2022 Energy Efficiency Plan Update

July 29, 2021

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Agenda

- Topline Summary of Plan
- Summary of Key Areas of Focus in the Plan
  - Residential Sector
  - C&I Sector
- RI Test, Cost of Supply, PIM

Background and Dates

- Plan draft released on July 15th
- Planning process is ongoing with further discussions and input from stakeholders
- EM&V Updates to come through the next month+
- Further assessment of opportunities by sector teams
- Additional analyses: rate and bill impacts (Attachment 7) to come interim and final

Summary of 2022 Draft EE Plan

- Electric EE and DR:
- Annual savings: 124,257 MWh, lifetime savings: 1,068,749 MWh, DR: 39.5 MW
- Gas EE:
- Annual Savings: 385,163 MMBtu, lifetime savings: 4,002,876 MMBtu
- $338M present value of lifetime benefits from gas EE, electric EE, and active demand response
- $308M added to Rhode Island's state gross domestic product
- 6,953,871 MMBtu lifetime reduction in all fuel consumption (electric, gas, oil, propane)
- 794,869 lifetime tons of carbon emissions avoided
- Equivalent of removing 156,823 passenger vehicles from the road for one year
- 2020 Year-End Report found 827 FTE associated with National Grid programs, across over 1,000 companies

Electric EE – Changes between 2022 in the 3YP Compliance Filing and 2022 Draft Annual Plan

Electric Portfolio	2022 in 3YP Compliance Filing	2022 Annual Plan	% Change
Net Annual Savings (MWh)	129,302	124,257	-3.9%
Net Lifetime Savings (MWh)	1,379,789	1,068,749	-22.5%
Total Benefits (RI Test)	$288,032,158	$230,684,252	-19.9%
Total Budget	$122,625,209	$122,572,452	0.0%
Benefit Cost Ratio (RI Test)	2.01	1.63	-18.8%
Cost/Lifetime kWh	$0.100	$0.127	27.0%
EE Program Charge per kWh	$0.01616	$0.01618	0.1%

- Lifetime MWh reductions driven mainly by evaluation results for C&I lighting measure lives
- Total Benefit and Benefit Cost Ratio reductions are primarily driven by lifetime MWh reductions (and associated benefits)
- Cost/Lifetime kWh increase is mainly driven by the decline in lifetime MWh savings

Note: 2022 3YP Compliance Filing Total Benefits and Benefits Cost Ratios remove economic benefits for an apples to applies comparison to the compliance filing.

Gas EE – Changes between 2022 in the 3YP Compliance Filing and 2022 Draft Annual Plan

Gas Portfolio	2022 in 3YP Compliance Filing	2022 Annual Plan	% Change
Net Annual Savings (MMBtu)	427,504	385,163	-9.9%
Net Lifetime Savings (MMBtu)	4,278,262	4,002,876	-6.4%
Total Benefits (RI Test)	$98,919,527	$107,502,743	8.7%
Total Budget	$36,723,443	$36,721,134	0.0%
Benefit Cost Ratio (RI Test)	2.12	2.26	6.7%
Cost/Lifetime MMBtu	$10.53	$11.48	9.0%
C&I EE Program Charge per Dth	$0.773	$0.895	15.8%
Residential EE Program Charge per Dth	$1.109	$1.310	18.1%

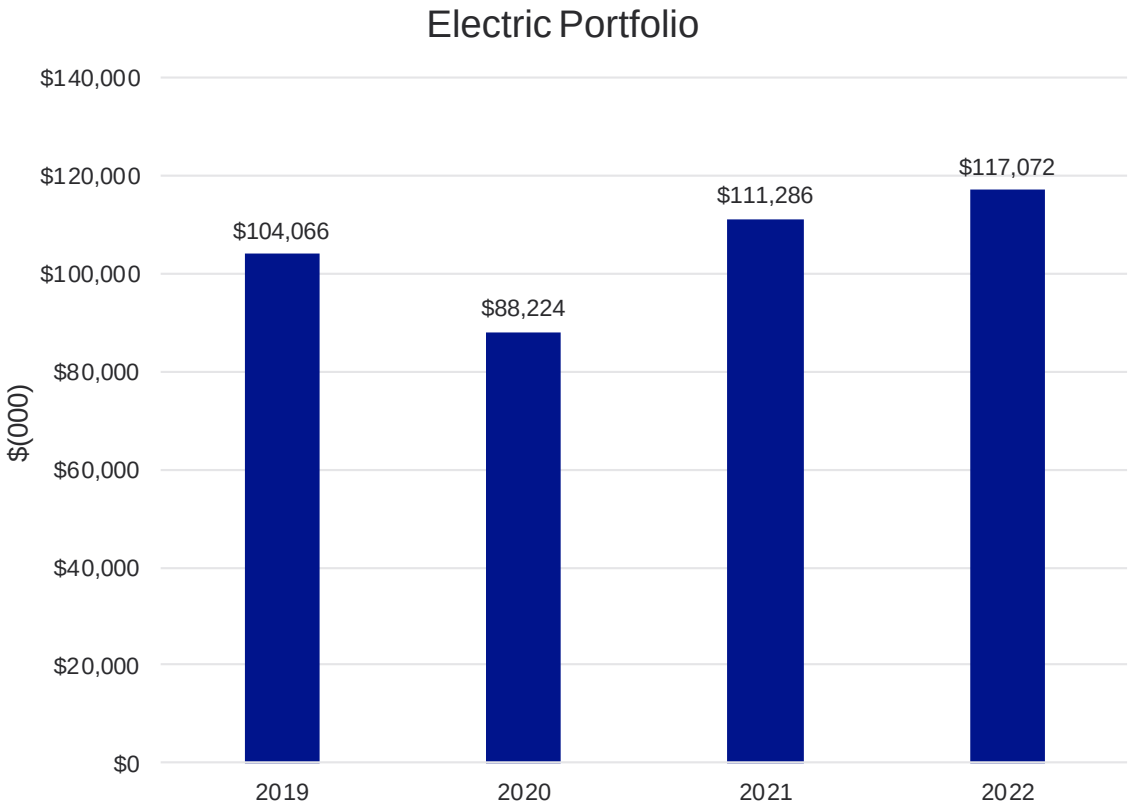
- Lifetime MMBtu reductions driven mainly by evaluation results for EnergyStar HVAC.
- Total Benefit and Benefit Cost Ratio increases are driven by Cost/Lifetime kWh increase is primarily driven by the C&I sector and updated 2021 AESC results.
- Increases in the Charges are driven by a negative 2021 year end fund balance forecast.

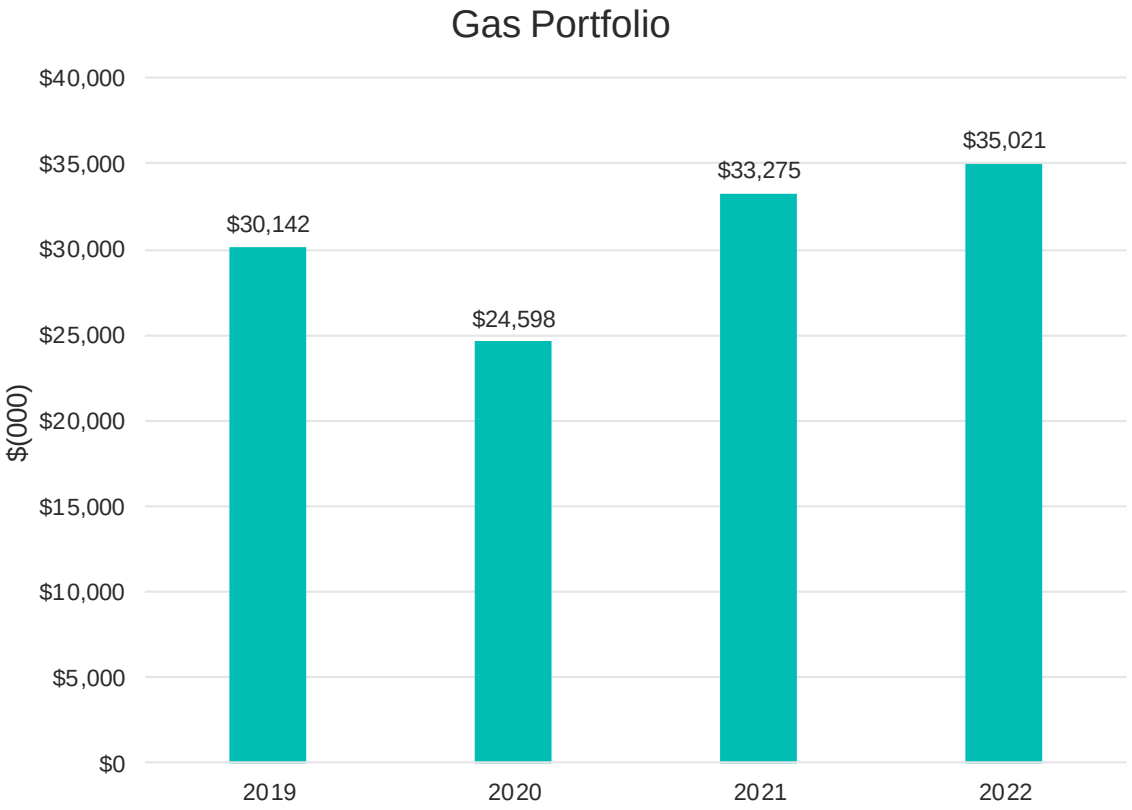
Note: 2022 3YP Compliance Filing Total Benefits and Benefits Cost Ratios remove economic benefits for an apples to applies comparison to the compliance filing.

