings goals sufficiently approach the targets?
- Do the Plans align with key objectives?
  - Council Priorities
  - LCP standards
  - Stakeholder considerations
- How will the Plans support / impact each Councilor's constituency?

Council Members know how to get more information/answers to questions between the retreat and the vote on the Plans.

Retreat Ground Rules

Presenters will focus on bottom line information that Council Members *need* to understand to vote on the Plans

Facilitators will keep timing on track

- We might need to cut off discussion to make sure that the agenda is covered

Council Members should feel free to ask concise, on-topic questions at any time

- Any questions that are not fully answered during the retreat will be responded to in writing and/or via one-on-one meetings
- Remember ”step up, step back”

Council Member Experience

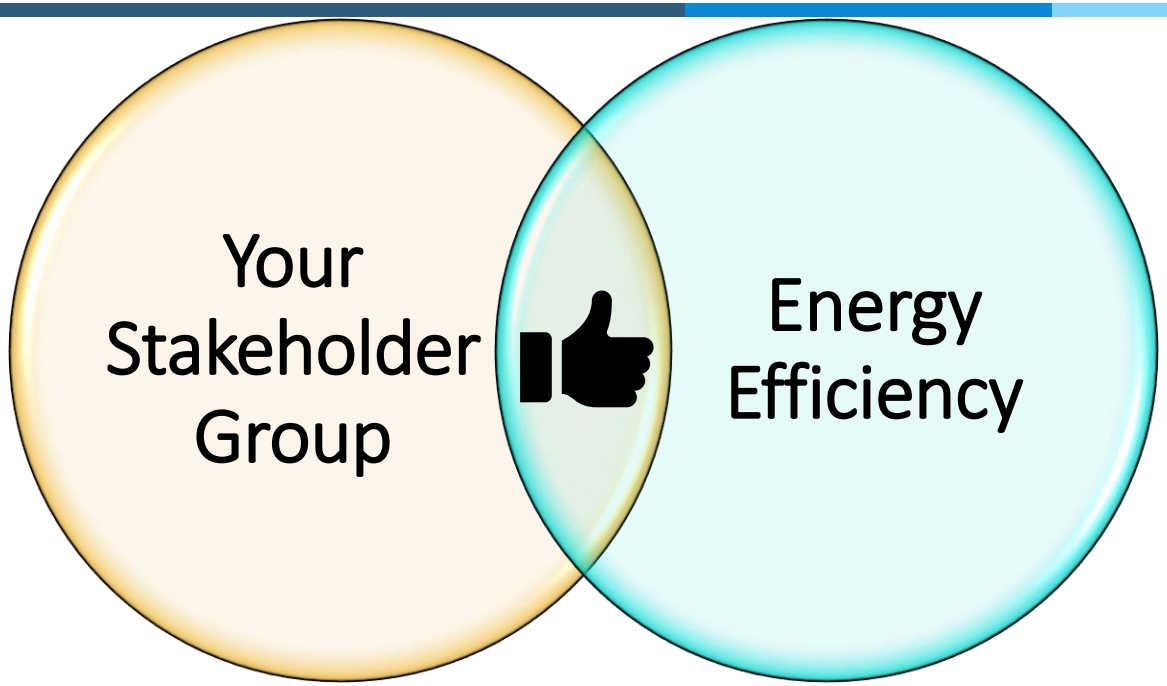
Rachel Sholly

15 minutes

Who Do You Represent?

Understanding the Intersection

What are the priorities, challenges, and needs of my constituents?



What are the key variables in the proposed Plan?

How do my constituent's priorities, challenges and needs relate to efficiency?

What are the potential impacts of the proposed Plan on my constituents?

What observations or recommendations can I contribute so the Plan better supports my constituents?

What we want to know

What **challenges** do you experience in serving on the Council? In representing the perspectives and interests of your stakeholders?

What would make it easier to fulfill your Council member responsibilities?

How can the Council **improve its effectiveness**?

- E.g. information sharing improvements, specific topic deep dives, constituent connection support, member resources library, etc.

3YP and Annual Plan Overview and Process

Mike Guerard

Marisa Desautel, Esq.

15 minutes

Plan Review, Approval, Filing Process

October 1: Final draft of 3YP & 2021 Annual

October 8: EERMC Vote; Approval of Cost-Effectiveness (C-E) Report

October 15: National Grid files Plans with PUC

- EERMC counsel files C-E Report with cover memo on EERMC's vote language on Plans within 3 weeks

~ November 1 – December 15: PUC process

- PUC issues Information Requests (IR's) to Settlement Parties & schedules Technical Session
- By December 15, PUC will rule on Plan

Key Considerations for Vote on Plans

EERMC responsibilities: Mike Guerard

State policy goals: Becca Trietch

Relationship of saving targets to plans: Sam Ross

45 minutes

EERMC Priorities

2021-2023 3YP Plan - EERMC Priorities Compliance*

Priority Item	(YES/NO/TBD)*	Comments
Plan should actively seek to procure the savings Targets approved the EERMC / PUC	**TBD**	Final savings not set yet
Plan should focus on acquiring the Targets as cost-efficiently as possible.	**TBD**	Final costs not set yet
Plan should comply with the LCP Standards	**Yes**	Well documented in Plan
Plan should align, where appropriate, with the Council's Policy Recommendations proposed in the 2020 Annual Report to the General Assembly	**Yes**	Addressed all issues that Plan can influence
Plan development process should create forums for consistent, comprehensive, informed and publicly accountable stakeholder involvement	**Yes**	EE TWG held every month during planning process
Programs should support and compliment state policy and regulatory objectives, especially those relating to greenhouse gas emission reductions and economic issues.	**Yes**	Generally referenced in Plan
Objectives for Energy Efficiency programs must ensure that all customers and segments of the market have access to the benefits of energy efficiency savings	**Yes**	Portfolio is sufficiently balanced
Objectives for EE programs must include dynamic strategies that coordinate with renewable energy efforts, state health initiatives, resiliency efforts, and any other relevant state and federal programs	**Yes**	Generally referenced in Plan

*** Findings for the 2021 first draft since final draft of full 3YP not due until 10/1**

LCP Standards – EERMC Role

EERMC Responsibilities: Guidelines for Energy Efficiency and Conservation Plans

The Council shall take a leadership role in ensuring that RI ratepayers receive excellent value from EE Plans being implemented on their behalf. The Council shall do this by **collaborating closely with the distribution company on design and implementation of the EM&V efforts** presented by the company and, if necessary, provide recommendations for modifications that will strengthen the assessment of distribution company programs.
In addition to the other roles for the Council indicated in this filing, the distribution company shall seek ongoing input from, and collaboration with, the Council on development of the EE Plans. The distribution company shall seek to receive the endorsement of EE Plans by the Council prior to submission to the PUC.
The Council shall vote whether to endorse the Annual & Three-Year EE Plan… If the Council does not endorse the EE Plan(s), then the Council shall document the reasons and submit comments to the PUC for their consideration in final review of the EE Plans.
The company shall, in consultation with the Council, propose a process for Council input and review of EE Plans. This process is intended to build on the mutual expertise and interests of the Council and the company, as well as meet the monitoring responsibilities of the Council.
The Council shall prepare memos on its assessment of the cost effectiveness of the EE Plans, and submit them to the PUC no later than 3 weeks following the filing of the respective EE Plans with the PUC, or in accordance with the procedural schedule set in the applicable docket.

State Policy Goals

Rhode Island Office of Energy Resources to present during Retreat

Slides included in Appendices for Council member reference

Relationship of Saving Targets to Plans

Refresher on Plan Review Process and Status

COVID-19 Impacts

Review of Planned Acquisition Costs

Discussion of MPS, Targets, and Goals

Cost-Effectiveness (CE) Report Discussion

EE Plan Review Process & Status

August 27 – Draft 1 received

- Review text and Benefit-Cost Models
- Cross-reference Evaluations and TRM

September 10 -- Comments submitted

- 300 comments on 2021 Plan drafts
- 24 comments provided on the BC Model

September 18-25 – Receive and Process Responses

- Review for responsiveness
- Assess application of suggested enhancements

EE Plan Next Steps

Council Member Input

- Outstanding questions from Council meeting
- Areas of emphasis during “home stretch”

C-Team will ensure Council Member Qs addressed during **discussions with Grid and stakeholders** between 9/21 – 9/25

Ensure that **barriers beyond cost** are described in detail & prioritized in final draft – estimating barrier impacts as part of ongoing planning

Prepare **recommendation for EERMC** 10/8 vote based on 10/1 Final Draft Combined Plan

COVID-19 Impacts on 2021 Plan

COVID-19 **economic impacts** significant, ongoing, and uncertain

Several stakeholders voiced **concerns about rates** in 2021

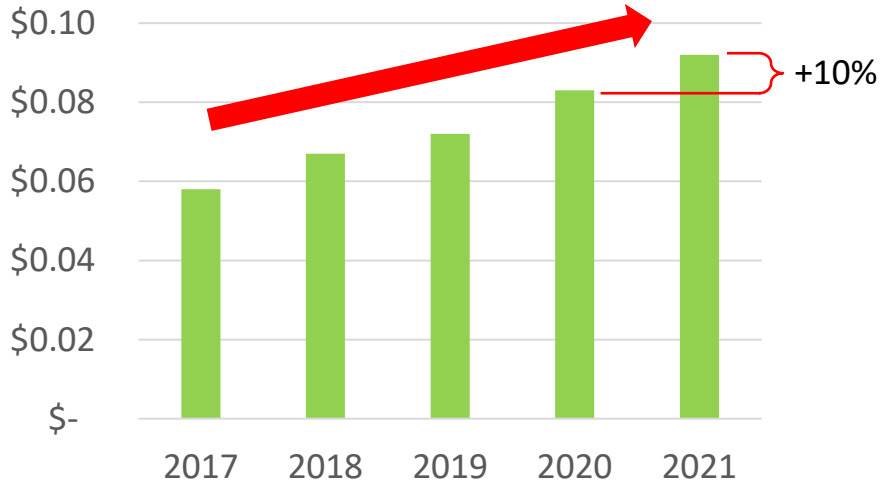
One-year freeze on SBC as short-term solution

- Effectively a ceiling for budget (less so for savings)
- Not anticipated to continue in 2022 and 2023

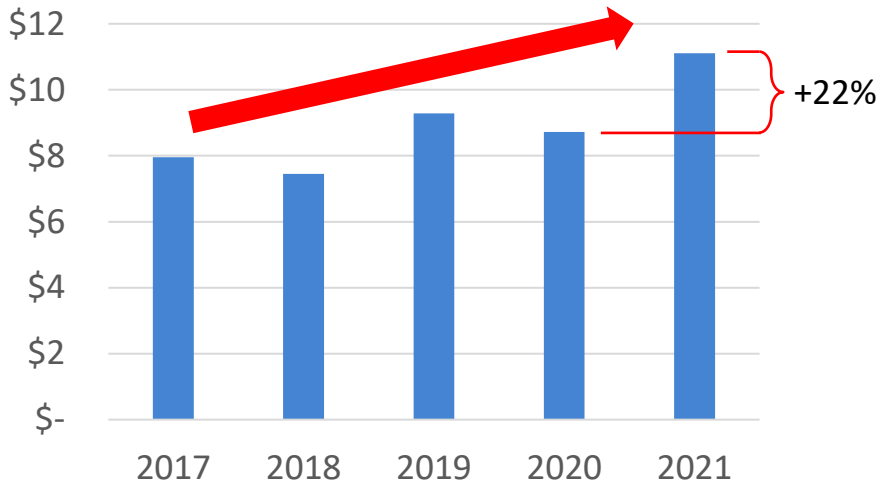
Council Member Discussion?

Closely Scrutinizing Costs

Electric Planned Acquisition Costs ($/Lifetime kWh)



Gas Planned Acquisition Costs ($/Lifetime MMBtu)



Historically **high planned acquisition costs** - not necessarily a problem (e.g. lighting)

Many cost questions in C-Team comments provided on September 10 (See Appendix)

Working closely with Grid to **access more detailed cost data** than for any prior plan

Targets and Goals

KEY POINT

3YP aggregate shortfall of 37% for electric, 49% for gas

Annual Plan shortfall of 20% for electric, 58% for gas

Year	Electric Energy (MWh)	Natural Gas Energy (MMBtu)
2021	1,949,782	9,598,108
2022	2,037,314	9,948,779
2023	2,059,265	9,958,127

Targets

Year	Electric Energy (MWh)	Natural Gas Energy (MMBtu)
2021	1,377,193	4,696,581
2022	1,227,266	5,058,290
2023	1,233,988	5,367,851

3YP Goals

Year	Electric Energy (MWh)	Natural Gas Energy (MMBtu)
2021	1,560,340	4,067,673

Annual Goals

Focusing today on lifetime energy savings

Costs in Planning Process

Cost of additional savings portrayed as primary barrier

Costs impact 2021 savings due to SBC 'cap' – must be efficient!