Additional Considerations for Plan Draft Budgets and Surcharges

- Budgeting process targeted 5% year-over-year budget growth from 2021 to 2022. 2022 in the 3YP Compliance filing is at this level.
- As noted, while the budget levels are comparable, the rates change from 3YP to Annual Plan due to the changes in inputs to the charges.
  - Gas has already incorporated a new forecast, electric is forthcoming, but expected following filing the plan on October 1.
- 2020 to 2021 saw the programs carry over a large fund balance, which helped keep the rate flat for 2021. Such a fund balance is unlikely to occur between 2021-2022.

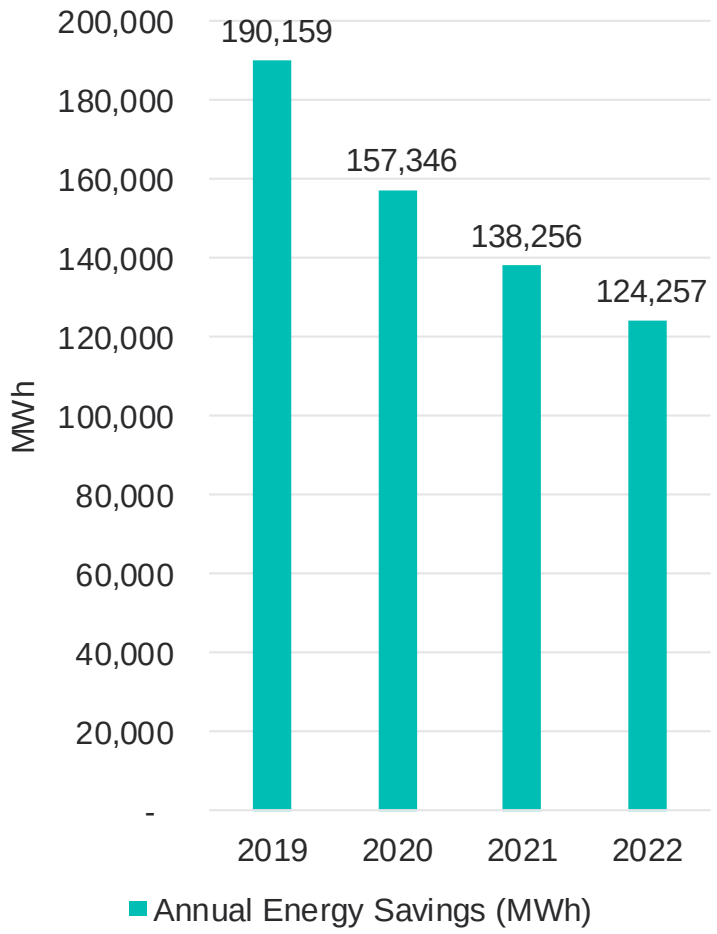
Budget Trend – Implementation Costs

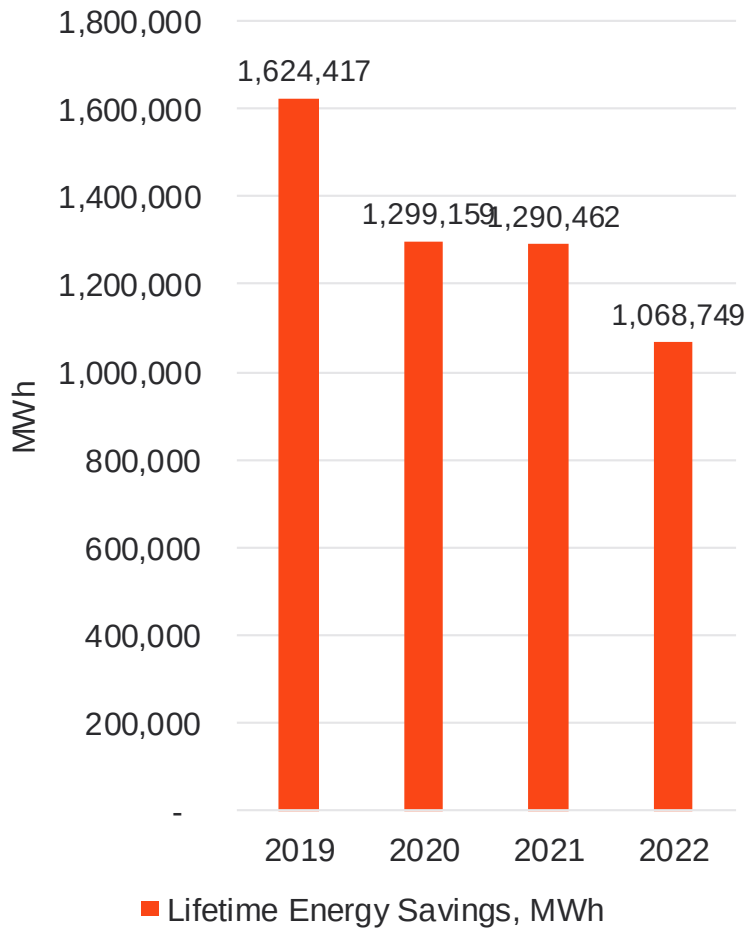


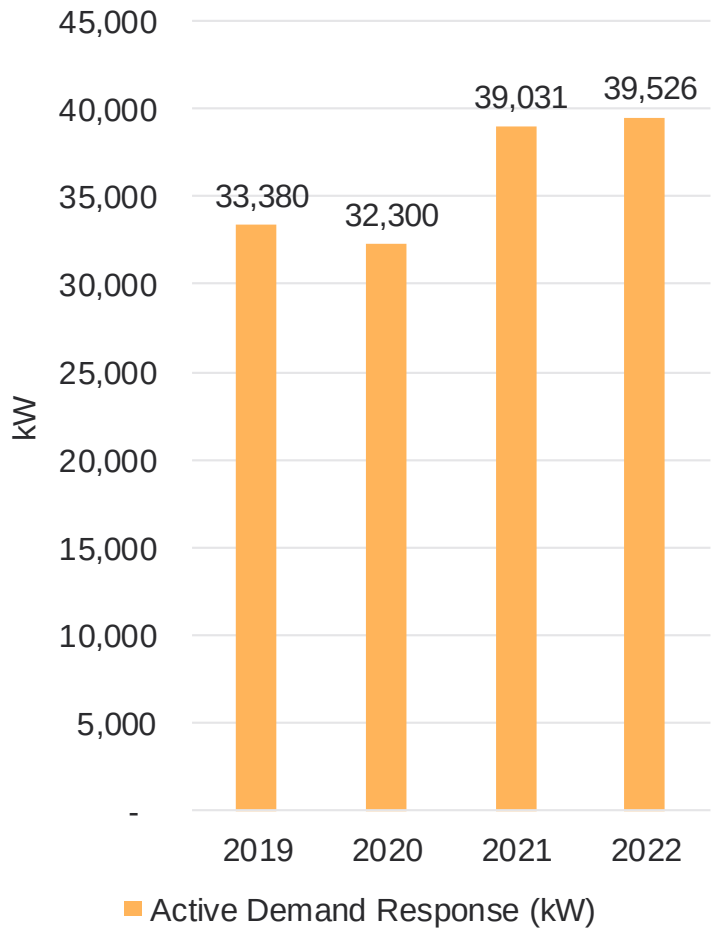


2020 actual program implementation expenses lower due to impacts of COVID-19 Pandemic. 2022 approximately 5% YoY growth from 2021 approved budgets.