MPS shows significant cost-effective savings beyond Plan values

Key feedback to Grid

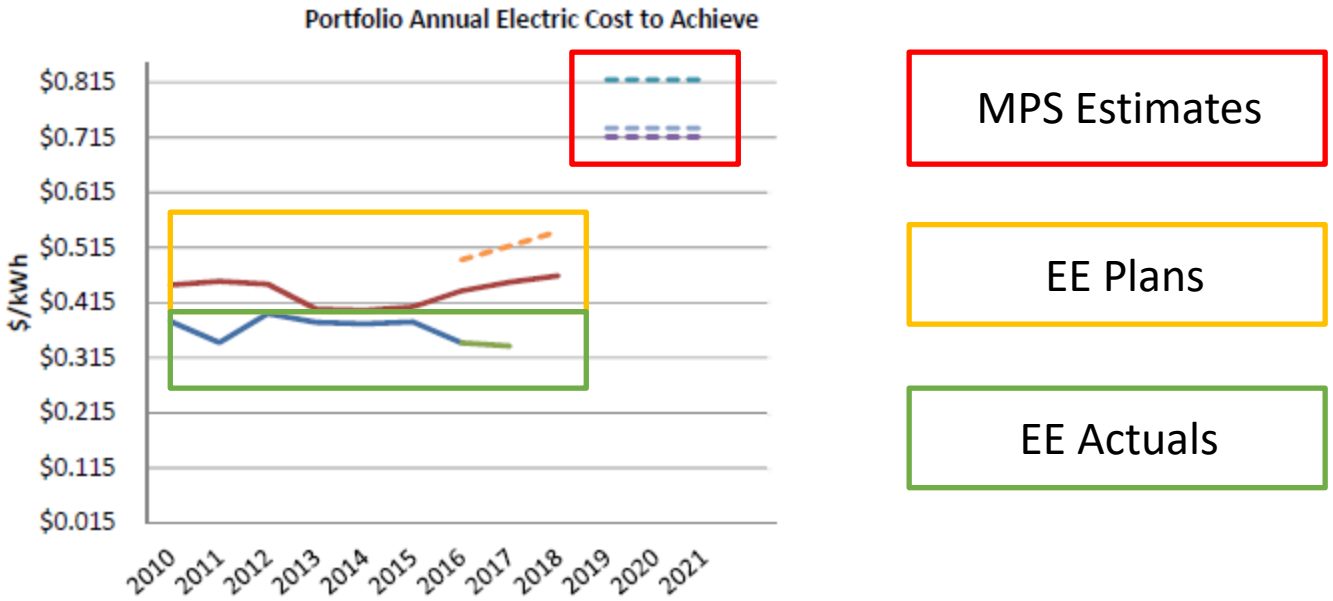
- MPS costs NOT reliable for planning
- Use planning tools to model costs in future
- Valuable to see 2+ combinations of cost & savings *from Grid tools*

Acquisition Cost Performance

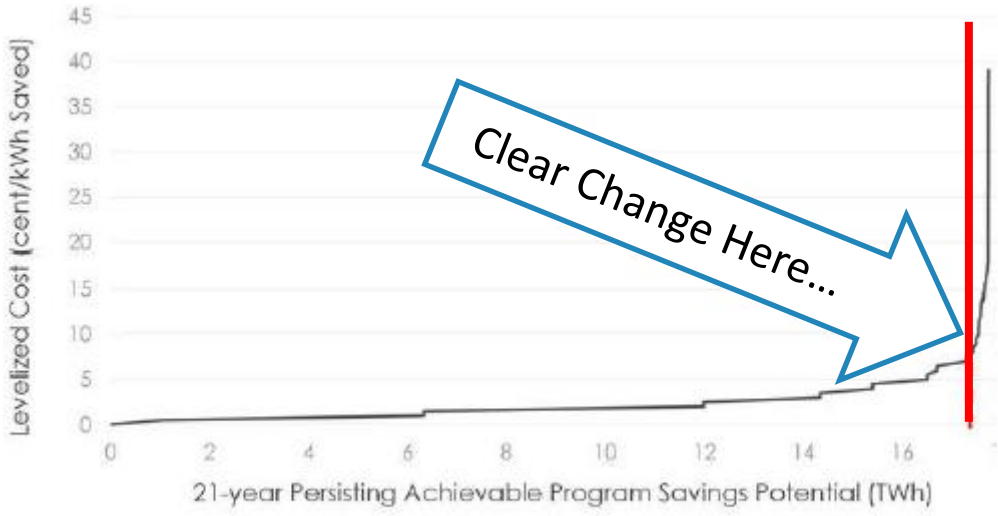
Recent MA 3YP Planning Process shows common cost pattern:

MPS > Plan > Actual

Acquisition costs also high in RI MPS – modeled costs likely high



EE Costs Rise Sharply for Last Few MWh



Source: IESO presentation, "Module 3: Conservation and Demand Response Outlook." August 2016

Comparing across efficiency opportunities

Last few MWh **much** more expensive

'Max' costs high b/c these units included (among other reasons)

Cost-Effectiveness Report

Council responsibility in LCP Standards

National Grid elected new option to simultaneously file Three Year and Annual Plan

Draft CE Report covers both Plans

- The 2021 Energy Efficiency Plan
- 2021-2023 Energy Efficiency Three Year Plan

CE Report will be finalized based on Plans submitted by National Grid on October 1

Opportunity for Discussion

Council Member feedback on draft CE Report is welcome – any discussion today?

BREAK

Key Considerations for Vote on Plans, cont.

C&I Sector: Adam Jacobs

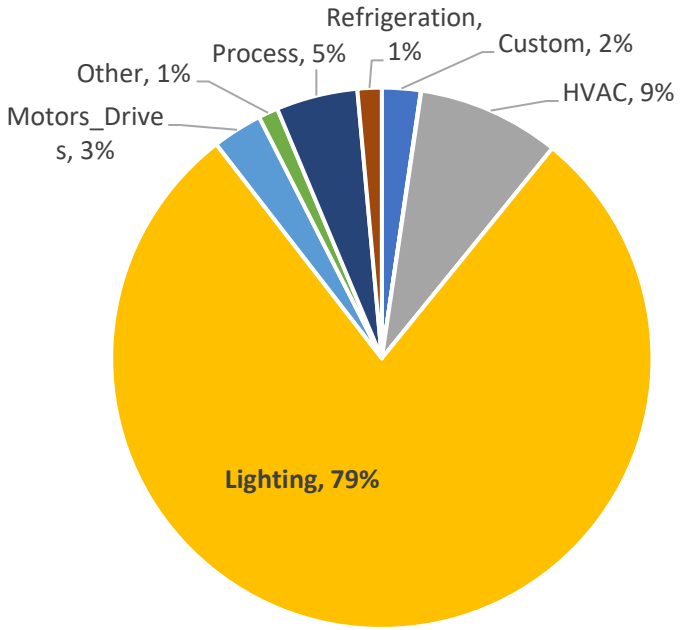
Residential Sector: Craig Johnson

Performance Incentive Mechanisms; Codes & Standards: Eric Belliveau

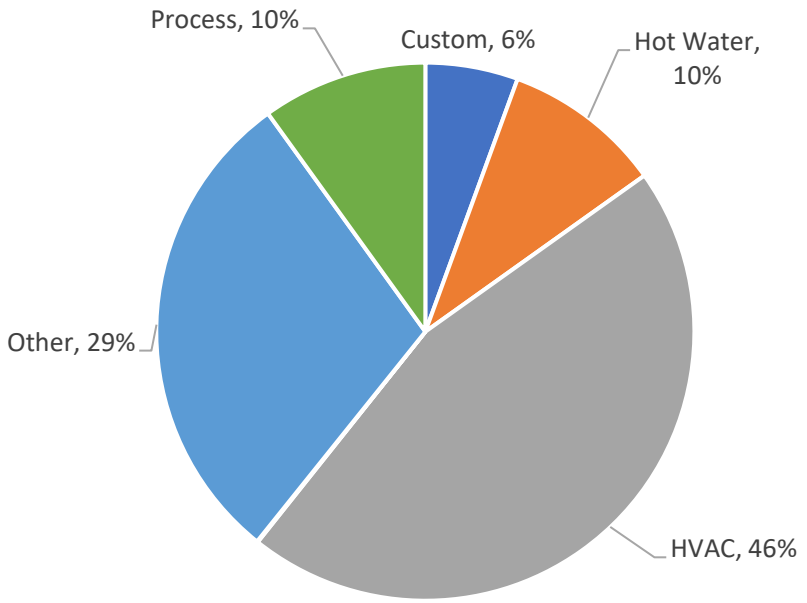
65 minutes

C&I SECTOR – Past Savings

C&I Annual Electric Savings by End Use (2019)

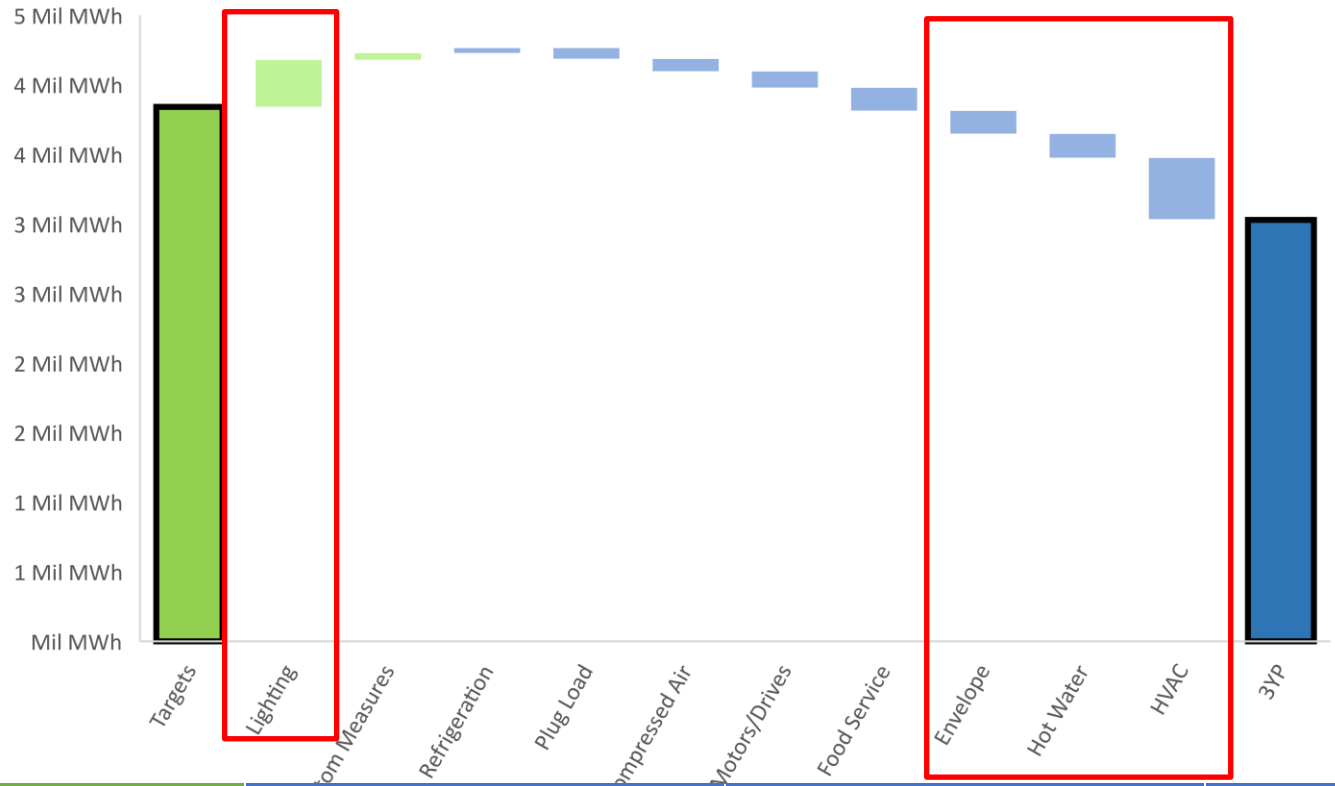


C&I Gas Annual Savings by End Use (2019)



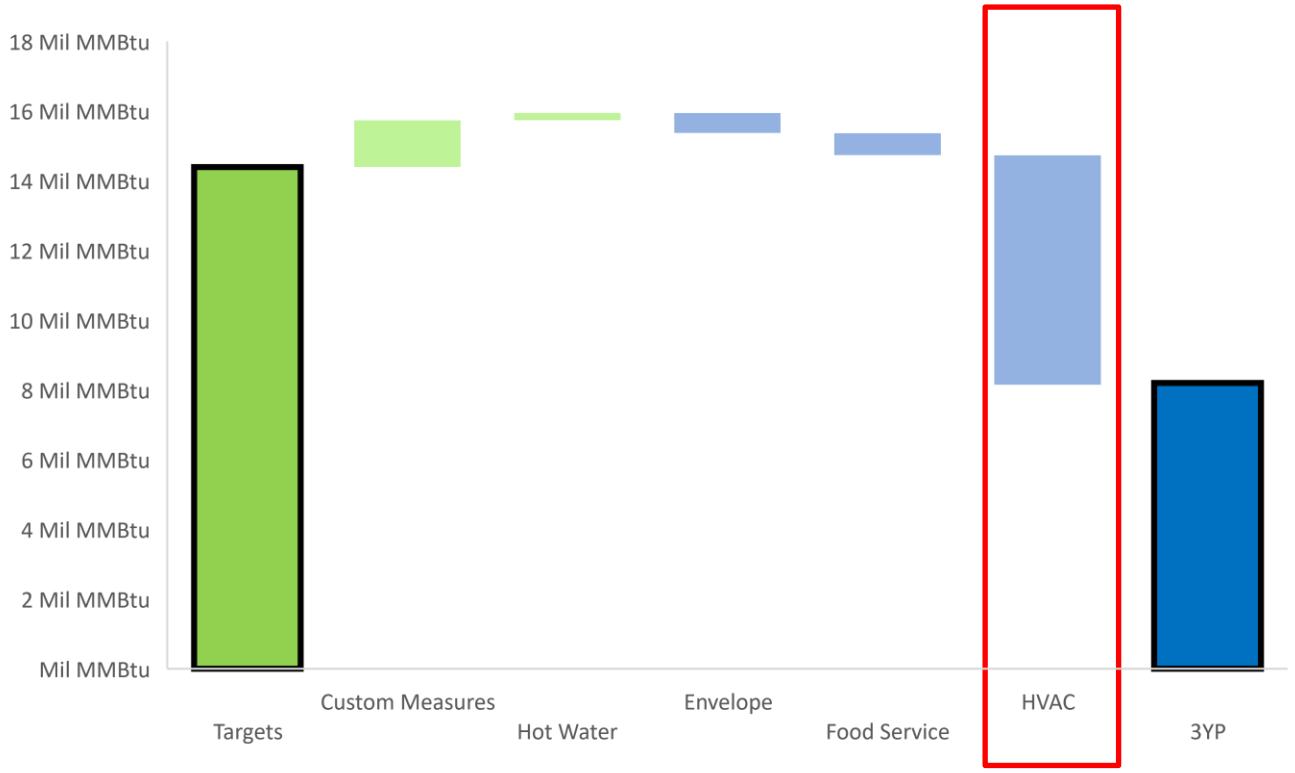
C&I SECTOR
Electric Targets

Less lighting; more HVAC, hot water and envelope



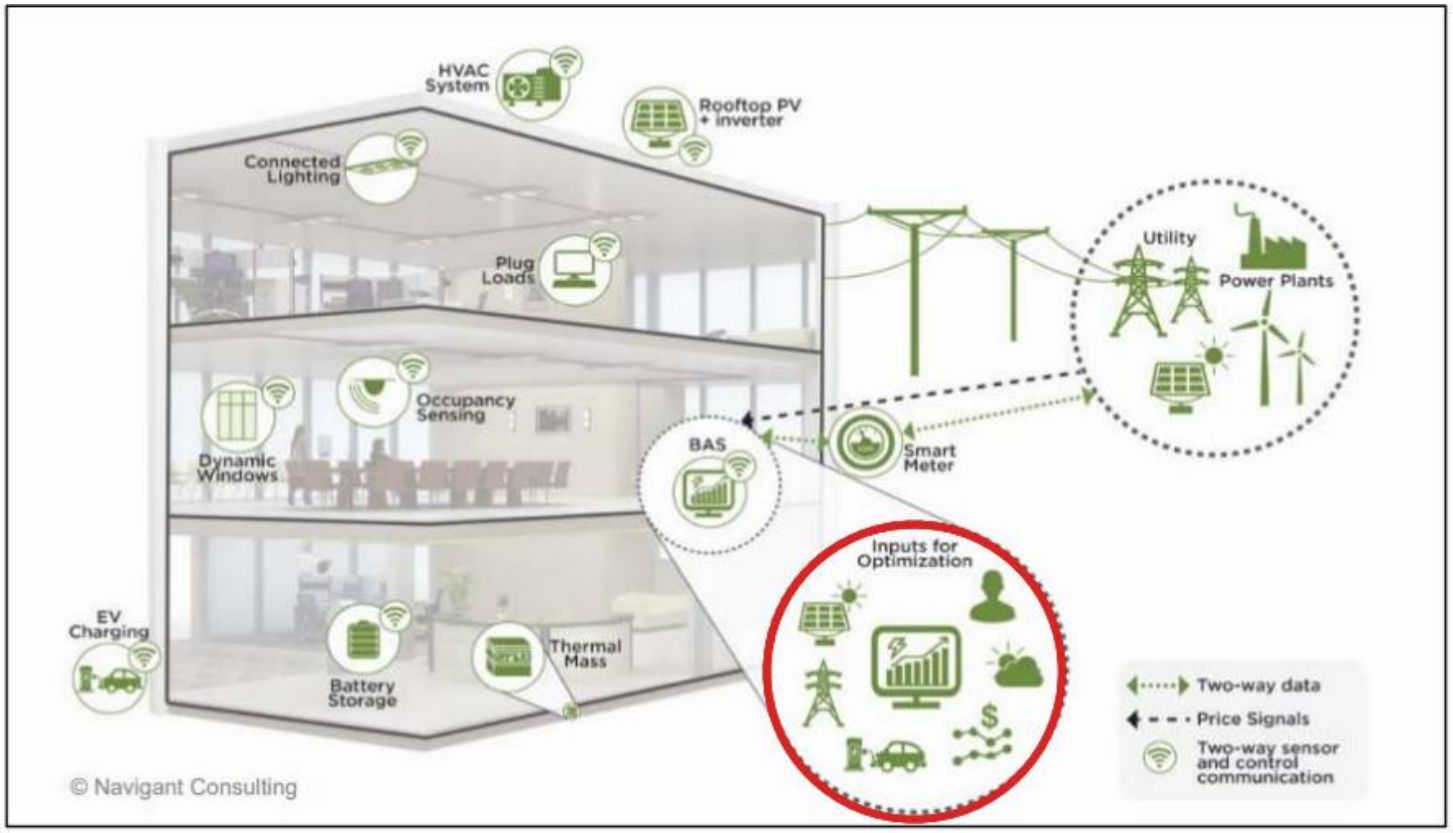
C&I SECTOR
Gas Targets

HVAC is even more important in gas!



C&I SECTOR
Forward Looking

Dynamic controls (+ smart building operators)



Source: US DOE Grid Interactive Efficient Buildings (April 2019)

C&I SECTOR
C-team Input (top recommendations)

1. Strategies to bring HVAC savings to all levels of C&I customers
2. Finish transforming the lighting market comprehensively
3. Dynamic load controls for all end-uses
4. Industrial opportunities like CEI, compressed air and telecom
5. Operational savings, workforce development and customer education

C&I SECTOR
C-team Input (cost analysis)

Electric

- Large year-over-year increases in planned costs for lighting measures
  - *Partly* explained by increased focus on controls
  - Not the full story
  - Applies to small biz, upstream, prescriptive
- Modest year-over-year increases in planned costs for CHP
  - Confirm this is due to enhanced incentive for biofuel

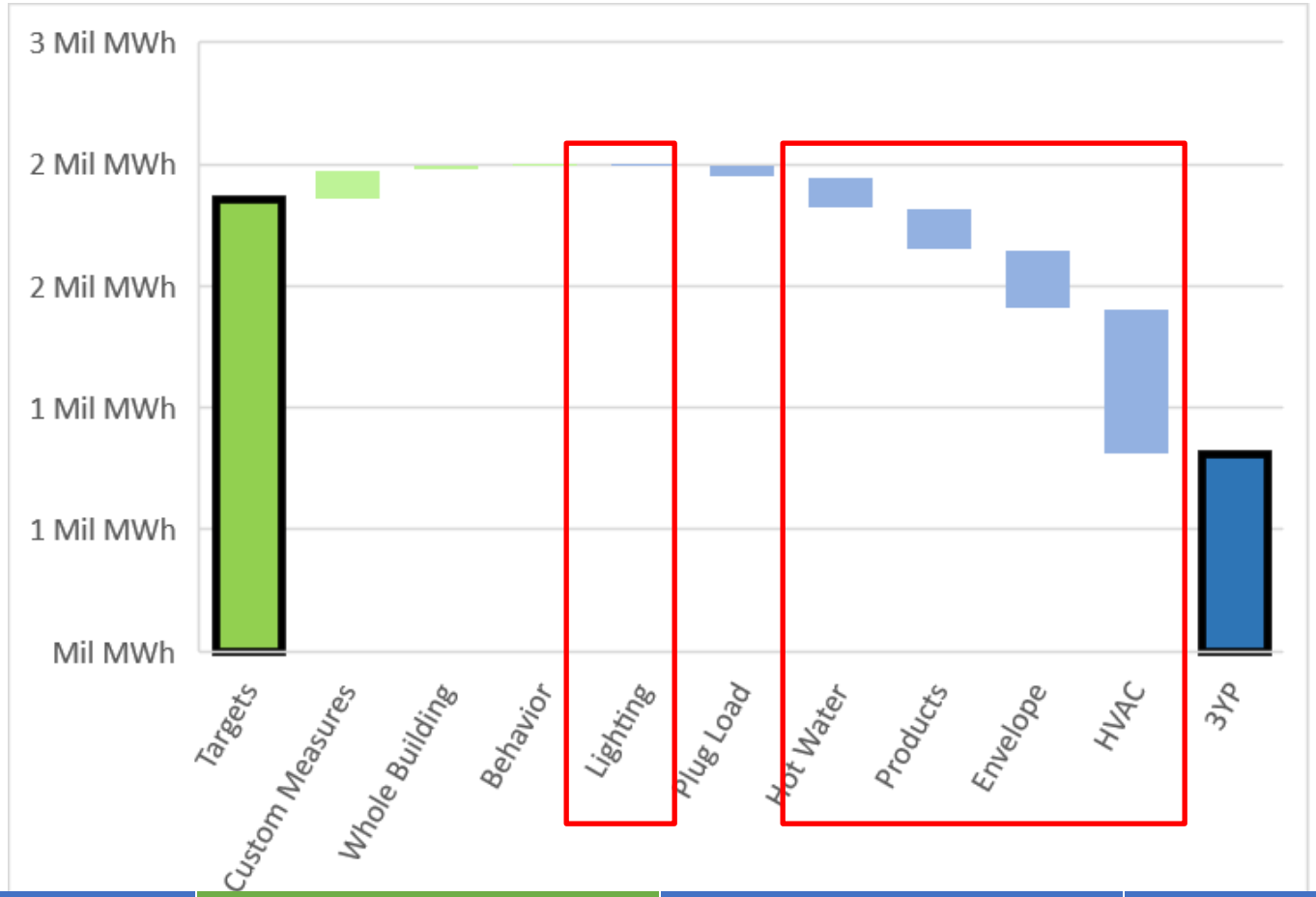
C&I SECTOR
C-team Input (cost analysis)

Gas

- Large year-over-year increases in planned cost for small biz program
  - Addition of weatherization offering but unclear that those heavy cost assumptions are correct
- Large year-over-year increases in planned cost for controls measures (HVAC end-use)
  - Can partly be attributed to new low/no cost tuning measures, however, many gas controls measures are not new and embedded costs not explained well in plan narrative

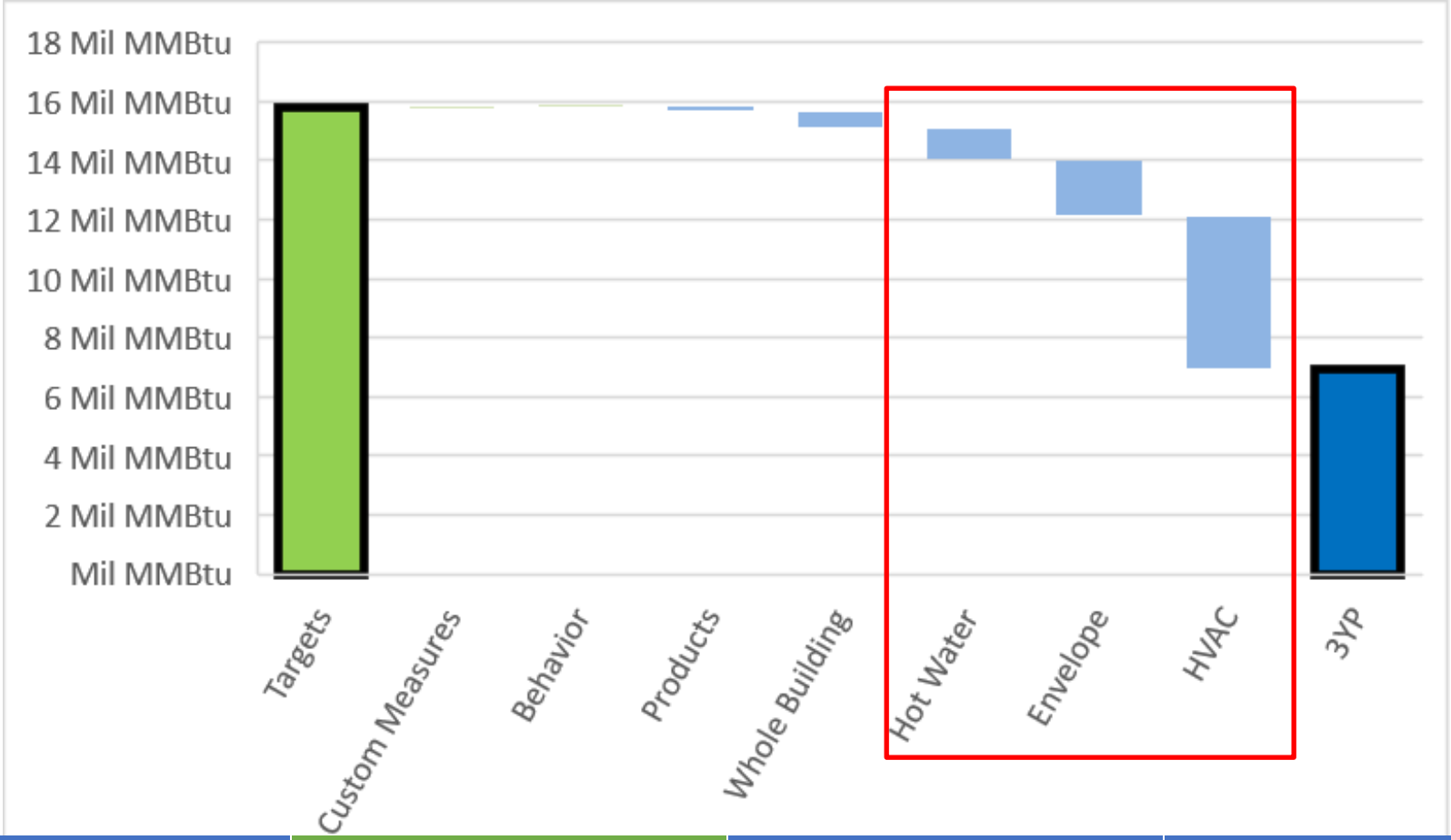
RESIDENTIAL SECTOR
Electric Targets

Less lighting; more HVAC, hot water and envelope



RESIDENTIAL SECTOR
Gas Targets

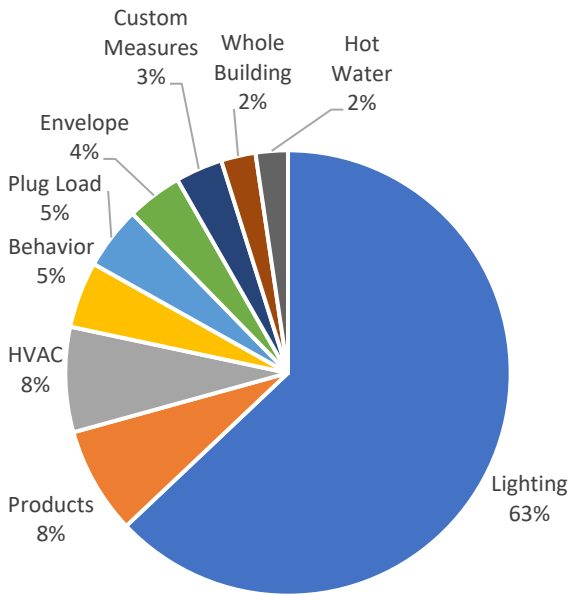
More HVAC, hot water and envelope



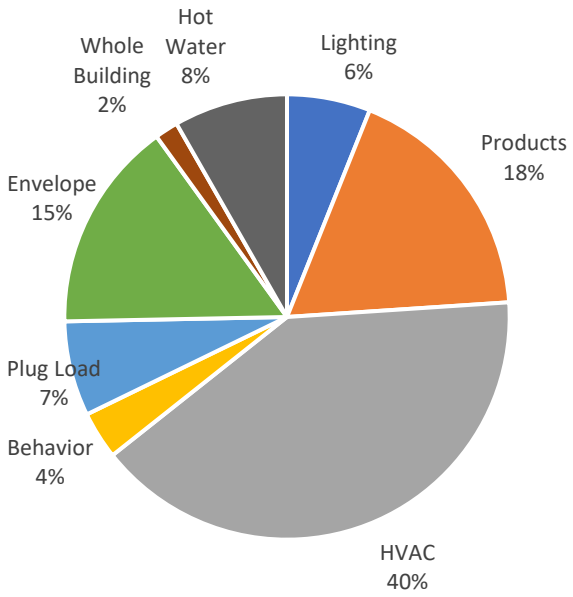
RESIDENTIAL SECTOR
Looking Forward - Electric