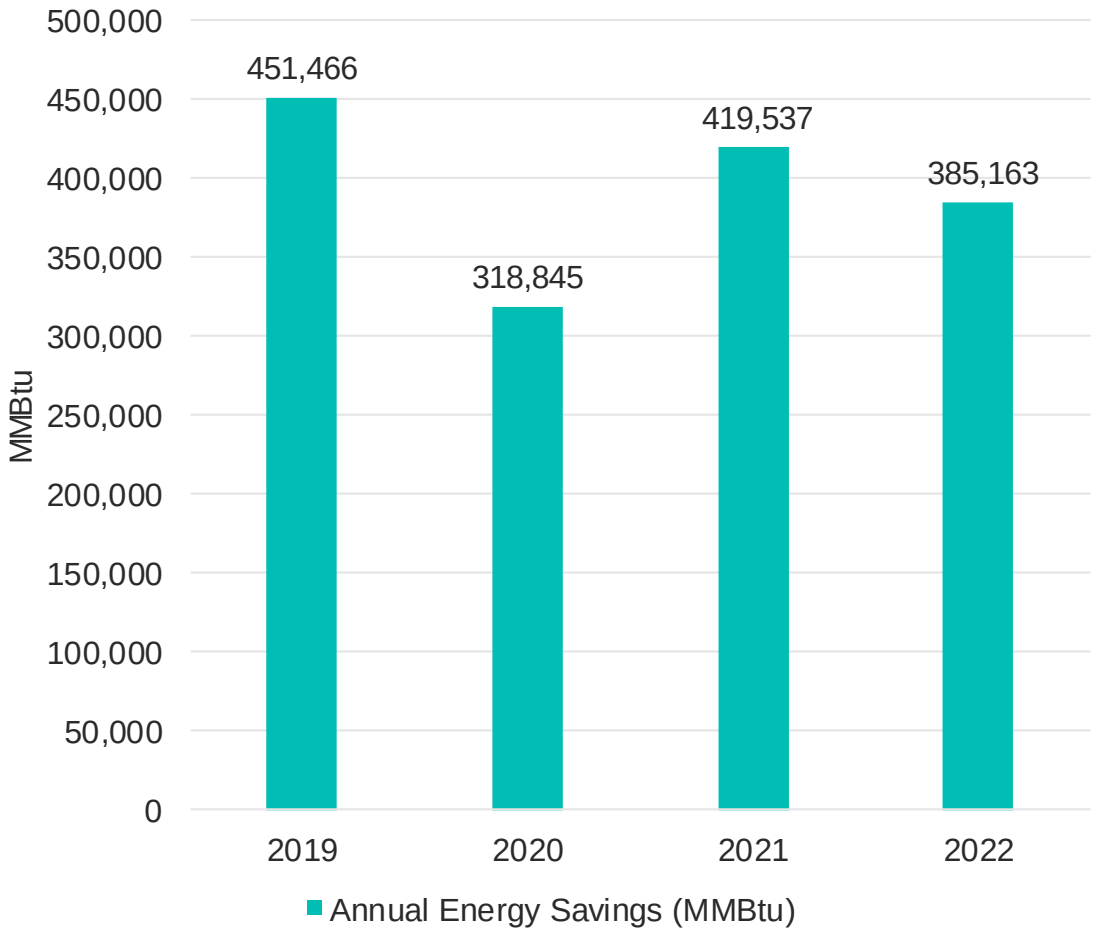
Portfolio Savings Trend - Electric

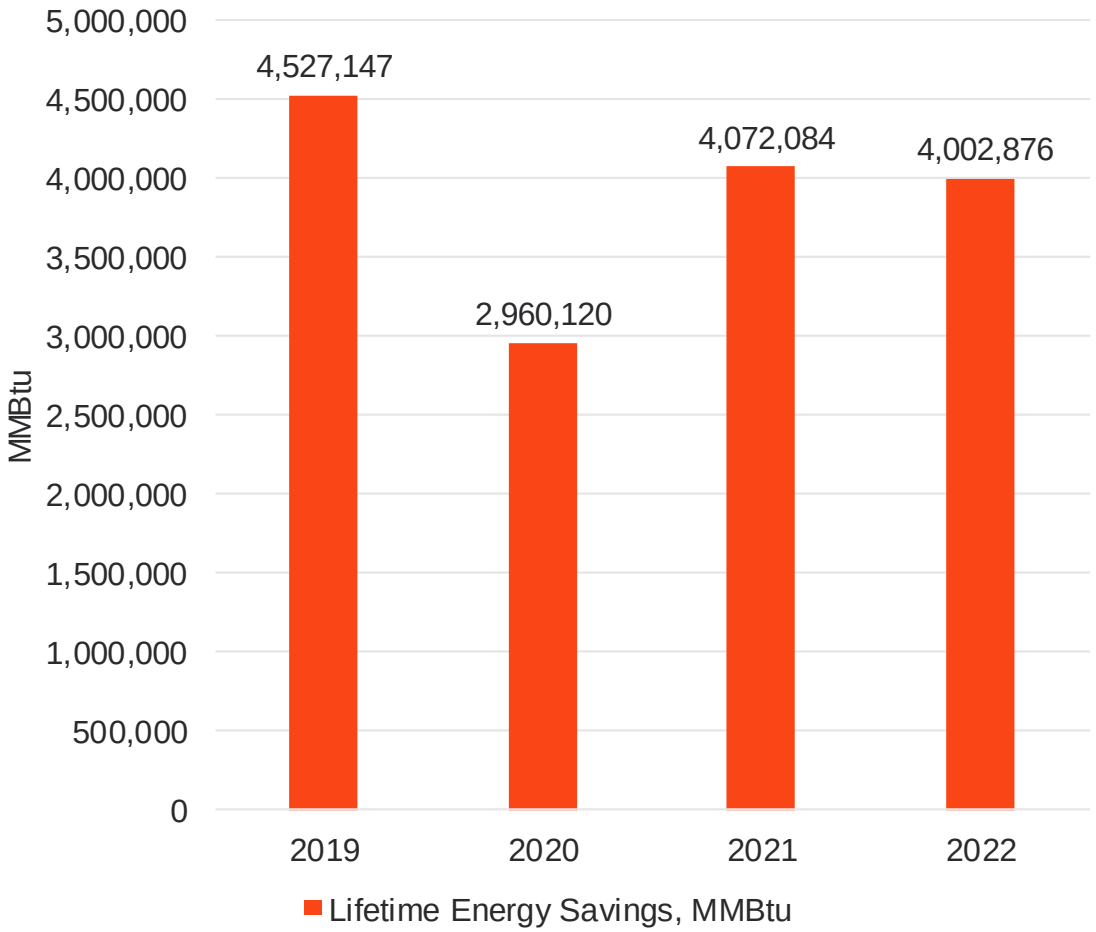






Portfolio Savings Trend - Gas





Sector Focus

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Key Areas of Focus for National Grid Commercial and Industrial Programs

Small Business Program

- **Weatherization expansion with assistance of RGGI funds**
- HVAC & controls
- Lighting w/ controls
- **Formal customer satisfaction survey**
- Continued outreach to WME and microbusinesses
- Multi-lingual auditing and increasing amount of in person canvassing

CHP

- 13.3 MW system
- Currently in the notification process with the Division
- Carbon capture for horticulture reuse
- Among the lowest cost of savings in the portfolio

Additional prescriptive measures

- Non-lighting
- Based on Slipstream research
- Transparency for customers and contractors

Training and Upskilling

- Controls best practices (HVAC and lighting)
- Arrange manufacturer-led training events and incentivize certifications to improve HVAC / building performance

Upstream Pathways

- Increased Upstream HVAC goals
- Increased Food Service Goals (E&G)
- Increased goals for Upstream fixture w/ controls

Retro-commissioning

- Clarify processes
- Add new tuning measures
- Expand MBCx offering

Lodging

- Increased focus on PTHP and GREMS
- More holistic marketing

Commercial Real Estate

- Best practices working group

Claimable C&I lighting savings will decline substantially as a result of Evaluation impacts.

Key Areas of Focus for National Grid Residential Programs

Marketing & outreach

- All programs: Utilize Non-participant Study and Multifamily Census studies to drive customers – particularly nonparticipants – to implement comprehensive energy efficient measures.
- MF: Utilize a Content Hub
  - showcase the MF industry expertise
  - segment content based on specific audiences
  - personalize user experiences

Customer Financing

- MF: Explore financing options for landlords and property managers to help reduce participation barriers pertaining to upfront co-payments.
- HVAC: Align within the HVAC program

Training and Upskilling

- Continue to offer Program-specific contractor trainings
- Increase customer outreach to promote trained contractors

Equity

All programs: Incorporate Equity Working Group (EWG) recommendations as feasible and as funds allow

Weatherization Emphasis

- EW, HVAC: increase optimal weatherization and sizing of equipment
- Cross-promotion
- Best practice from air source heat pump process

IES Emergency Oil/Propane Heating System Replacements

- Develop process to reduce the number of O/P emergency heating system replacements.
- Identifying financing opportunities

Non-Energy Impacts (NEIs)

- Focus on NEI benefits of health & safety & quantitative savings.
- Leverage the MA Non-Energy Impact Study to quantify/monetize NEIs in RI MF

Claimable Residential lighting savings will decline substantially as a result of evaluation impacts.

RI Test, Cost of Supply, PIM

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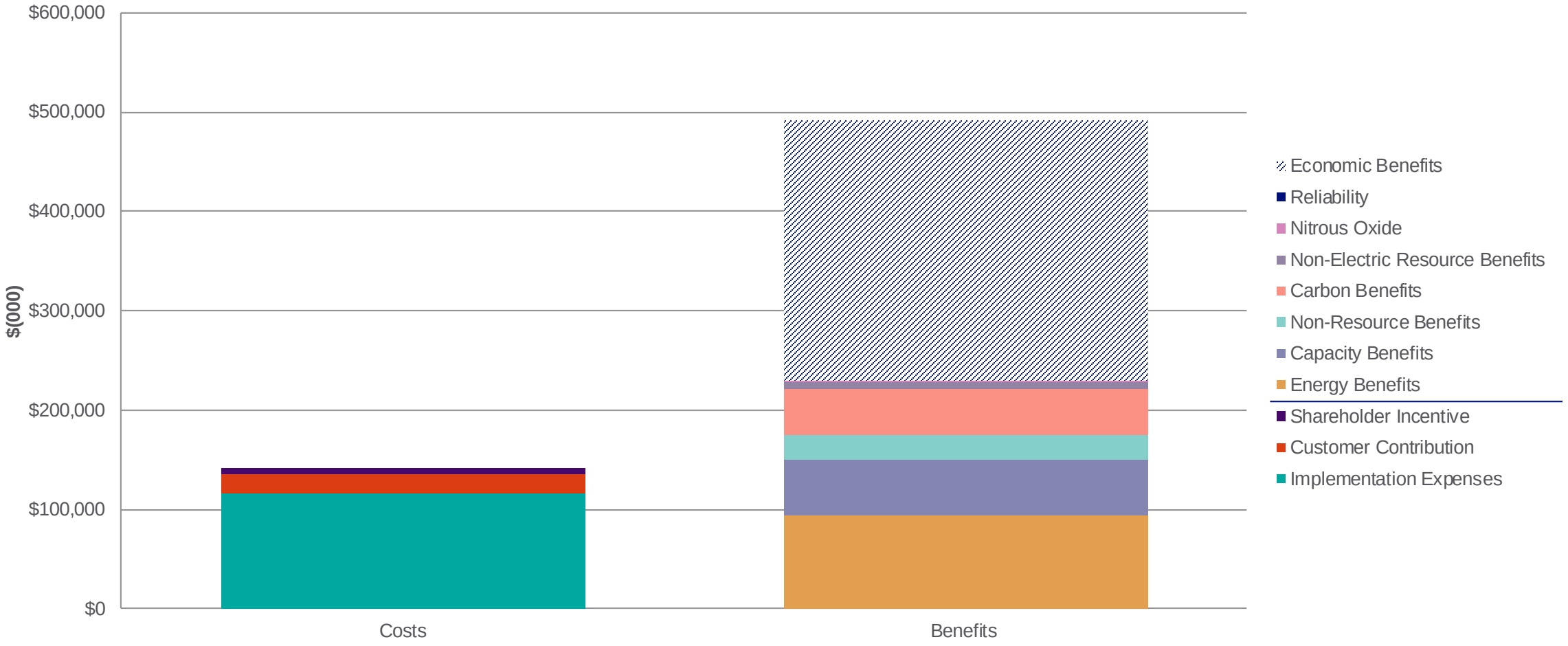
Benefit Cost Analysis (RI Test) Updates

- Attachment 4 documents the categories of benefits and costs included in the RI Test for this draft with updates reflecting AESC 2021 and change in treatment of macroeconomic benefits from quantitative to qualitative.
- Also includes Docket 4600 matrices for the gas and electric portfolios.
- Ongoing updates to impact factors from EM&V studies will result in further changes to benefit-cost ratios, along with detailed budgeting and program planning revisions following from the draft.
- Updated benefits calculations influence the PIM calculations (section 11), cost of supply calculations (section 7.5)

Electric Benefit Cost Metrics

2022 Electric Programs and Portfolio	Benefits ($000)			Costs ($000)	RI Test Ratio	
	All Other Monetized RI Test Categories	Economic	Total	Total	W/ Economic Benefits	W/O Economic Benefits
	(a)	(b)	(c)	(d)	(e)	(f)
			(a) + (b)		(c)/(d)	(a)/(d)
Commercial New Construction	$30,935	$27,516	$58,452	$9,597	6.09	3.22
Commercial Retrofit	$94,156	$157,967	$252,122	$47,869	5.27	1.97
Direct Install	$11,851	$17,458	$29,309	$9,941	2.95	1.19
Commercial ConnectedSolutions	$10,252	$9,720	$19,972	$4,438	4.50	2.31
C&I Subtotal	**$147,195**	**$212,660**	**$359,855**	**$81,577**	**4.41**	**1.74**
Low Income Single Family	$25,696	$11,394	$37,090	$13,247	2.80	1.94
Low Income Multi Family	$2,574	$4,201	$6,776	$3,531	1.92	0.73
Low Income Residential SUBTOTAL	**$28,270**	**$15,596**	**$43,866**	**$17,877**	**2.45**	**1.69**
Residential New Construction	$5,103	$2,282	$7,385	$2,500	2.95	2.04
EnergyStar HVAC	$12,503	$6,002	$18,504	$5,657	3.27	2.21
EnergyWise	$17,084	$14,988	$32,072	$16,671	1.92	1.02
EnergyWise Multi Family	$4,003	$4,395	$8,397	$3,811	2.20	1.05
Behavior Feedback	$5,359	$2,638	$7,997	$2,638	3.03	2.03
EnergyStar Appliances	$8,468	$4,354	$12,822	$4,184	3.06	2.02
Residential ConnectedSolutions	$2,699	$1,496	$4,195	$1,802	2.33	1.50
Non-low income Residential SUBTOTAL	**$55,219**	**$36,154**	**$91,373**	**$39,840**	**2.29**	**1.46**
Total	**$230,684**	**$264,410**	**$495,094**	**$141,414**	**3.50**	**1.63**

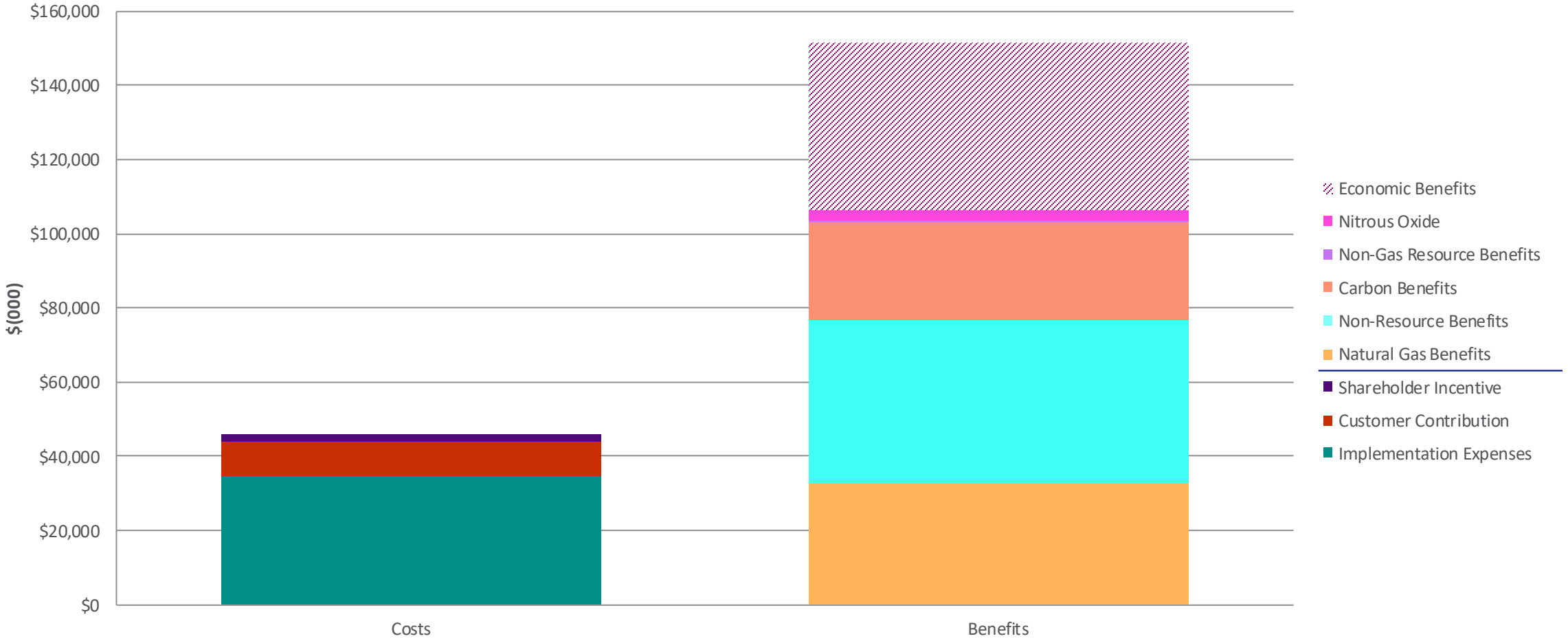
Electric Benefit Cost Metrics – Portfolio Summary



Gas Benefit Cost Metrics

2022 Gas Programs and Portfolio	Benefits ($000)			Costs ($000)	RI Test Ratio	
	All Other Monetized RI Test Categories	Economic	Total	Total	W/ Economic Benefits	W/O Economic Benefits
	(a)	(b)	(c)	(d)	(e)	(f)
			(a) + (b)		(c)/(d)	(a)/(d)
Large Commercial New Construction	$19,467	$4,582	$24,049	$3,506	6.86	5.55
Large Commercial Retrofit	$32,355	$11,853	$44,208	$7,431	5.95	4.35
Small Business Direct Install	$870	$629	$1,499	$430	3.48	2.02
Commercial & Industrial Multifamily	$6,099	$1,822	$7,920	$1,048	7.56	5.82
Commercial & Industrial Subtotal	**$58,790**	**$18,886**	**$77,676**	**$14,436**	**5.38**	**4.07**
Single Family - Income Eligible Services	$12,983	$6,303	$19,287	$6,367	3.03	2.04
Income Eligible Multifamily	$7,914	$4,571	$12,484	$2,949	4.23	2.68
Income Eligible Residential Subtotal	**$20,897**	**$10,874**	**$31,771**	**$9,316**	**3.41**	**2.24**
Energy Star® HVAC	$8,138	$3,299	$11,438	$8,158	1.40	0.99
EnergyWise	$10,480	$8,729	$19,209	$9,313	2.06	1.13
EnergyWise Multifamily	$6,316	$2,448	$8,764	$1,846	4.75	3.42
Home Energy Reports	$1,712	$468	$2,181	$442	4.93	3.87
Residential New Construction	$1,169	$130	$1,300	$1,232	1.05	0.95
Non-Income Eligible Residential Subtotal	**$27,816**	**$15,075**	**$42,891**	**$21,144**	**2.03**	**1.32**
Grand Total	**$107,503**	**$44,836**	**$152,339**	**$45,738**	**3.33**	**2.35**

Gas Benefit Cost Metrics – Portfolio Summary



Cost of Supply Results

- Applied methodology for cost of supply calculations at the portfolio level, for each fuel
- Both portfolios are less than the cost of alternative supply
- Electric results:
  - Cost of EE: $141.4M
  - Cost of Alternative Supply: $204.6M
- Gas results:
  - Cost of EE: $47.7M
  - Cost of Alternative Supply: $63.1M

Performance Incentive Mechanism Considerations in the Draft Plan

- PIM in the 2022 draft plan applies the PIM approved by the PUC for the 2021 – 2023 term. No changes to mechanism proposed.
- Tracking and learning in 2021 with a significantly revised structure. Further clarity with expected PUC staff guidance document.
- Assessing possibility of application of EE PIM to DR measures.
- Inputs to the PIM changed with application of new benefits calculations, EM&V results, and planning inputs
- Section 11 of the main text describes the new EE PIM. Intent is to incorporate references to the PUC guidance document if it is finalized and released prior to filing.
- Tables E-8A-C and G-8A-C summarize the inputs and calculations for the PIM in 2022.