Lifetime Electric Savings by End Use

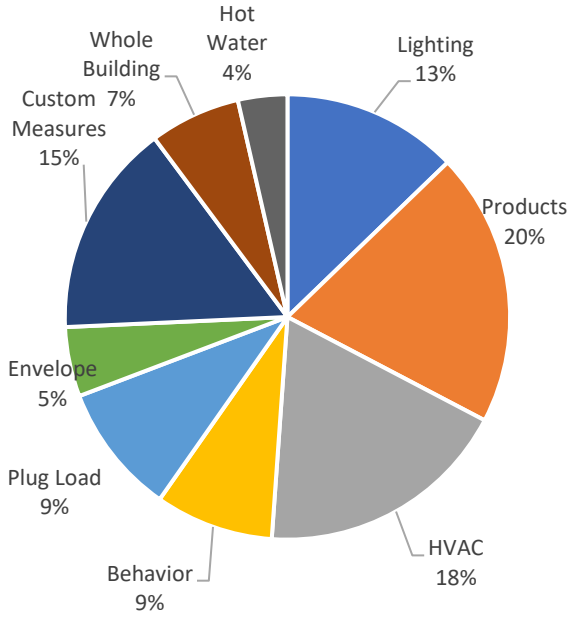
2019



Targets



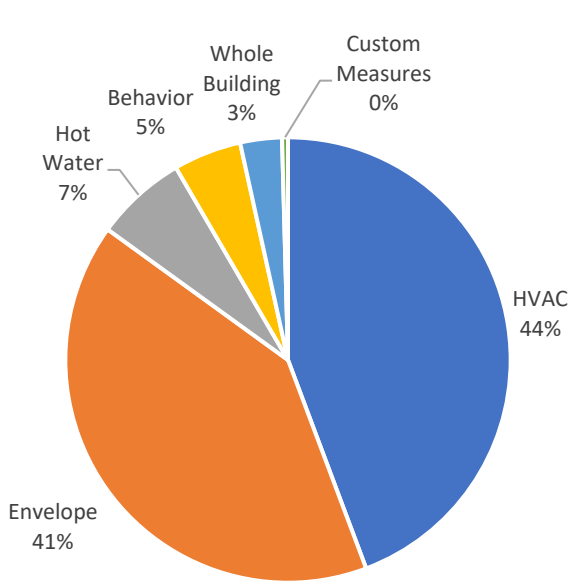
Three-Year Plan



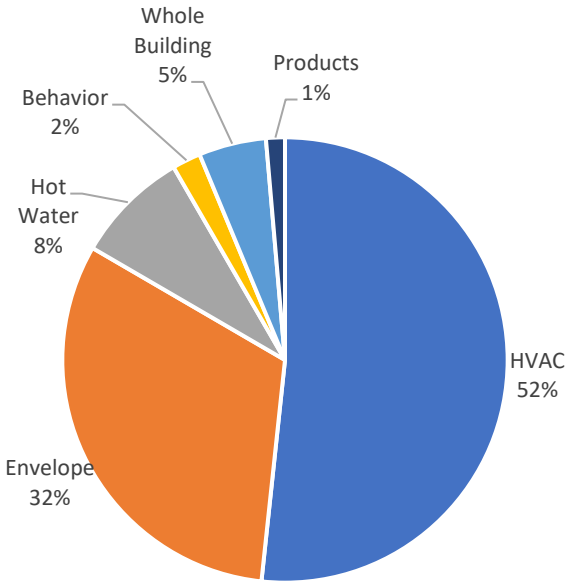
RESIDENTIAL SECTOR
Looking Forward - Gas

Lifetime Gas Savings by End Use

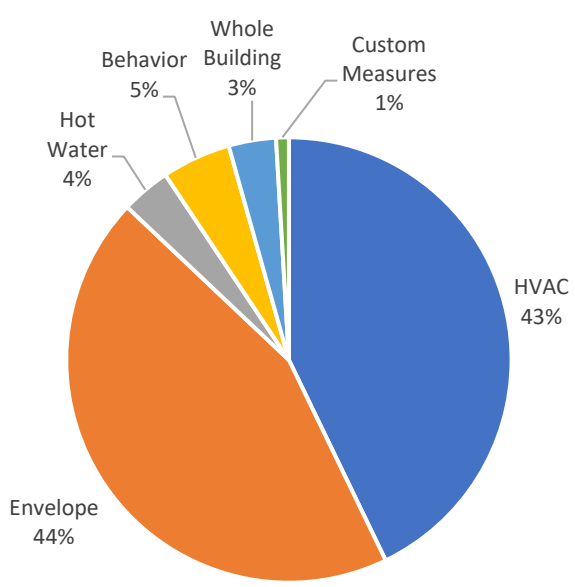
2019



Targets



Three-Year Plan



RESIDENTIAL SECTOR
C-team Input (top recommendations)

1. Increase weatherization opportunities by reducing first cost and pre-weatherization barriers

2. Identify and address strategies for increasing participation in Multifamily and Income Eligible Programs

3. Explore new approaches to increase savings from heating and hot water systems

RESIDENTIAL SECTOR
C-team Input (cost analysis)

Some increases in individual measure-level costs that are currently unexplained

Maintained assumption regarding cost of EnergyWise audit, despite intent to move some audits to a lower-cost virtual platform

Increases in non-incentive costs in electric and gas programs not explained

Why & How Pay the Company for this Work?

Mechanisms to allow Program Administrators to earn Performance Incentives is well established as industry best practice*

Return on Equity (ROE) for infrastructure & reliability averages 10.1% nationally

- Full Year Results for 2019/2020 for RI show *achieved* ROE for electric was 11.9% and gas was 8.8%**

Jurisdictional comparison conducted by C-Team showed a PIM range of 3.3% (Hawaii) to 20% (Michigan)

* https://www.aceee.org/toolkit/2020/02/performance-incentives

** https://investors.nationalgrid.com/~/media/Files/N/National-Grid-IR-V2/results-centre/2020/full-year-results-presentation-2019-20.pdf (p. 45)

History, Background & Process

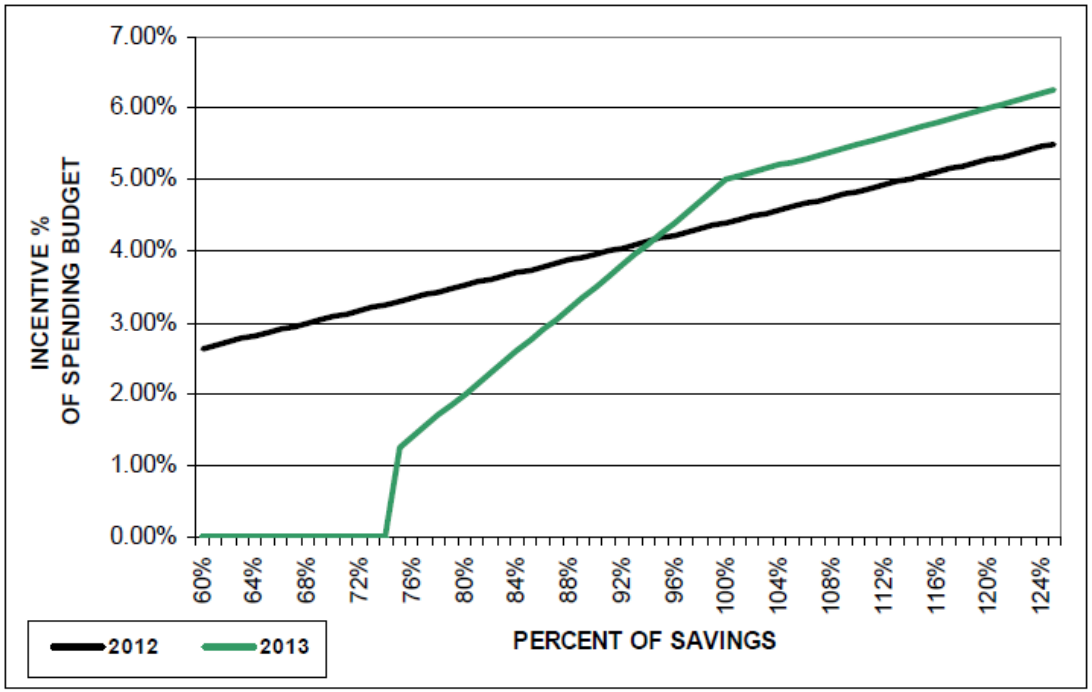
Electric: Company can earn a target-based incentive rate equal to **3.5%** of the eligible annual spending budget for achieving **MWh** savings goals and **1.5%** of the annual spending budget for achieving **MW** savings goals.

Gas: Company can earn a target-based incentive rate equal to **5.0%** of the eligible annual spending budget for achieving **MMBtu** savings goals.

History, Background & Process

Threshold performance level for energy savings by sector set at 75%

- 1.25% for achieving 75% of the savings goals in a sector
- increase linearly to 5% of the annual spending budget for achieving 100%
- increase linearly from that point to 6.25% for achieving 125%



Proposed changes to PIM

Move to lifetime savings targets set stage for shift to focus on:

- Net Benefits (lifetime)
- Earning Threshold & Cap (75% - 125% linear)
- Pool allocations by sector
- Renter Equity Metric

Proposed changes to PIM

Net Benefits Framework -- earning opportunity is defined by a percentage of the total benefits generated by energy efficiency less the cost to achieve those benefits.

- **Total Benefits**: benefits quantified and monetized in RI Test for EE portfolio and programs, ***with the exception of the economic benefits***

- **Costs** to be Netted from Total Benefits:
  - Program Planning & Administration
  - Marketing
  - Cost of services and product rebates/incentives provided to customers
  - Sales, Technical Assistance & Training
  - Evaluation & Market Research

Proposed changes to PIM

Performance Incentive Pool Allocations

Sector	Electric Portfolio Allocation of Overall PI Pool by Sector	Gas Portfolio Allocation of Overall PI Pool by Sector
Residential	35%	35%
Income Eligible	15%	15%
Commercial and Industrial	50%	50%
Renter Equity metric	0%	0%

Next steps

Meetings with Grid scheduled 9/23 and 9/25 to finalize terms and set “pool” amount

- National Grid
- OER
- The Division
- C-Team

Codes & Standards: Intro

Codes: RI State building codes (fire, electrical, energy, etc.) set the legally-required *minimum* standards new construction and large renovations

- Adopted at a state-level ~ once every 3 years

Equipment Standards: Statutes or rules & regulations that establish minimum energy standards for equipment and appliances (e.g. air conditioners, stoves, faucets, TVs, etc.) sold in RI.

- Can be adopted at any time via the legislature
- Cannot regulate equipment that already has a federal energy standard (federal preemption)

Codes & Standards Work within EE

Code Compliance Enhancement Initiative

- Has been part of EE since 2013
- Provides training to code officials, engineers & architects on the energy code to support fuller compliance
- Energy savings evaluated and attributed to trainings – expected this work will continue to be part of the EE performance incentive

Code & Equipment Standard Advancement

- New work within EE – piloted in 2019
- Would provide technical assistance for code amendments & appliance standards
- Energy savings can be evaluated, but attributing them to the technical assistance provided is challenging (more on this later)

Why Support Codes & Standards Advancement in EE?

Advancing Code & Equipment Standards is **Highly Cost-Effective**!

It also offers a **Large Potential for Energy Savings**, ghg reductions, etc.

State	Energy savings from state standards through 2035 (MMBtus/capita)	Year most recent state standards adopted	Score for adoption of state standards
California	47.8	2019	2.5
Colorado	18.3	2019	1.5
Washington	18.3	2019	1.5
Vermont	16.5	2019	1.5

Source: ACEEE 2019 Scorecard

It's a fast way to **Transform Markets**

It's a **Best Practice**

Why a Different PI for Codes & Standards Advancement?

PI mechanisms focus on rewarding benefits that are **attributable** to programs, i.e. # of LEDs installed

Codes & Standard adoption is highly political – technical assistance will help, but we won't be able to accurately say how much it influenced the adoption of a new code amendment or standard

Some states attempt to estimate attribution for codes & standards technical assistance (e.g. MA) while others don't (e.g. AZ)

- Process needed to balance the cost of evaluating potential impact; the budget the Company would receive for the work; and the benefits of a positive outcome.

Why Pay the Company for this Work?

Current structure provides a Disincentive for the Company

- As baselines increase, fewer energy savings are "claimable/ attributable" to the Company

A PI mechanism for Codes & Standards advancement would encourage the utility to pursue the most cost-effective means of achieving energy savings – it removes the current disincentive

- An alternative for the Company would be to use the budget for code support to pursue other savings that would support the core PIM, so important to reward the effort on codes

Draft PI & Reporting Proposal

Advancement Support

- When a Company-supported code or standard is promulgated, the Company will:
  - Provide documentation substantiating the nature and extent of the Company's support
  - Provide analysis estimating the impact of these promulgated codes and standards on the Company's earning opportunity (which is typically reduced due to elevated program baselines).

- Materials will be used as inputs to a process where, for each promulgated Company-supported code or standard, stakeholders negotiate an appropriate level of compensation to the Company for its contribution.

- In each year the negotiated earnings value for that year will be included in the corresponding Annual Plan along with reporting of the gross savings associated with the relevant codes and standards.

Compliance Support: To Be Determined.

WRAPPING UP

Questions? Comments? Discussion?

APPENDICES

APPENDIX CONTENT

The content covered during the retreat is necessarily at a high level given time constraints. The C-Team is providing this representative sample of ideas and comments the C-Team shared with National Grid during our review of the 2021-2023 and 2021 Annual Plans

Specific questions on any of these can be addressed at the Retreat and/or in any follow-up via email, phone or 1-1 discussions requested by council members in advance of the October 8 vote.

The final appendix includes OER's EERMC Reatreat presentation.

C&I Suggested Program Enhancements / Alternative Program Designs

C&I SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Large C&I Retrofit	Enhanced and quantifiable savings from CEI/SEM	Unlike the SEMP initiative where customers make firm commitments to achieve savings, the CEI model only requires customer meetings, and early results do not show customers engaging in sustained continuous efficiency savings activity.	Consistency in CEI savings	Set savings goals per each CEI participant upfront. Estimates based on experiences from other jurisdictions provide reasonable goals for participants to shoot for.
Large C&I Retrofit	Restrict siphoning off of CEI O&M savings into other, higher-incentive initiatives	If CEI participants are able to take O&M measures identified through their treasure hunts and submit applications through other, higher-incentive programs - the obvious outcome will be higher costs for CEI (less savings claimed) and higher overall program costs	Consistency in CEI savings and lower program costs	Require measures identified through CEI go through the CEI incentive structure
Large C&I Retrofit	Help customers participate in CEI and improve persistence of savings with technical support	CEI participants (and Grid) have referenced lack of bandwidth from customer staff to focus on energy conservation	Opportunities for low/no-cost savings exist but customers need help and dedicated resources to realize and maintain these savings	Provide stipend support for interns, co-ops and/or energy champions to help coordinate customer efficiency efforts.

C&I SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Large C&I Retrofit	Increase participation in O&M savings for commercial customers	CEI currently restricted to industrial/manufacturing customer segments	Significant O&M opportunities exist for large commercial and institutional customers.	Consider SEM/CEI for commercial buildings. Target non-industrial customers could include school districts, local government facilities, banks, offices, hospitals, commercial real estate owners and hotels.
Large C&I Retrofit	Custom HVAC	Implementing new high efficiency HVAC systems are difficult to get customers to adopt when outside normal replacement cycle	New Very High Efficiency (VHE) HVAC systems such as dedicated outdoor air systems w/ heat recovery, VRF	Pilot or demonstration project for DOAS/VRF replacement for standard C&I packaged RTUs
Large C&I Retrofit	CHP savings calculation/measure life	Appropriate measure life for CHP	Savings from CHP are large, but question around measure life may impact lifetime savings by up to 25%	Confirm whether measure life for CHP systems should be 15 or 20 years
Large C&I Retrofit	Increase savings from Retro-commissioning	Lack of market familiarity with proper RCx methods and low vendor knowledge-base	HVAC makes up significant portion of C&I electric and gas consumption, but represents a small portion of overall C&I program savings	In addition to cross-state collaboration with MA PAs on initiatives like ESPO, consider developing a regional retro-commissioning collaborative similar to CA Cx Collaborative. MA/RI already sharing some program development costs (Ex - ESPO), but could see even broader economies of scale by bringing in PAs from CT, VT, NH and ME

C&I SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Large C&I Retrofit	More compressed air savings from Industrial Initiative	Need more compressed air system (CAS) audits	Identifying more downstream opportunities such as inappropriate uses of compressed air and system issues such as constrictions or pressure too high.	Encourage more CAS audits through enhanced cost share
Large C&I Retrofit	Small manufacturer initiative to engage with more smaller manufacturers	Smaller manufacturers do not have the time to do energy efficiency	CAS audits, sleeping plant audit, Kaizen treasure hunt, process savings	Put together a package of offerings to target and engage small manufacturers with lots of hand holding to make it easy
Large C&I Retrofit	Refrigeration Leak Remediation program to reduce leaks and improve efficiency, thus generating savings	Leaks are treated as a part of doing business	Incorporating leak remediation into the existing grocery initiative to leverage existing outreach work	Reduce leaks to improve refrigeration system efficiency and reduce global warming impacts
Large C&I Retrofit	Find a way to incorporate phase change materials into the program to save energy and reduce demand. Low temp refrigeration applications would be the best place to target.	Phase change materials are a new technology and expensive.	Phase change materials have been shown to reduce energy use and demand at peak times.	New measure to add to the program.