Performance Incentive Mechanism Summary in the Draft Plan

- Total PIM earning opportunity proposed is constant from 2021 level: $7.2M; $5.5M electric, $1.7 gas.
- PIM is assessed at the sector level, by portfolio (fuel).
- Calculation of PIM-prioritized net benefits results in positive results for the C&I gas and C&I electric sectors only. Therefore, earning opportunity for each portfolio is aligned with those sectors.
- Residential and income-eligible sectors are subject to Service Quality Adjustments (SQAs) that can reduce any earnings in the C&I sector.

Dates to Remember

July 30: EERMC and Stakeholder comments due on Draft Plan

August 26: EE TWG Discussion focused on finalization of plan

September 8: 2022 Annual Plan Final sent to EERMC and TWG

September 23: EERMC Meeting + 2022 Annual Plan Vote

October 1: File 2022 Annual Plan with PUC

Appendix

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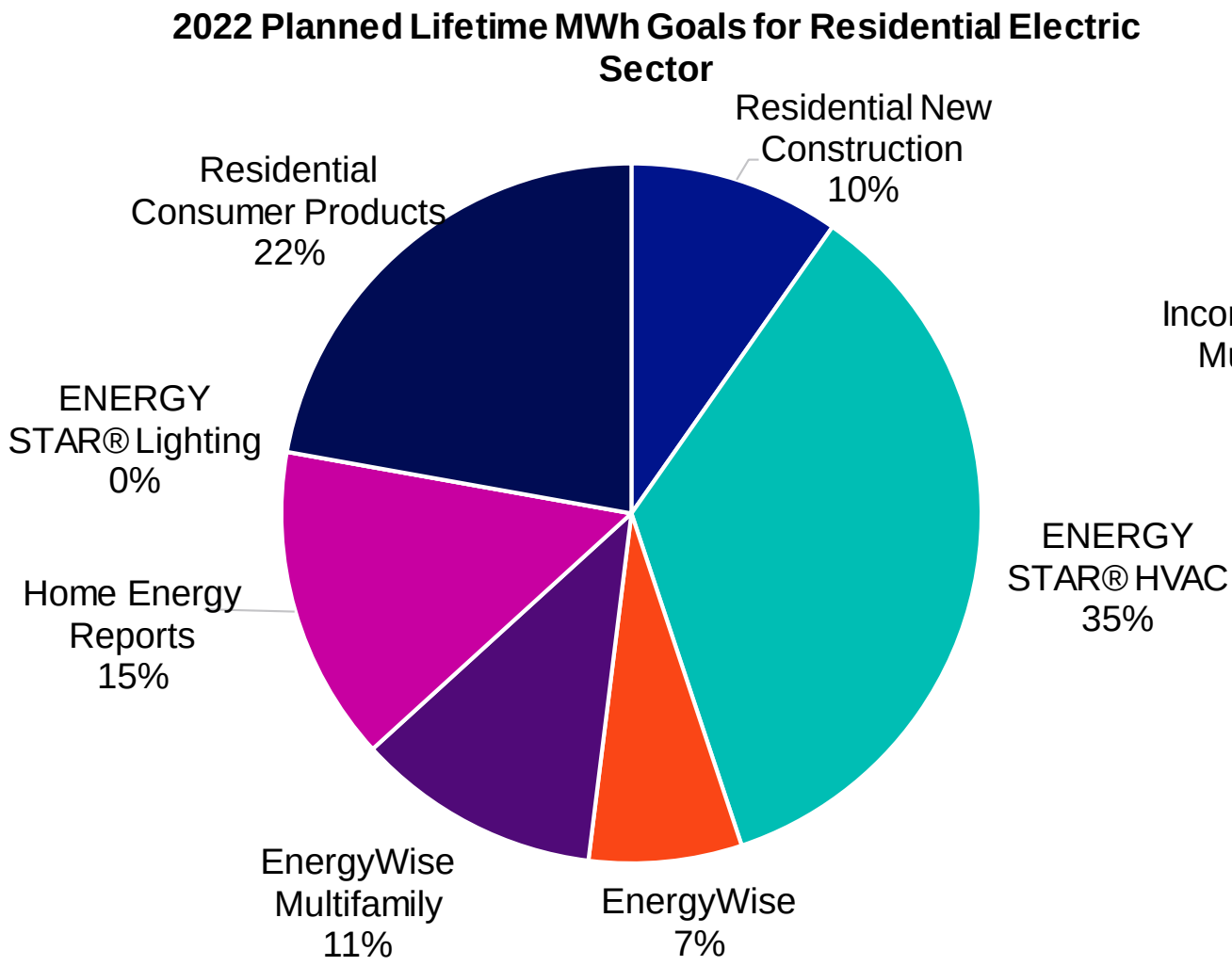
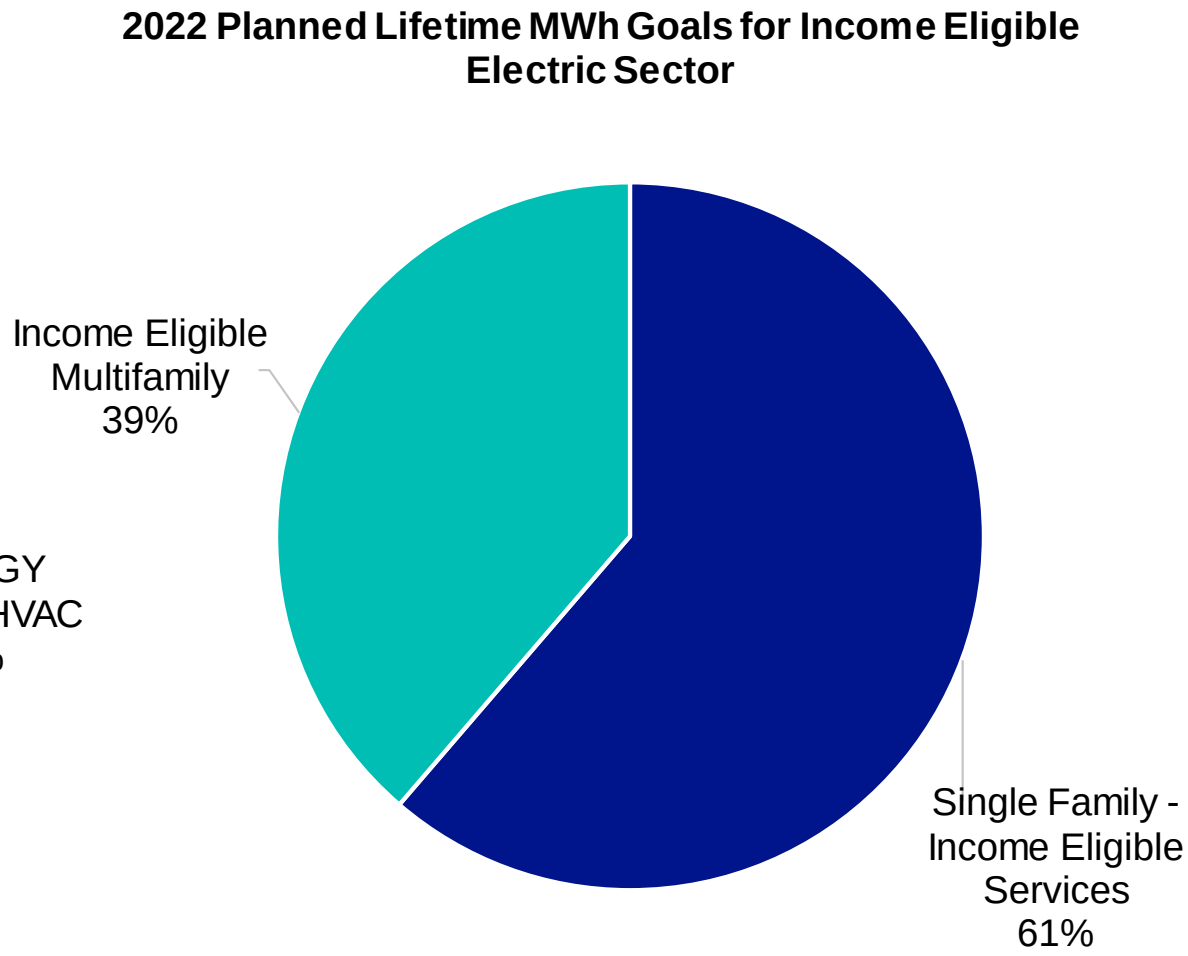
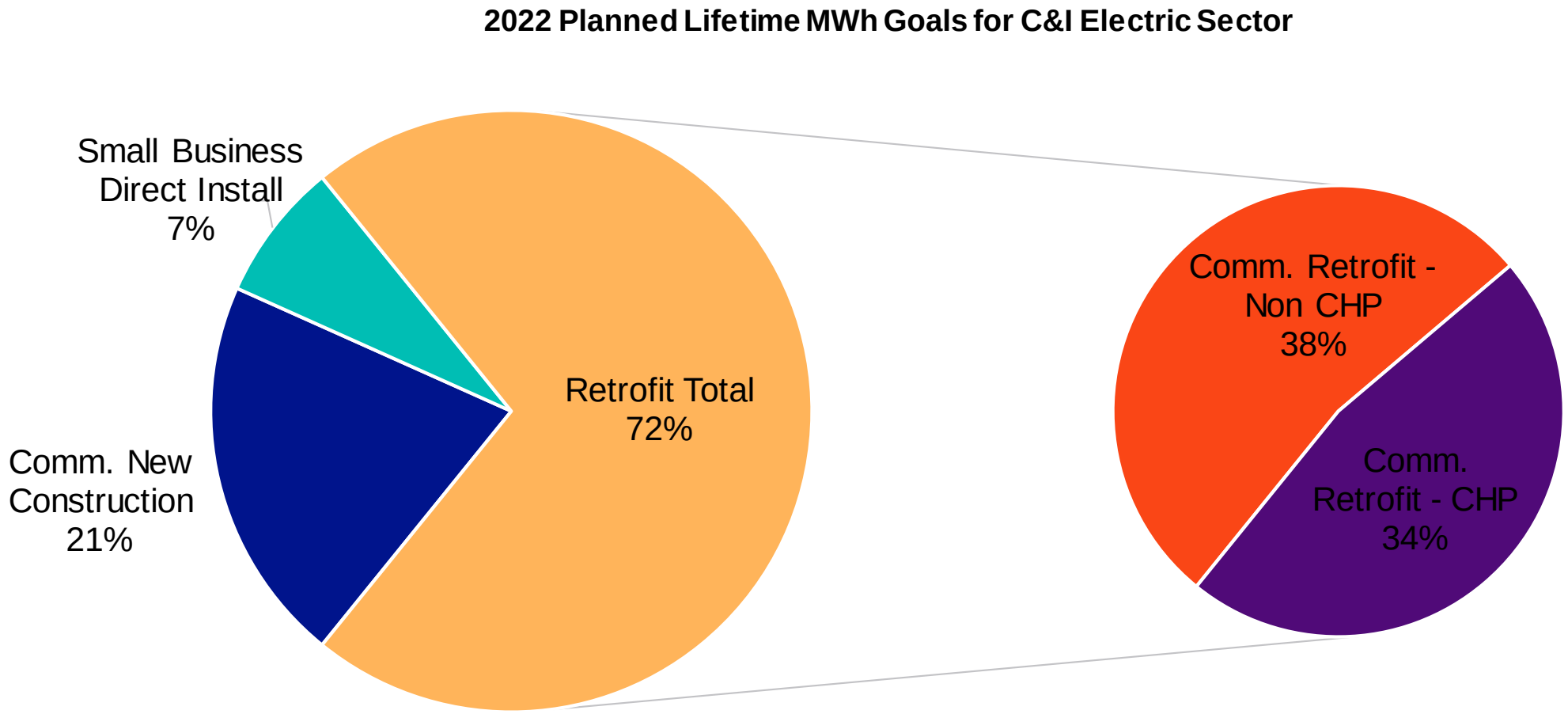
Sector Composition – Electric Residential and Income Eligible

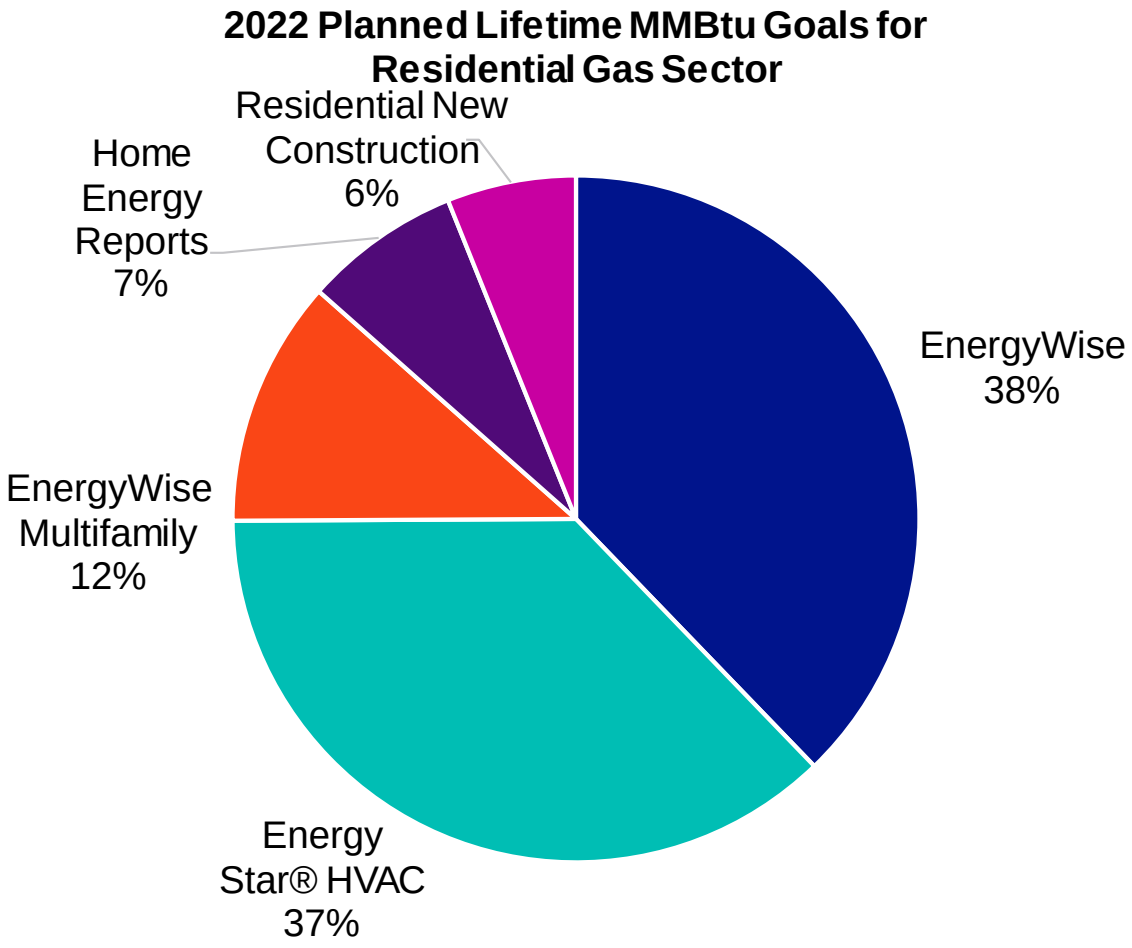


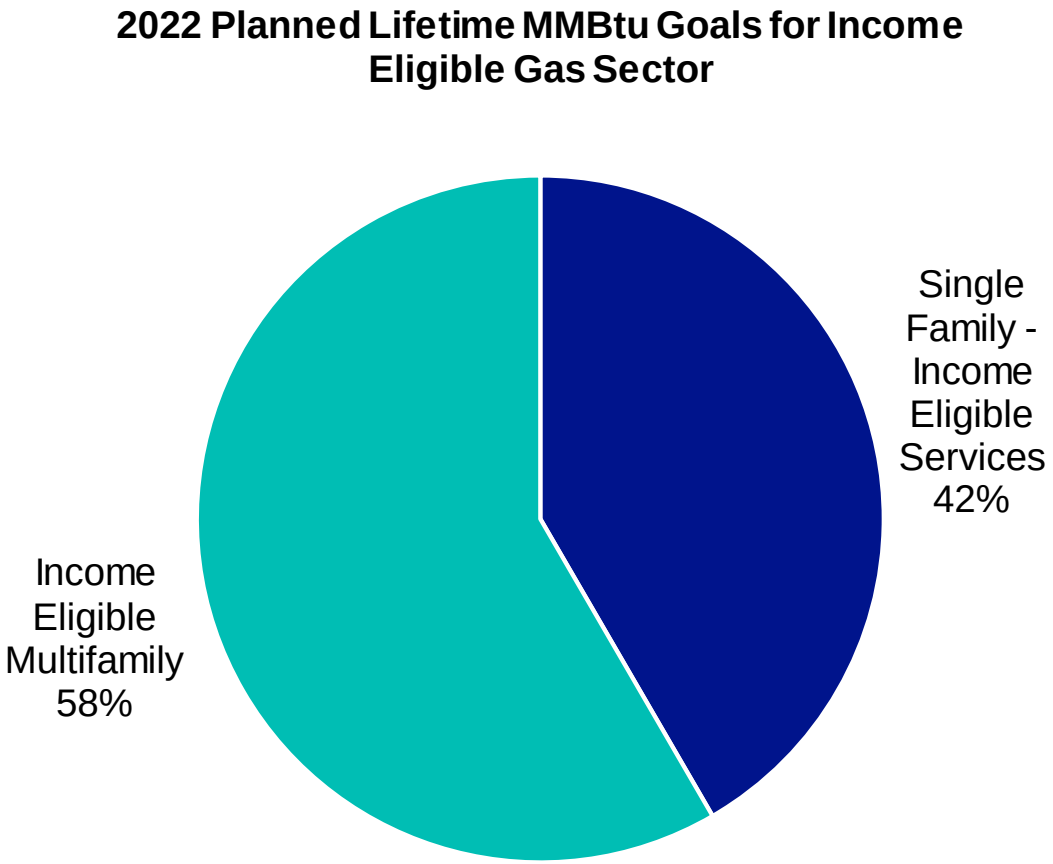


Sector Composition – Electric C&I

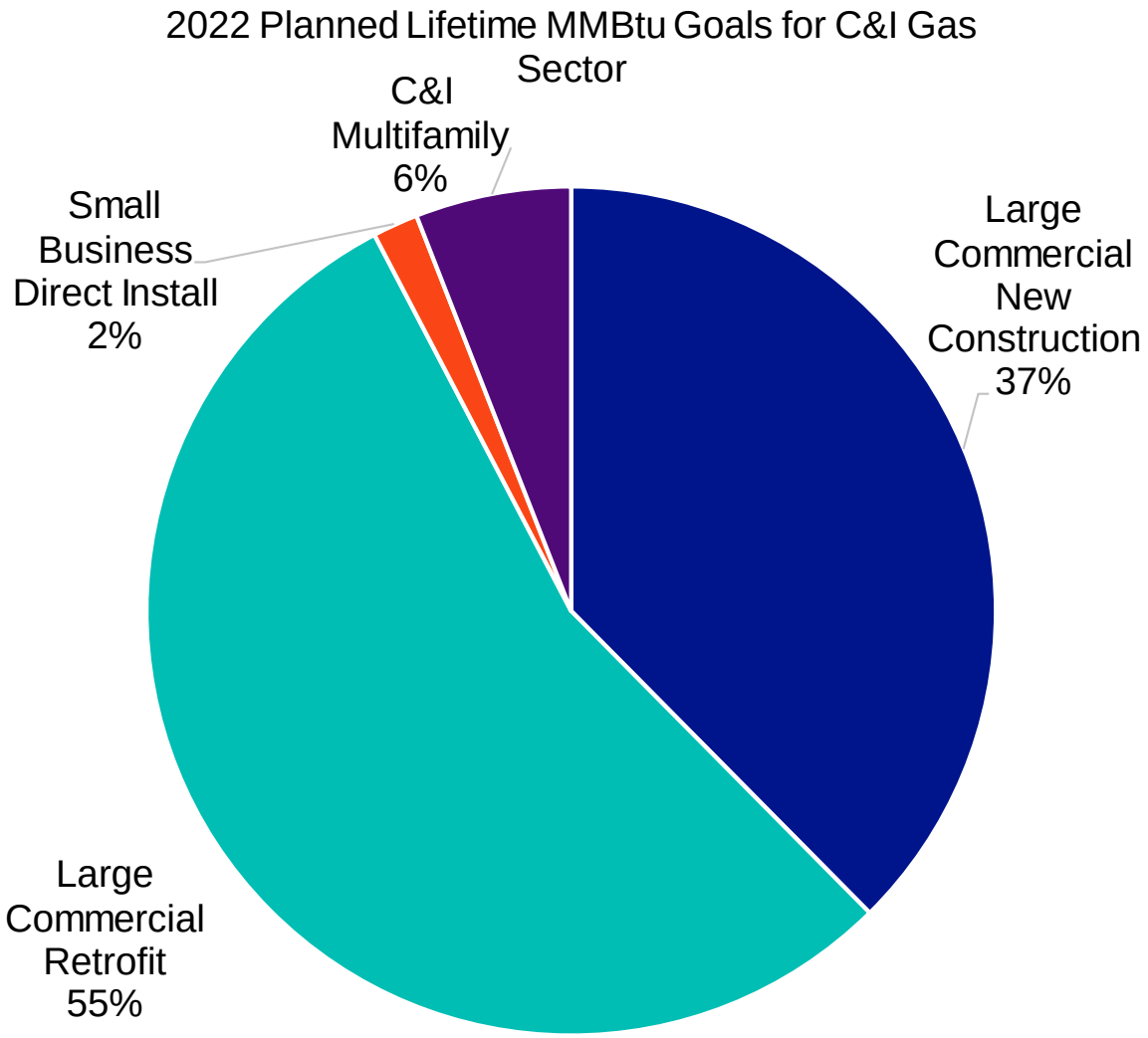


Sector Composition – Gas Residential and Income Eligible

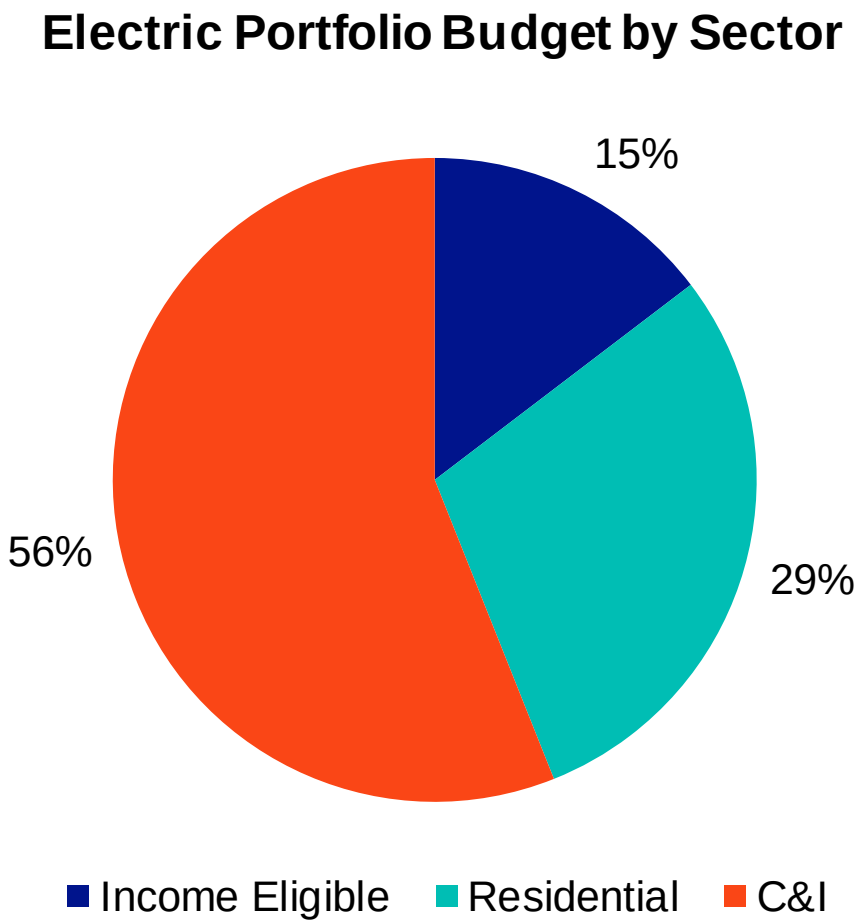


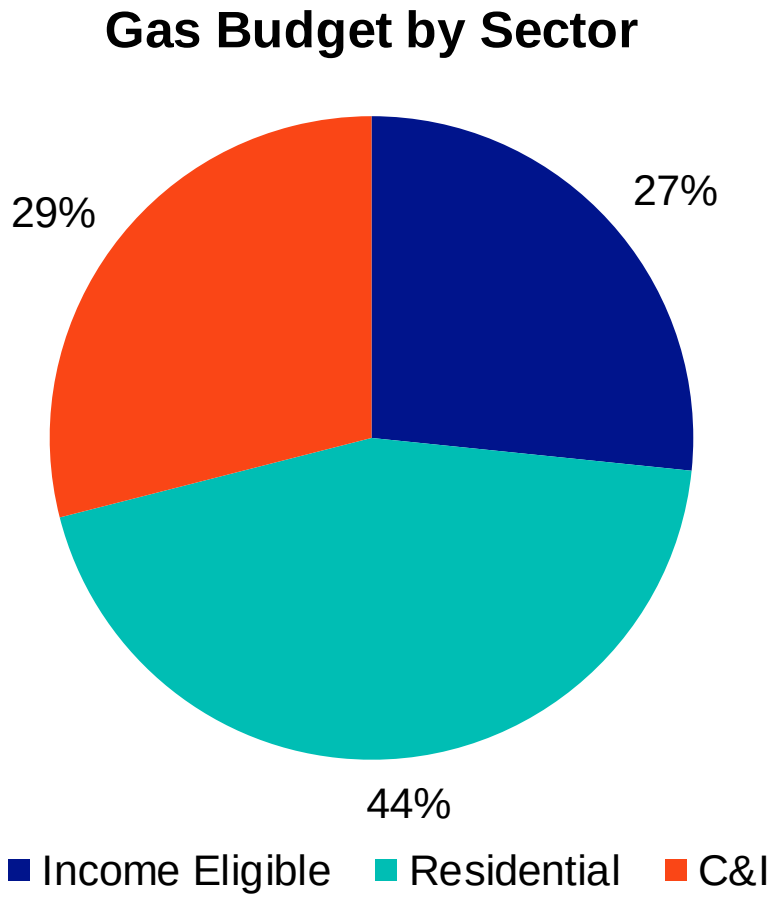


Sector Composition – Gas C&I

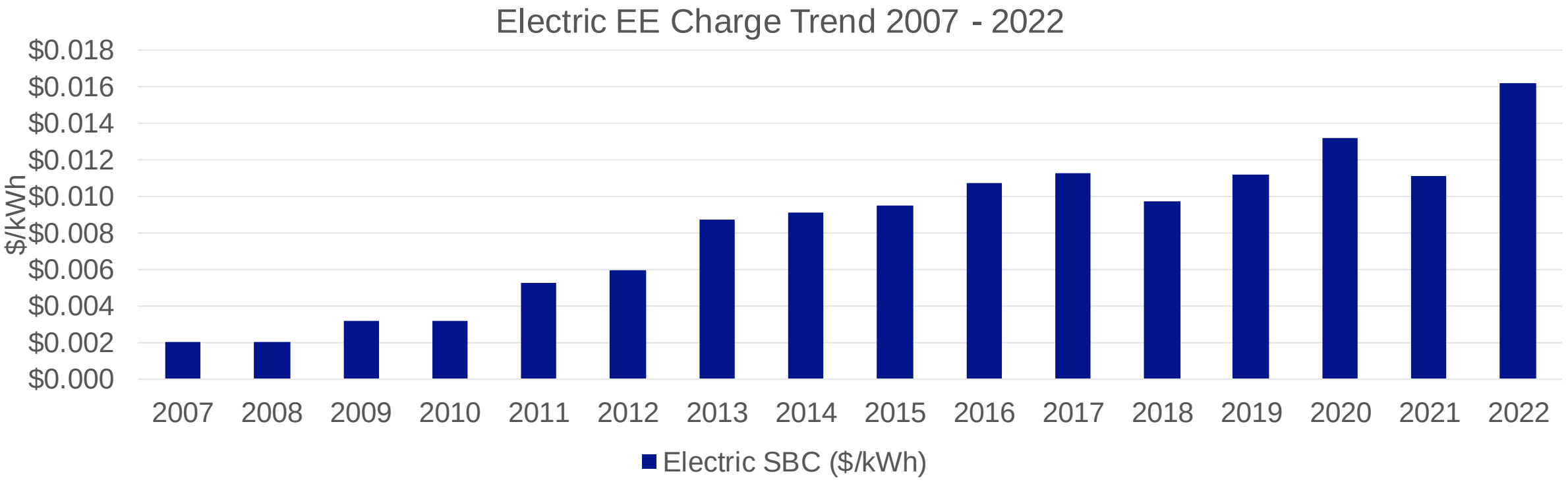


Budget Distribution by Sector



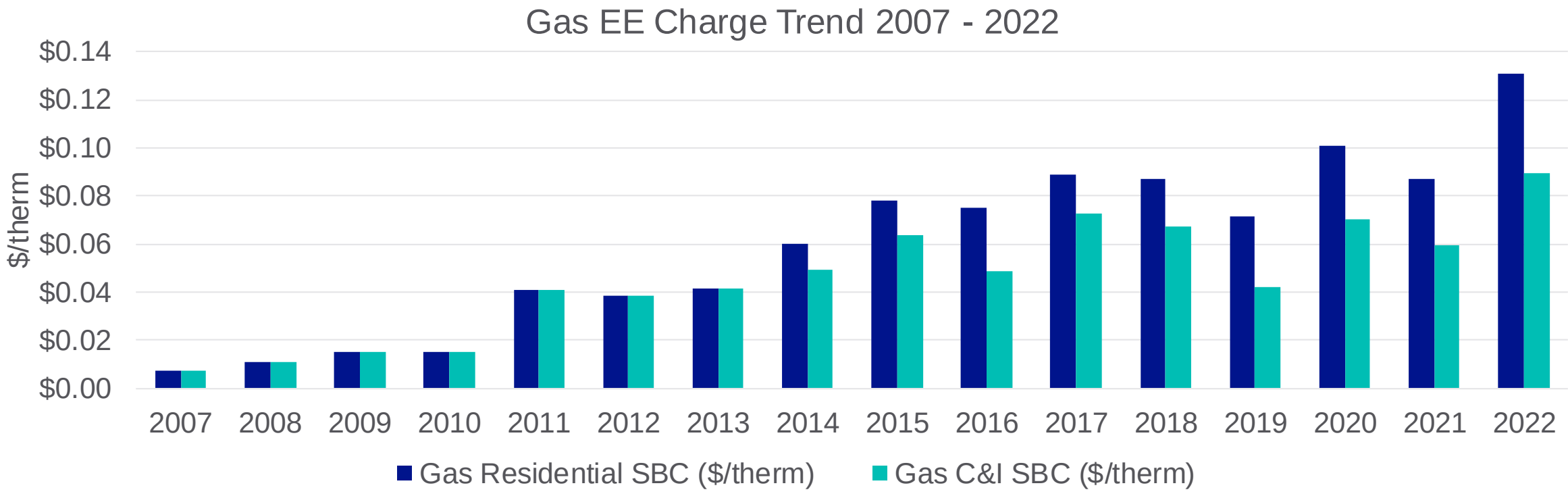


Electric EE Charge History



Year	Electric SBC ($/kWh)
2021	0.01113
2022	0.01618
2021 - 2022 Growth	45%

Gas EE Charge History



Year	Gas Residential SBC ($/therm)	Gas C&I SBC ($/therm)
2021	0.0871	0.0596
2022	0.131	0.0895
2021 - 2022 Growth	50%	50%

Factors influencing EE Surcharge in the 2022 Annual Plan

2022 Annual Plan – 1st Draft Highlights

2021 EE Year End Fund Balance

- 2021 Actual and forecasted EE expenses and revenues from the current EE surcharge contribute to the 2021 year end fund balance. A positive fund balance lowers the 2022 surcharge, a negative fund balance increases it. The 1st draft incorporate program expense forecasts.
- Annual Plan First Draft 2021 Fund Balance: Electric -$0.2M, Gas -$6.2M

2022 Energy Sales Forecasts

- The 2022 EE Surcharges are also impacted by electric sales and gas volume forecasts for 2022. Lower electric sales and gas volume forecasts lead to higher EE surcharges. The 2022 gas volume decreased slightly (1%) from the 3YP compliance filing forecast. 2022 Electric sales forecast will be updated in late September.

2022 Program Budget Level

- 2022 Budget levels also impact the 2022 surcharge.
- 2022 Annual Plan First Draft Budgets Compared to 2021: Electric +$5.8M, Gas +$1.7M

2022 Annual Plan – Final Plan Updates

- The Company will provide a final plan that updates EE surcharge estimates

2021 EE Year End Fund Balance