C&I SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Large C&I Retrofit	Upstream refrigeration measures	When a refrigeration component fails people purchase what is available	Capturing emergency point-of-sale savings	Setting up an upstream program with refrigeration vendors
Large C&I Retrofit	Prescriptive agricultural measures	Farmers do not have an easy way to save when buying specialized agricultural specific equipment	Better engage farmer and greenhouses for agricultural specific lighting, ventilation fans, dairy measures, and other.	Create a prescriptive ag form such as Efficiency Vermont
Large C&I Retrofit	Planning "Custom" at the end use level	none	Planning at the end-use level for custom measures more accurately aligns planned program savings with the actual market opportunity for various measures	In BCR model development, use past actual custom savings data as well as end-use opportunities identified in the Market Potential Study to break out expected sources of "Custom" savings by end use. Include distinct Measure names and BCR Measure IDs for each planned custom savings end-use as National Grid MA does
Large C&I Retrofit	Prescriptive - Eliminate program overlap and measure redundancy that undercut more comprehensive programs	The prescriptive program is often used as a path of least resistance with lucrative incentives. Upstream customers go prescriptive when the deal is better, and performance lighting customers go prescriptive because it's easier and the incentive levels are still good enough.	Use prescriptive to offer and promote solutions that aren't already addressed by other programs; start moving the programs to a controls-only focus	Eliminate prescriptive measures that overlap with upstream. Eliminate all uncontrolled lighting options; emphasize simple wireless control products (e.g. room-based controls) as an intermediate solution between simple (LLLC upstream) and complex (LLLC/NLC in performance lighting)

C&I SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Large C&I Retrofit	Driving vendor multi-year engagement with customers to get deeper savings - the concept laid out in Draft RI Plan presents a significant opportunity, but also some challenges.	Lack of understanding of vendor motivations, capabilities and barriers - program design needs to be founded on market engagement and knowledge. Plan talks about targeting recent non-participants with the expectation that there is more savings. These are likely late adopters and the hardest to reach segments, could be a recipe for failure.	Developing a model that truly engages vendors, draws on their strengths, meets their needs and helps them achieve new targets with new approaches where needed Further engage past participants in deeper savings	Engage vendors to obtain effective input, guidance and feedback loops. Identify which vendors to target first, is it a specific segment like electrical contractors, or hvac contractors, or is it more program delivery vendors, like RISE? Or is the intent to engage across a diverse set of market actors? Tailored frameworks - consider standardizing on a single load analysis tool and providing disaggregation of loads to vendors, rather than having each vendor do it on their own. Look at having a dedicated individual or firm who is providing technical support to the vendors as a useful and easy to access resource - this entity could provide the disag's and do quick reviews of vendor calcs to help them ensure they are in the ballpark. While targeting non-participants may be worthwhile, that is an unusual place for this effort to start. Suggest working with vendors to identify likely candidates for successful projects and including screening criteria to help vendors, customers and PAs avoid wasting time on customers who just are not going to engage.

C&I SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Large C&I Retrofit	Increase the adoption of measures across end uses through bundling as presented in the Draft RI Plan presents a significant opportunity. Some additional considerations provided here.	"Comprehensive" could be a misleading moniker if it is referring to upgrades such as lighting + DHW. Suggest sticking to words like bundling and multi-end use so that we don't dilute the value of the word comprehensive in the market. If someone can do a whole building project and another can do lights plus hot water and they are both comprehensive, the word loses meaning. The market needs to understand why investments across end uses make sense. In order for them to make sense, integration of measures and savings is needed.	Consider the opportunity to help customers optimize investments in their buildings over time akin the ditag's Rocky Mountain Institute Model. Focus on helping the market understand the opportunity to advance towards 21st century buildings by engagement over time with a plan for integrated retrofits that will ultimately significantly reduce energy costs and capture interactive effects across end uses (if windows need replacement and chiller is having trouble meeting loads, triple glazed windows could enable the chiller to continue to meet load, or a smaller replacement chiller - thereby offsetting costs.)	While the idea of addressing more than one end use in a building at a time is laudable, the market is relatively adverse to this approach. In order to move the needle on true comprehensiveness, develop the capability to engage customers and providers to build an investment case for a deep energy retrofit to initiate projects and support their continued implementation over time. The investment case will provide investor/owners/bankers with more confidence while giving the retrofit team a unified vision that they can continually reference as challenges emerge. The case will implementation (excerpted from RMI site under references)

C&I SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Large C&I Retrofit	Improve the efficiency of existing HVAC systems by 20% through advanced controls based on ASHRAE Guideline 36 (GL 36)	Lack of knowledge of ASHRAE GL 36 and challenges regarding baseline setting for BAS	Buildings are operated inefficiently, GL 36 documents a sequence of operations (SOO) that enables significant savings	Use project delivery guide including mfr certification for optimized control sequences (OCS), technology performance specifications, retrofit financial analysis, criteria for design and implementation and verification. Provide a standardized OCS specification including guidance on FDD, continuous commissioning, operating practices, high-value data points and frequency of collection, and standard sequences of operation for system optimization based on GL 36. (Program design paper to be published by TRC/Tayler/LBNL) at ACEEE summer 2020 with "results are widely applicable across all commercial buildings and could be implemented within the next two years."
Large C&I Retrofit	Deploy monitoring based commissioning through an EMIS program for larger customers including SEMP clients to capture ongoing savings.	EMIS requires investment in hardware and software as well as the ongoing monitoring services. This is different from a more traditional widget based model.	Significant savings with 2-5 year simple payback. Comprehensive monitoring will support demand reductions as well as EE, and will help customers meet IEQ goals.	Develop green champions at customer sites through green champion training; workforce development in EMIS and advanced sequences. Program steps include: recruit customers, qualify sites as good candidates, develop specifications and contracts for EMIS, deploy EMIS, identify EE opportunities, implement fixes, verify performance, reiterate. Program requires ongoing engagement between customer and third party EMIS provider.

C&I SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Large C&I Retrofit	Targeting telecom with strategic and directed outreach to increase engagement and participation.	Telecom operations are considered mission critical. It can be hard to build trust in new approaches or technologies	New equipment is inherently more reliable than older equipment. In addition, proof of concept is key for this market.	Recognize mission critical nature of telecom operations, work with owners/vendors to run pilots in parallel with existing systems to reduce resistance to change. Assist customers with determining key performance metrics beyond EE and delivering solutions that checks all of the boxes and then document proof of concept.
Large C&I Retrofit	Performance Lighting - Increase comprehensive lighting savings by making participation easier and driving more customers to higher tiers	Determining project eligibility and incentive levels in the current program is complicated and time consuming, making it difficult for market actors to sell/promote the program. Customers are enticed by the incentive levels for easier (and less comprehensive) pathways such as prescriptive	Increased participation in the program overall, and in the higher tiers.	Performance Lighting - For the existing building portion of the program, eliminate the reliance on LPD as a foundation for eligibility and incentives. Consider streamlining the structure similar to the CT model. Enhance the incentives for tiers 2 and 3. Expand the training and outreach to design professionals. Eliminate TLEDs as an option.
Large C&I Retrofit	Increase the adoption of LLLC products, reduce volume of "dumb" TLEDs in Upstream program	Type A "dumb" TLEDs remain a high volume measure, despite better savings and lighting possible from fixtures with LLLC. Type C dimmable TLEDs are not allowed.	Move participation to fixtures with controls, allow dimmable TLEDs, and promote "smart" TLEDs that are wirelessly controllable	Upstream - Expand LLLC training to distributors and contractors (benefits; how to sell); introduce stocking and/or sales promotions for LLLC; explore co-marketing partnerships with LLLC manufacturers; allow type-C TLEDs; offer a premium incentive for "smart" wirelessly controllable TLEDs; reduce the incentive and/or limits for type A TLED

C&I SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Large C&I Retrofit & Small C&I Retrofit	Increase adoption of EE through financing	Complexity and reluctance; financing usually presented as an option lesser than *free incentive money up front*	On bill financing has been proven to be extremely effective at increasing use of financing and reducing the ratepayer funded cost of supporting EE Use of cash flow tools helps reduce the need for incentives by showing cash impacts on businesses.	Increase use of on bill financing. Work with third party lender or green bank. Increase use of cash flow tools and reduce the use of up front incentives to entice customers away from financing. Use some incentive $ to fund a loan loss reserve - nonpayment on such loans has historically been 0-3%.
Small C&I Retrofit	Deliver building heating/cooling savings in small business with commercial weatherization	Limited program experience delivering these measures	Weatherization/insulation delivers savings from existing HVAC systems and may allow for new, low-carbon heating/cooling systems due to lower overall demand for heating/cooling	Consider running a pilot for small business commercial weatherization such as the one underway in western MA. CET is partnering with the MA DOER and Berkshire Gas, Columbia Gas, Eversource Gas, MMWEC, and select contractors on a pilot program to overcome barriers to increasing weatherization projects in the small business sector.
Small C&I Retrofit	HVAC savings for small biz customers	Low participation amongst mechanical contractors in HVAC savings measures in small biz turnkey programs	significant HVAC savings potential untapped from small biz customers who receive >90% savings from lighting measures	Develop list of low cost O&M HVAC measures, such as HVAC tune-ups, to get contractors foot in the door w/ small businesses
Small C&I Retrofit	Standardize remote audits through use of a common disaggregation tool	Remote audits may be inconsistent depending on the tools used and capability of providers.	Developing a standardized tool will increase consistency of savings estimates and services across vendors.	See above for discussion of developing a standard disag tool.

C&I SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Small C&I Retrofit	Reduce vendor barriers to moving forward with implementation after remote audits.	The RI C&I Plan indicates that vendors are concerned regarding ordering equipment based on remote audits.	Identify approaches that can address vendor barriers to moving forward with projects without going on site.	Use a test and learn protocol with selected vendors and sites to go ahead and order equipment for selected sites. This could help assess the actual challenge in the market.
Small C&I Retrofit	Install more controls, and fewer simple/uncontrolled solutions, for small business customers	TLEDs are the cheapest, quickest, and easiest solution are ditag used on many small business projects. Unfortunately TLEDs leave deeper savings stranded since they can't (typically) be used with controls.	Install fixtures with controls to capture the deeper savings opportunity	Where applicable, install fixtures with LLLC instead of TLED
C&I New Construction	Planning "Custom" at the end use level	none	Planning at the end-use level for custom measures more accurately aligns planned program savings with the actual market opportunity for various measures	In BCR model development, use past actual custom savings data as well as end-use opportunities identified in the Market Potential Study to break out expected sources of "Custom" savings by end use. Include distinct Measure names and BCR Measure IDs for each planned custom savings end-use as National Grid MA does

Residential Suggested Program Enhancements / Alternative Program Designs

RESIDENTIAL SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
EnergyWise Single Family	Increase participation through additional market-based program vendors	Current single vendor model limits open market opportunities	Leverage insulation contractor marketing expertise and interest	Independent Home Performance Contractor model - Allow and incentivize insulation contractors to make the sale
EnergyWise Single Family	Increase participation through guaranteed savings pay for performance model	Current model requires customers to trust projected savings and come up with funds for retrofits	Sealed model takes over payment of customers' energy bills and uses savings to pay for upgrades	Sealed model offers virtual sales to customers with guaranteed energy cost reduction, using savings to pay for contractor partners to make upgrades
EnergyWise Single Family	Reduce first cost barriers and increase participation	Coming up with funds to pay for first cost of measures	Increasing incentives above 75%, primarily for moderate income	Increase incentives up to 100%
EnergyWise Single Family	Increase participation through energy performance disclosure at time of home listing	Voluntary nature of the program	Make home energy information available at the time of home listing to encourage program participation	Policy approach - Require program labeling & disclosure at time of home listing so that buyers are aware of home performance and encouraged to participate in Energy Wise
EnergyWise Single Family	ID electrically heated homes for focus	Identifying and targeting electrically heated homes should be the priority to maximize savings	Offer electrically heated homes and rental building owners the maximum incentive for bundled envelope and heat pump incentives	Work with Opower and NGrid's records to ID electrically heated homes for a targeted approach
EnergyWise Single Family	Integrate HVAC with envelope measures more seamlessly	Focus is primarily on envelope while HVAC measures are secondary focus	Bundle heat pump offering with insulation and air sealing for deeper savings in more comprehensive package	Offer heat pumps in recommendations with every EW participant

RESIDENTIAL SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
EnergyWise Single Family and/or EnergyWise Multifamily	Increase retrofit uptakes through advocating for phased-in policies that require retrofits within X months of the purchase of a home	Voluntary nature of the program	When homes change hands, there is usually a remodel project planned. Mandate energy improvements as part of this work.	Policy approach - Require minimum energy upgrade standards at time of home transfer. Negotiate savings credit for NGrid if they are successful.
EnergyWise Single Family and/or EnergyWise Multifamily	Address the split incentive issue in rental housing	Split incentive with rental properties	Offer 100% incentives plus project management to landlords to ensure that work is done and their tenants benefit.	Offer 100% inventives plus construction management services
Income Eligible	Improve energy service delivery to low-income customers to equitable scale across the state	CAPs inconsistent delivery of the program statewide	Market-base the low-income services in addition to working with the CAPS, similar to the approach Connecticut takes with Home Energy Solutions-Income Eligible (HES-IE)	In addition to working with the CAPS, open up to qualified market-based contractors to also offer the service.
Income Eligible	Increase # units served and savings per unit	Income verification too limited by LIHEAP designation used by CAPS; Challenge of getting different CAPs to all fully apply eligible measures; need to review eligible measure list, esp. AC and IAQ	Use multiple, applicable designations for IE (Medicaid, SNAP…); Maximize every opportunity when accessing a customer to get all savings possible	Establish processes for multiple qualifications as IE eligible; Review eligible measure list, and delivery model.