- For the final plan the 2021 EE expenses forecast will be updated based on the most recent data available at that time.

2022 Energy Sales Forecasts

- The 2022 electric sales forecast will be updated in late September. If this update is not incorporated into the Oct 1st filing, the Company will refile the proposed rates with the PUC based on the update.

Benefit Cost Analysis (RI Test) Updates

- Applied the AESC 2021 Results to Measure Screening
- Using Counterfactual #4 to screen the 2022 Annual Plan. This counterfactual models a future state without programmatic demand response or energy efficiency.
- AESC 2021 included four counterfactuals in this iteration to account for the diversity of programs in the New England states. This was a change from past AESC studies.
- Most categories of avoided costs declined from AESC 2018 to AESC 2021 due to a variety of factors. Some categories, notably the non-embedded GHG cost, increased.
- Refer to Executive Summary Table 4 (page 7) for a summary of changes from AESC 2018 to AESC 2021: https://www.synapse-energy.com/sites/default/files/AESC%202021_20-068.pdf

Benefit Cost Analysis (RI Test) Updates

- Omission of Macroeconomic Benefits in the Primary RI Test
- As discussed at last two TWG meetings, primary RI Test results in this draft plan omit macroeconomic benefits. This is a change from the practice used in the screening of the 2020 and 2021 Annual Plans (and the Three-Year Plan covering years 2021 – 2023).
- Plan text and Docket 4600 tables in Attachment 4 describe the qualitative treatment of this benefit category, while the RI Test ratios with macroeconomic benefits are also shown as a comparison.
- This is a more conservative assessment of the RI Test and results in lower benefit cost ratios in 2022 draft plan. Annual EM&V updates and avoided costs updates also influence the ratios.

PIM Benefits Categorization - Electric

Benefit	PIM Categorization	Percent Allocation in PIM Calculation
Summer Generation	Electric Utility System Benefits	100%
Capacity DRIPE		
Transmission		
Distribution		
Reliability		
Winter Peak Electric Energy		
Winter Off Peak Electric Energy		
Summer Peak Electric Energy		
Summer Off Peak Electric Energy		
Electric Energy DRIPE		
Utility Non-Energy Impacts (NEIs)		
Natural Gas and Natural Gas DRIPE	Resource Benefits	50%
Oil and Oil DRIPE		
Propane		
Water		
Non Resource (NEIs)	Other Not Included Benefits	0%
Non-Embedded Carbon		
Non-Embedded NOx		
Economic		

PIM Benefits Categorization - Gas

Benefit	PIM Categorization	Percent Allocation in PIM Calculation
Natural Gas	Gas Utility System Benefits	100%
Natural Gas DRIPE		
Utility Non Energy Impacts (NEIs)		
Summer Generation	Resource Benefits	50%
Capacity DRIPE		
Transmission		
Distribution		
Reliability		
Winter Peak Electric Energy		
Winter Off Peak Electric Energy		
Summer Peak Electric Energy		
Summer Off Peak Electric Energy		
Electric Energy DRIPE		
Oil and Oil DRIPE		
Propane		
Water		
Non Resource (NEIs)	Other Not Included Benefits	0%
Non-Embedded Carbon		
Non-Embedded NOx		
Economic		

PIM Costs Categorization and Net Benefits Calculation

- PIM costs are derived from Tables E-3 and G-3
- Eligible Spending Budget, previously used to define the earning opportunity in the PIM prior to 2021, plus regulatory costs allocated to the sectors equally form the set of costs for the “netting” calculation.

Electric Net Benefits = (100% of Electric Utility System Benefits + 50% of Resource Benefits) − (Electric Programmatic Costs + Regulatory Costs)

Gas Net Benefits = (100% of Gas Utility System Benefits + 50% of Resource Benefits) − (Gas Programmatic Costs + Regulatory Costs)

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