RESIDENTIAL SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
HVAC	Increase low levels of program participation, particularly for Replace on burnout (ROB)	Lack of contractor willingness/knowledge of efficiency options and reluctance to deal with rebate forms	Leverage distributor interest - and profits - to increase sales of high efficiency equipment	Move incentives upstream to distributors
HVAC	Increase early replacement (ER) of HVAC and DHW equipment	High capital cost. Reluctance to replace working equipment	Accelerate replacement of existing inefficient HVAC and DHW equipment	Develop a targeted early replacement offering available both to contractors and offered through EW
HVAC	Identify/target electric heat customers for DHSHPs	Lack of customer and contractor knowledge of large savings opportunity	Need focused marketing and contractor outreach to address this market opportunity	Identify and target ER customers and work with contractors to make them better aware of this opportunity
HVAC	Increase electric resistance to DMSHP conversions	First cost, lack of customer knowledge and comfort with technology	Review current incentive structure and increase incentives accordingly	Higher incentives to overcome first cost barrier
HVAC	Achieve multiple measure installations/comprehensive energy savings	Current focus on single measure installations. Comprehensiveness not targeted nor rewarded	Deeper savings from multiple measure installations	Promote packages of HVAC measures, particularly equipment and thermostats. Offer higher incentives than individual measures alone. Consider free Wifi offer as part of package
HVAC	Ensure proper installation and operation of HVAC systems	Lower rates of participation on QIV, e.g., HVAC Check and duct sealing	Deeper savings and increased customer satisfaction from multiple measure installations	Increase contractor outreach and training. Maybe higher incentives. Possible tech school outreach

RESIDENTIAL SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Consumer Products	Increase unit numbers through a mid/upstream model	Low customer recognition of savings opportunity/efficiency differences	Move incentives upstream through a market lift model like ENERGY STAR Retail Products Platform (ESRPP)	Investigate and implement upstream model
Consumer Products	Increase unit numbers/participation	Low customer recognition of savings opportunity/efficiency differences	Build on success of past NGrid online promotions	Increase number and frequency of online promotions for APS and room air cleaners
Residential New Construction	Increase participation in the all-electric homes program	Natural gas is cheap. People like to cook with gas.	Showcase model all-electric projects in open houses. Offer enticing incentives to help flip developers to all-electric.	Sweeten the all-electric home incentives. Allow for propane gas cooking as the only alternative (not natural gas, so as to avoid the hookup and monthly charges) Sweeten the induction cooking incentive. Lessen the propane incentives in order to make the all-electric package more attractive.
Residential New Construction	Code advocacy to advance adoption of new codes	NGrid hesitancy to engage in advocacy.	Adoption of new construction codes continue to be delayed and weakened.	Settle on code savings attribution model and encourage NGrid to advocate for code enhancements and adoption.
Residential New Construction	Overcome first cost barriers with ground source heat pumps by installing common ground loop	GSHP drilled or trenched ground systems are expensive to install	The most expensive part of GSHPs are the wells. For developments of multiple units, a common ground loop that buildings can tie into can significantly reduce costs while providing an all-electric solution for new construction.	Pay for most/all the cost of GSHP common ground loop in new construction developments.

RESIDENTIAL SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Envelope End Use For example, measures offered in EnergyWise Single Family, EnergyWise Multifamily, and Income Eligible programs	• Increase savings from insulation by increasing # of installations and square footage for each job, especially planned values for 2021-23 in SF 1-4/Energy Wise, which are substantially lower than MPS • Increase conversions	• Presumed focus by program on attic insulation Pre-weatherization barriers, including knob & tube wiring, combustion safety, attic clutter, hassle factor • COVID-19 • Customer co-pay poses barrier for some (when applicable) • Lack of customer understanding about existing conditions and benefit to addressing deficits • Lack of program awareness	• Better leverage of opportunity posed by remodeling work, e.g. siding contractors • Facilitated support for addressing pre-weatherization barriers • Enhanced incentives and financing • Development of targeted marketing and outreach strategies (SF, MF by building and ownership type) • More effective linkage of weatherization and HVAC in program design and delivery	• Develop strategy for remodeling market segment with focus on wall insulation opportunity • Provide facilitated services for pre-weatherization barriers • Continue 100% insulation incentive, at a minimum for moderate income customers • Explore use of thermal imaging for marketing • Create database of key building and customer information (e.g., MF) for targeted marketing • Higher incentive for insulation and HVAC work done in tandem • Pilot performance-based approach to whole house savings

RESIDENTIAL SECTOR – C-Team Suggestions

Applicable Existing Program / End Use / Market Segment	Objectives	Barriers	Opportunities	Suggested Enhancements / Alternative Program Design
Renters	Increase participation by renters	• Lack of information about participation rates • Split incentive • Complexity of MF market--building types, ownership situations • Historic program focus on building owner/ landlord as primary participation path • Transitory nature of rental population • Mistrust of outsiders	• Collect and publish renter participation information • Performance incentive linked to renter participation • Serving renters directly in addition to through their landlords • More effectively establish and leverage strategic partnerships with municipalities and community-based organizations	• Implement ideas in column to immediate left • Determine and develop market segmentation strategy (includes program offers and marketing/outreach) for the MF market rate program (condos, larger MF buildings, smaller MF buildings, renters)
Moderate Income	Increase participation by moderate income customers	• Cost to customer • Hassle of participating • Lack of awareness • Other priorities	Provide enhanced offers to moderate income customers	• Provide 100% incentive, same as IE (income range TBD, consider up to 100%) • In absence of 100% incentive for all services, provide enhanced incentives for select services, esp. insulation and HVAC • More effectively establish and leverage strategic partnerships with municipalities and community-based organizations • Pursue community-based workforce development • Implement alternative financing mechanisms • Track and report participation

Cost-Related Questions on First Draft Annual Plan BC Models

Portfolio-level

Fuel	Sector	Program	Question
Electric	Portfolio	Portfolio	In reviewing the Cost Tables from the 2021 1st draft, and comparing with those from the 2020 Plan, I noticed that implementation budget increased by ~$8 million. From what I can tell, about 60% ($4.8 million) of that increase is due to an increase in the Sales, Technical Assistance and Training cost category. I know 2021 included new spending categories for Workforce Development (which the C-Team supports), but it appears that this category only explains about 18% of the increase in STAT. So my question is, what is accounting for the remaining 82% of the increase in STAT (~$4 million)?
Gas	Portfolio	Portfolio	In reviewing the Cost Tables from the 2021 1st draft, and comparing with those from the 2020 Plan, I noticed that implementation budget increased by ~$3.8 million. From what I can tell, about 38% ($1.4 million) of that increase is due to an increase in the Sales, Technical Assistance and Training cost category. I know 2021 included new spending categories for Workforce Development (which the C-Team supports), but it appears that this category only explains about 23% of the increase in STAT. So my question is, what is accounting for the remaining 77% of the increase in STAT (~$1.1 million)?
Gas and Electric	Portfolio	Portfolio	In reviewing the 2021 Annual Plan First Draft BC Models, it became clear that the data in the 'Cost Table Yr1' tab is not all derived from the other data in the BC Model. Please provide as much underlying analysis to support the values in the Cost Table as possible. For the 'Rebates and other Customer Incentives' column, the value in this column exceeded the sum of the 'Incentive (Total)' column from the 'EECalcsYr1' tab. Please explain this discrepancy.

C&I Questions (1)

Fuel	Sector	Program	Question
Electric	C&I	Large Commercial Retrofit Program	C03a Energy InitiativeEI Light: Prescriptive is showing a 51% year over year increase in planned TRC, incentive and customer contribution compared to 2020 BCR model. As noted in D. Mellinger plan narrative comments (Pg. 19), Attachment 2 is light on details regarding what improvements are being made that would justify this increase in costs. Given this is the single largest source of electric savings in 2021 BCR model, this needs much more explanation on reason for cost increases and benefits of said spending
Electric	C&I	Large Commercial Retrofit Program	C03a Energy InitiativeEI Light: Upstream High/Low Bay is showing a 133% year over year increase in TRC, incentive and customer cost compared to 2020 BCR model. Attachment 2 needs further details. Does Grid think that increasing LLLC will result in that large of an acquisition cost increase?
Electric	C&I	Large Commercial and Industrial New Construction Program	C02a Design 2000plusD2 Lights is showing a 115% year over year increase in TRC, incentive and customer cost compared to 2020 BCR model. Attachment 2 needs further details. Is this solely a result of the shift to Performance Lighting Plus? And where were associated acquisition cost increases sourced from?

C&I Questions (2)

Fuel	Sector	Program	Question
Electric	C&I	Large Commercial Retrofit Program	C03a Energy InitiativeEI Light: Upstream Exterior is showing a 480% year over year increase in TRC, incentive and customer cost compared to 2020 BCR model. Attachment 2 needs further details. I don't think the C-team has discussed any major program enhancements for exterior lighting offerings that would justify this increase
Electric	C&I	Large Commercial Retrofit Program	C03b Small Customers under 200kWLighting is showing a 26% year of year increase in TRC, incentive and customer costs - which seems reasonable given Grid's goal of delivering 30% of lighting for SMB with integrated controls. That said, would have expected to see increase in savings rather than the 5% decline in gross savings estimated. Missing something here?
Electric	C&I	Large Commercial Retrofit Program	C03a Energy InitiativeCHP showing 19% increase in cost and 114% increase in savings compared to 2020 plan BCR. Supportive of this provided those cost increases are associated w/ increased support for biogas fueled projects
Electric	C&I	Large Commercial Retrofit Program	Custom retrofit is showing a 37% year over year increase in weighted average planned TRC, incentive and customer costs. The distribution of planned savings by end use shows just 61% from lighting, which would be an improvement over recent program years where lighting made up +80% of custom savings in 2019. That said, TRC of $0.62 for custom lighting seems high compared to what we saw in 2019 tracking data. Similarly, a TRC of $0.92 for custom HVAC savings seems high. Can the company explain what these TRC and incentive values are based on? We do acknowledge that plan vs actual costs at a program level for 2019 did come in higher, but language in the narrative supporting that fact and whether that trend continued in 2020 would help us understand this. All of that being said, the C-team still does thoroughly appreciate the Grid agreeing to break out custom savings by end-use in the BCR!

C&I Questions (3)

Fuel	Sector	Program	Question
Electric	C&I	Large Commercial and Industrial New Construction Program	Custom NC is showing a 61% year over year increase in weighted average planned TRC, incentive and customer costs. This similarly could use a greater level of detail explaining why Grid expects such an increase in costs year-over-year. NC did see higher costs comparing plan v. actual from the 2019 tracking data, but that showed something closer to an 8% variance, rather than the 61% increase shown here. Some of that is probably capturing more comprehensive measures and the NC redesign, but 61% is more than we would have expected.
Gas	C&I	Large C&I Retrofit	Controls savings (HVAC end use) is showing an 85% YOY increase compared to planned 2020 BCR values and a 79% YOY increase in TRC, incentive and customer cost. There is no reference in the plan narrative to HVAC controls for C&I retrofit (though it is referenced in Small Biz and NC programs). Are these gas controls savings for HVAC end use expected to come through the ESPO program? And what are these costs based on?
Gas	C&I	C&I Small Business Direct Install	Small Business Gas savings is showing a ~111% YOY increase compared to planned 2020 BCR values. This also comes along w/ a 126% increase in TRC, incentive and customer cost. The plan narrative describes "substantially increasing the amount of gas weatherization provided to small businesses". Is this the source of cost (and savings) increase? What are these costs based on?

Residential Questions (1)

Fuel	Sector	Program	Question
Electric	Residential	EnergyWise Single Family	Wx-Oil: This measure is showing a 4% increase in planned TRC and Incentive costs compared to the 2020 plan. Given that this measure is the single largest contributor to incentive costs in the residential portfolio (~24%), it is important to understand what is driving this increase.
Electric	Residential	EnergyWise Single Family	Wx-Elec - Elec Heat only: Similar to the Wx-Oil measure, this measure showed a 4% increase in planned TRC and Incentive costs compared to the 2020 plan. What is driving this increase?
Electric	Residential	EnergyWise Single Family	Participant: The TRC/Incentive for an audit in 2021 is the same as planned in 2020 at $400. The plan text talks about doing at least some level of virtual audits - which take less time and theoretically should cost less money. Is the Company suggesting that the TRC and incentive for in-home audits and virtual audits will be the same?
Electric	Residential	EnergyWise Multifamily	Participant: This measure is showing a 12% increase in planned TRC and a 15% increase in incentive costs compared to the 2020 plan. Given that this measure is the third largest contributor to incentive costs in the residential portfolio (~10%), it is important to understand what is driving this increase.

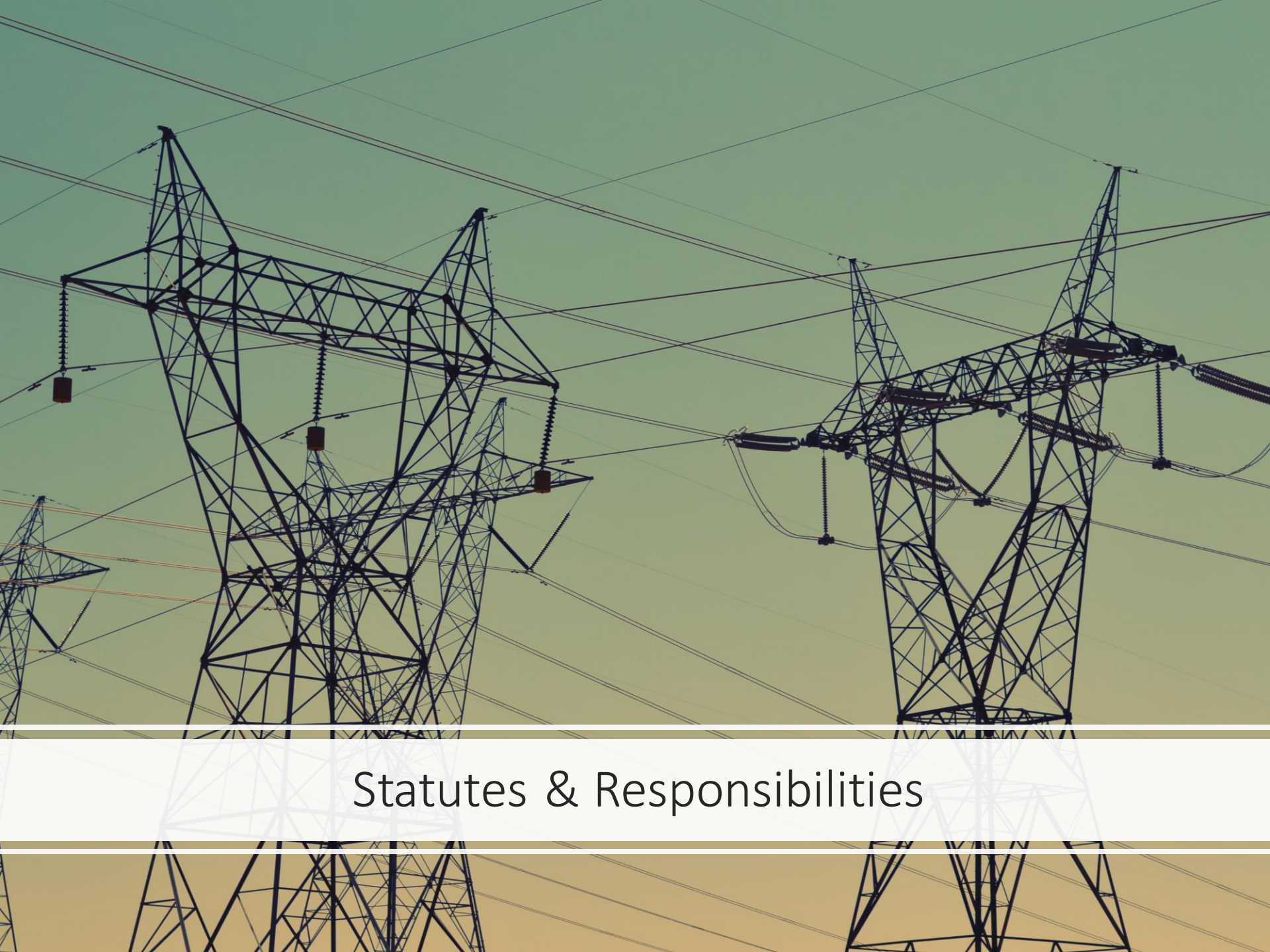
Residential Questions (2)

Fuel	Sector	Program	Question
Electric	Residential	ENERGY STAR HVAC	Mini-Split Heat Pump: Was there an error in the 2020 BC Model? Incentive level remained the same, but TRC increased from $353 to $689. If there wasn't an error in 2020, please explain the decision to decrease incentive coverage from ~99% down to ~51%.
Electric	Residential	New Construction	ESHTier 3 Home/ESHTier 4 Home: Incentive increased by 40%/15% while TRC remained the same. Is the increase in incentive coverage aimed at trying to drive customers to higher tiered homes? If so, is there a reason Tier 3 and 4 increases from 2020 to 2021 but Tiers 2 and 1 remain the same?
Electric	Residential	Consumer Products	REFRIG RECYCLING and Freezer Recycling: What is driving the 31% increase in incentive costs for these measures (increased from $65 to $85).
Electric	Income Eligible	Income Eligible Multifamily	Participant: What is driving the 45% increase in TRC and Incentive costs for the suite of measures installed for IE MF participants (TRC/Incentive increased from $610 to $884)?
Electric	Income Eligible	Income Eligible Single Family	AMPWx - DelFuel and AMPWx - Elec: What is driving the 11% increase in TRC and Incentive costs for these measures (TRC/Incentive increased from $4,500 to $5,000)?
Gas	Residential	EnergyWise Single Family	Weatherization: Similar to on the electric side, this measure showed a 4% increase in planned TRC and Incentive costs compared to the 2020 plan. What is driving this increase?

Office of Energy Resources
Presentation from EERMC Retreat

2020 Rhode Island Energy Policies

STATE OF RHODE ISLAND
OFFICE OF ENERGY RESOURCES



Statutes & Responsibilities

Clean

Reduce carbon-intensity of supply portfolio

Affordable

Consumer cost as a lens for all policies, from procurement to investment

Reliable

Invest in a diverse resource portfolio through infrastructure, supply and system redesign

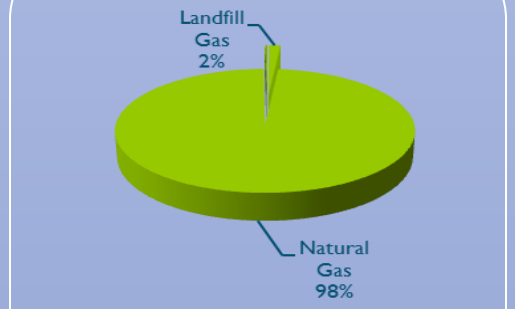
Equitable

Access, participation, and share of benefits, as a lens for all policies

Principles for Policy and Programmatic Decision-Making

OER's Mission

State Energy Plan (2015)

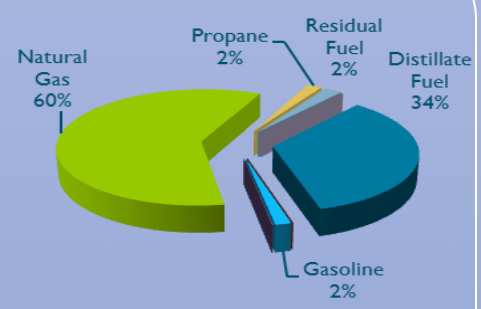


Electric

63 Trillion BTU

$1.1 Billion/Year

2.9 Million Tons CO_2

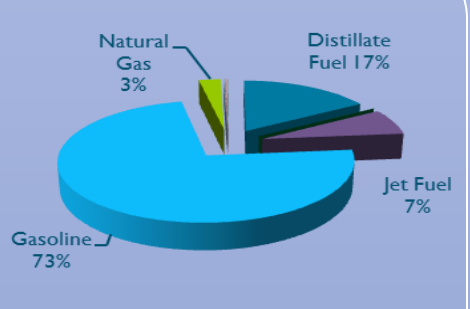


Thermal

63 Trillion BTU

$1.1 Billion/Year

3.9 Million Tons CO_2



Transportation

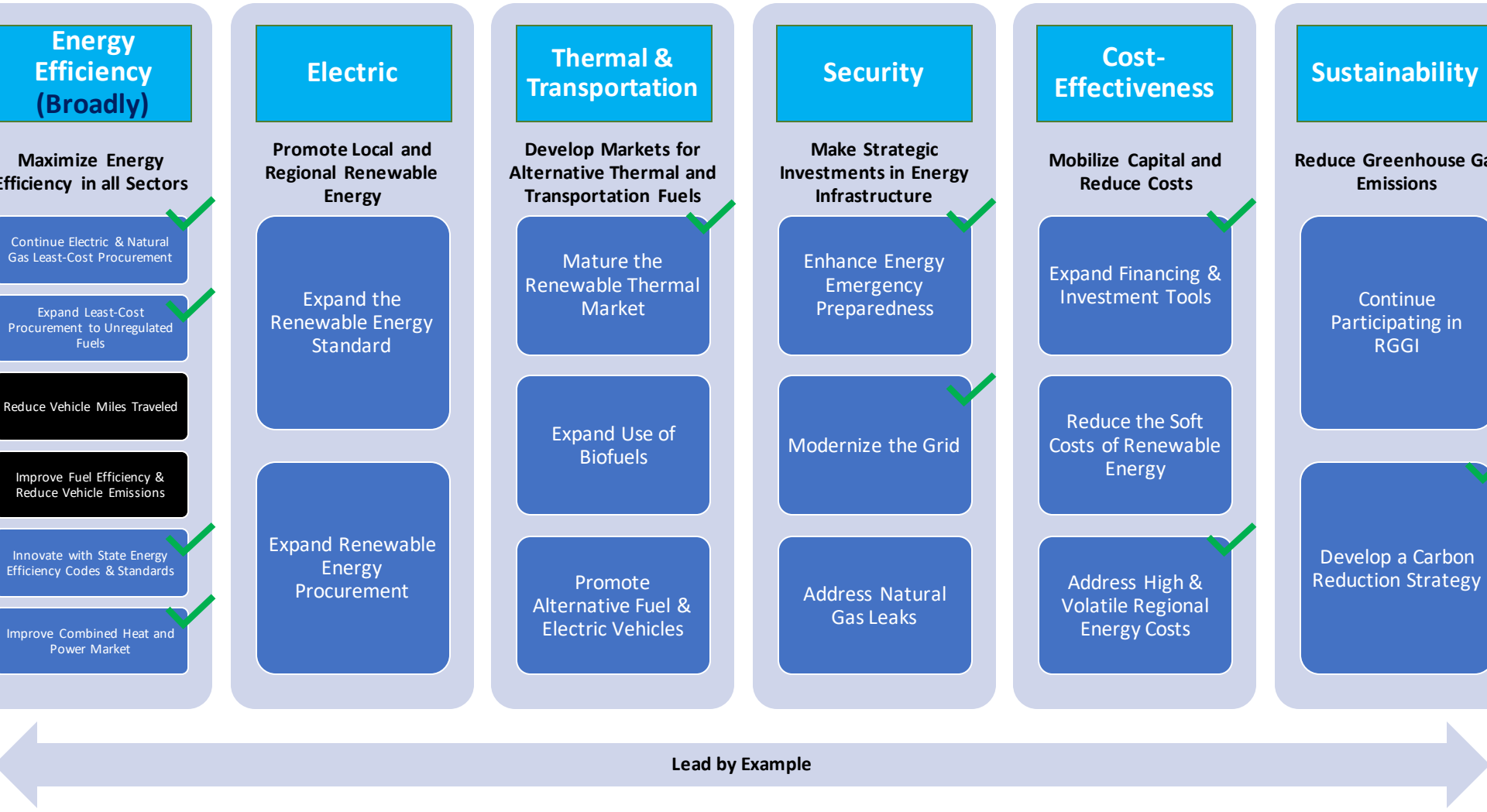
64 Trillion BTU

$1.4 Billion/Year

4.5 Million Tons CO_2

RI spends $3.6 billion annually on 190 trillion BTU of energy, emitting 11 million tons of CO2

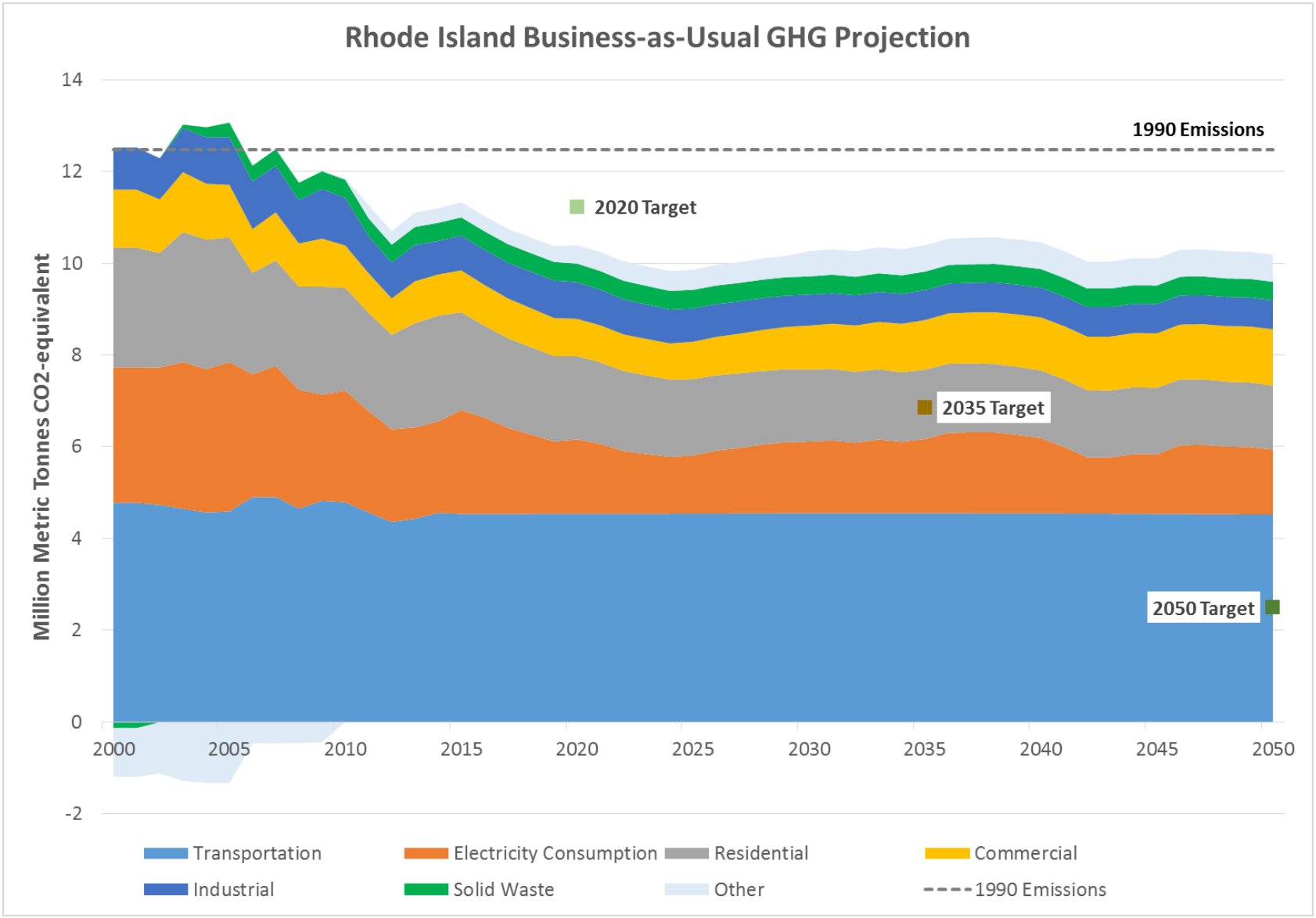
State Energy Plan (2015)



Resilient RI Act (§ 42-6.2) Goals

Year	GHG Reduction Target	GHG Emissions Target (Million Metric Tons CO2 equivalent/year)
1990	N/A	12.48 (historical)
2020	10% below 1990 levels	11.23 ~ Today's emissions
2035	45% below 1990 levels	6.86
2050	80% below 1990 levels	2.50

OER sits on RI's Executive Climate Change Coordinating Council (EC4)


Rhode Island Business-as-Usual GHG Projection
Million Metric Tonnes CO2-equivalent
14
12
10
8
6
4
2
0
-2
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
1990 Emissions
2020 Target
2035 Target
2050 Target
Transportation
Electricity Consumption
Residential
Commercial
Industrial
Solid Waste
Other
1990 Emissions

Ensure Public Benefit

Make Recommendations

Monitor and Evaluate

Engage Stakeholders

As the Executive Director of the EERMC, OER holds these responsibilities too

Rhode Island's Green Buildings Act (RIGL § 37-24)

All new construction projects over 5,000 gsf, and all renovation projects over 10,000 gsf, constructed by a "public agency" must be designed and constructed to the LEED Certified or equivalent high performance green building standards.

Governor Initiatives

Governor Raimondo's 100% Renewable Electricity Goal

100% Renewable Electricity for RI by 2030

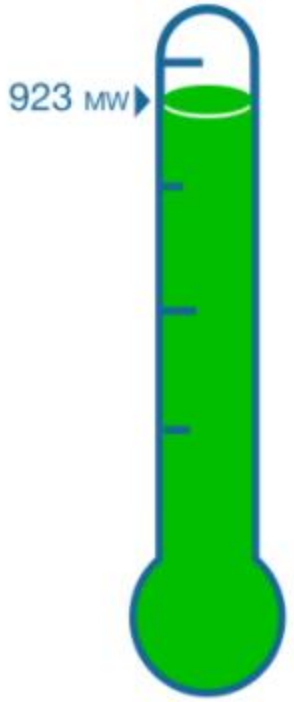
Executive Order 20-01

Builds off of previous goal:

1,000 MW by 2020

2020 Qtr. 2 Rhode Island Clean Energy Portfolio

1,000 MW
by end of 2020



923 Megawatts

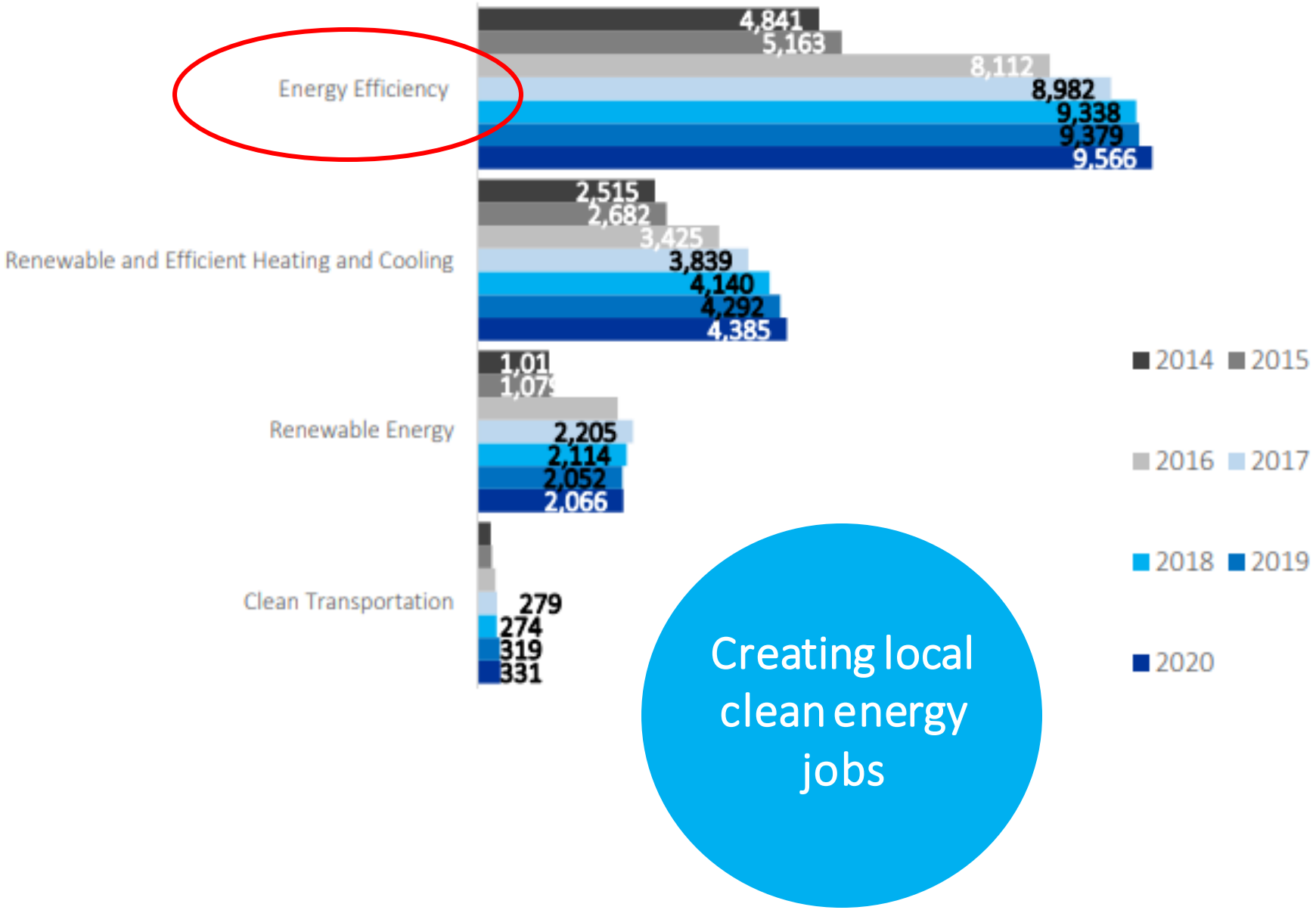
9 MW	35 MW	144 MW	305 MW	430 MW
Small Hydro	Landfill Gas / Anaerobic Digestion	Onshore Wind	Solar	Offshore Wind

UTILITY SCALE PROCUREMENTS

Revolution Wind – 400 MW
Offshore Wind

Siting Considerations

Figure 3. Clean Energy Employment by Technology, 2014-2020[19]

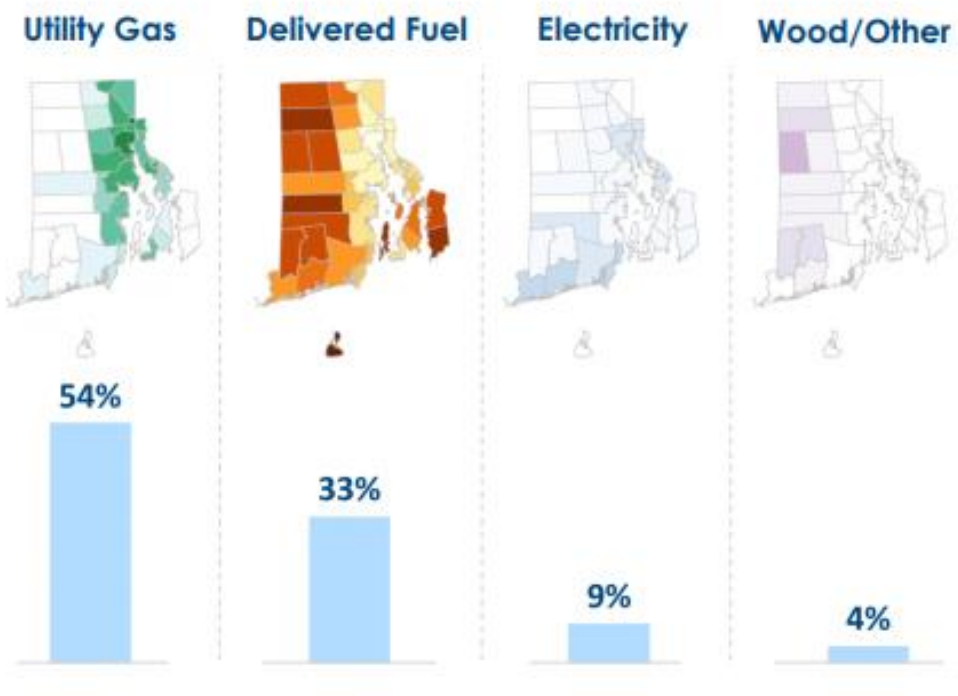


Clean Energy Internship Program

- Summer 2019 & 2020
- Approximately 10 interns
- Eligible students – live in RI or attend school in RI
- Will match students with companies
- Reimbursement to companies after Summer

Heating Sector Transformation

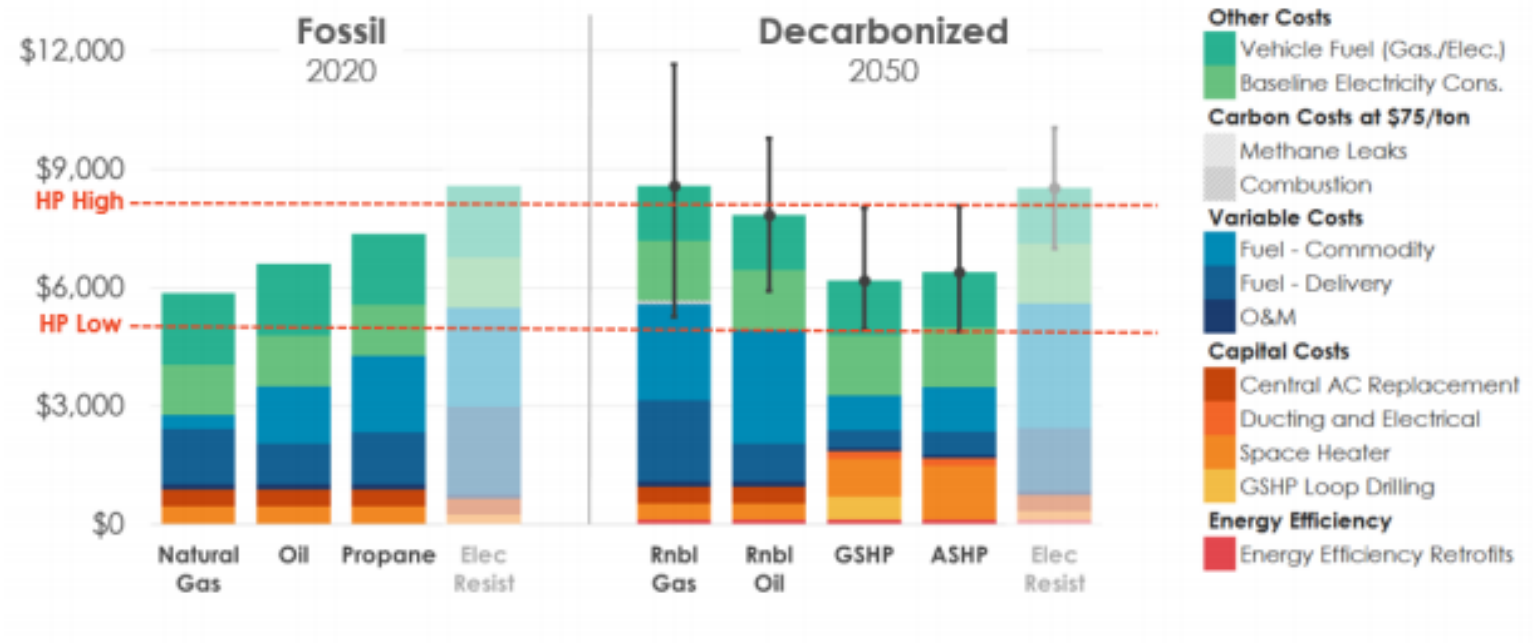
Executive Order 19-06



Typical energy spending will likely be comparable to today (except perhaps for current gas customers)

Average Annual Total Energy Cost *(2018 $/yr)*

Current (2020) Fossil vs Projected 2050 Decarbonized (Mixed Scenario Example)



Total energy wallet likely comparable to today for typical consumer (within uncertainty range)

- May be slightly higher for customers now using fossil gas heat (which is at historic lows)
- **EV charging is likely cheaper** than current motor fuel, offsetting other energy costs
- Not everyone is "typical" – **must recognize and mitigate impacts on disadvantaged consumers**

LEADING BY EXAMPLE

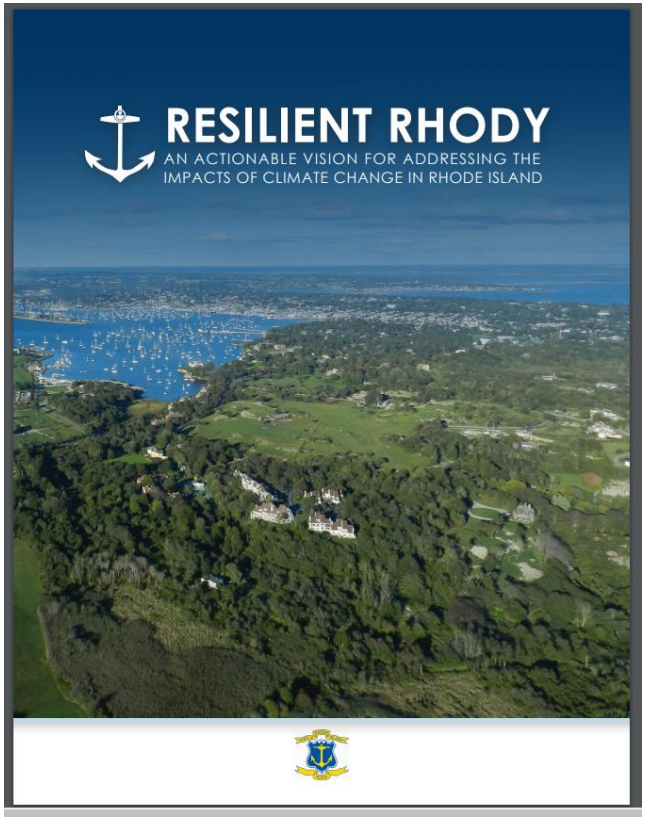
(2015 Executive Order)

Governor Raimondo has set clear Lead By Example goals, including:

1. 10% reduction in energy consumption (electric & natural gas) below FY14 levels by FY19
2. Procure 100% State government electric consumption from renewables by 2025
3. Ensure a minimum of 25% new light-duty fleet purchases or leases are from zero-emission vehicles by 2025
4. Establish a voluntary stretch building code by 2017
5. Consider full life-cycle costs and savings in planning and implementing projects
6. Post State energy usage data publicly

State Engagement with Transportation & Climate Initiative (TCI)

- TCI: 12 Northeast and Mid-Atlantic states and the District of Columbia
- Electrify RI program
- Lead By Example: EV charging infrastructure installations



Governor's Executive Order on Climate Change & Resilience

Outcomes:

- An Action Plan to "stand up to Climate Change": Resilient Rhody
- On-going coordination by the Chief Resiliency Officer to implement the Resilient Rhody Plan

3 Benefits of Modernizing the RI Electric Grid

Give customers more energy choices.

Clean energy technologies are **more affordable now than ever**. Our utility rules should allow consumers to access and enjoy creative solutions to manage their energy production and use.

Build a flexible grid to integrate more clean energy.

The Governor's goal of **1,000 megawatts of clean energy by 2020** will bolster our growing local clean jobs economy and help us meet state climate goals.

Control the long-term costs of the electric system.

Today's electric grid is built for peak usage. That's like constructing a **100-lane highway for Thanksgiving traffic**. New technology provides us with more ways to right-size the system to Rhode Islanders' needs.

PST

MILESTONES

November 2017
Phase One Report

Fall 2020
AMF & Grid Modernization Filings to Public Utilities Commission

Summary of Relevant RI Policies

1. Statutes & Responsibilities
    1. OER's Mission – clean, affordable, reliable & equitable
    2. RI State Energy Plan
    3. Resilient Rhode Island Act (GHG Emission Reduction Goals)
    4. EERMC Responsibilities
    5. Green Buildings Act

2. Governor's Initiatives:
    1. 100% RE by 2030 (previously 1,000MW by 2020)
        1. Clean Energy Jobs
        2. Large scale procurements
        3. Siting considerations
    2. Heating Sector Transformation
    3. Lead By Example
    4. Transportation & Climate Initiative (TCI)
    5. Resiliency
    6. Power Sector Transformation

How are these policies currently influencing EE?

1. Traditional EE delivery priorities
    - Cost-effectiveness – market-driven/competitive, energy & non-energy benefits considered in the BC test, financing products/leveraging other dollars
    - Transparency/Evaluation
    - Equitability – across sectors, geography, & fuels
    - Staying a leader in EE nationally – value innovation, pilots, demos, etc.
2. Education, Engagement, & Awareness Broadly
    - Benchmarking & Building Energy Labeling (data access)
    - Sustained customer relationships (customer service)
    - Explaining the benefits of EE – financial, environmental, resilience, health, etc.
    - Enhancing stakeholder participation in the EE program planning process
3. Heating Electrification Ramping
4. Demand Response Programs – possibly with TVR rates/AMI in the future
5. Code & Standards Enhancements
    - Appliance Standards
    - Stretch Codes/Base Code Compliance
    - Zero Energy Buildings
6. Coordination with Renewable Energy, Storage and EVs (ease of data sharing & program coordination)
7. Local Workforce Development