



STATE OF RHODE ISLAND

**ENERGY EFFICIENCY &
RESOURCE MANAGEMENT COUNCIL**

CONSULTANT TEAM

Consultant Team Initial Review First Draft of the 2023 Annual Plan

Presented By: EERMC Consultant Team

Date: July 28, 2022



Outline

Overview

Areas of Focus

Portfolio Overview

Overarching Findings

Commercial & Industrial Review

Residential & Income Eligible Review

Council Discussion



Areas of Focus

OVERVIEW





Areas of Focus

Quantitative quality assurance (QA) and review

- Numerous items flagged for clarification still in progress, working closely with RI Energy
- On 7/19, C-Team raised concern resulting in \$22M reduced anticipated customer contribution

Narrative review

- Today's meeting focuses on qualitative review due to ongoing nature of quantitative QA
- We will still review top-level numbers and highlight quantitative plan elements as needed

Due to time constraint, we focus on **opportunities for improvement**

- Appreciate time & effort involved in plan development – huge lift for RI Energy
- Some process improvements this year – e.g., rate and bill impact models
- Collaborative approach to quantitative review has been fruitful



Portfolio Overview

OVERVIEW

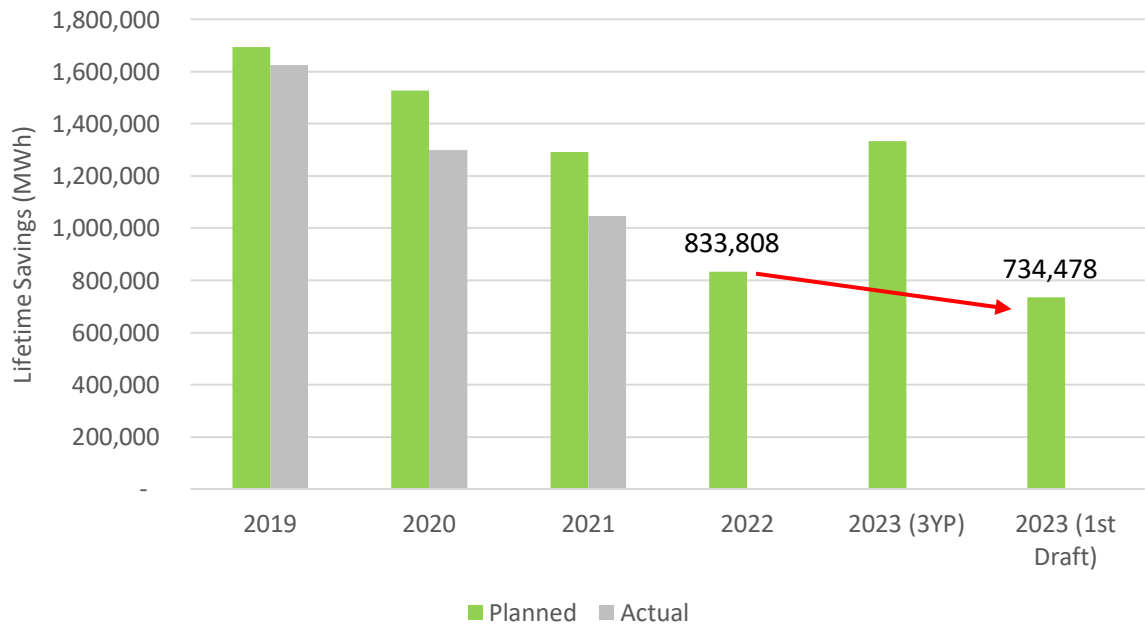




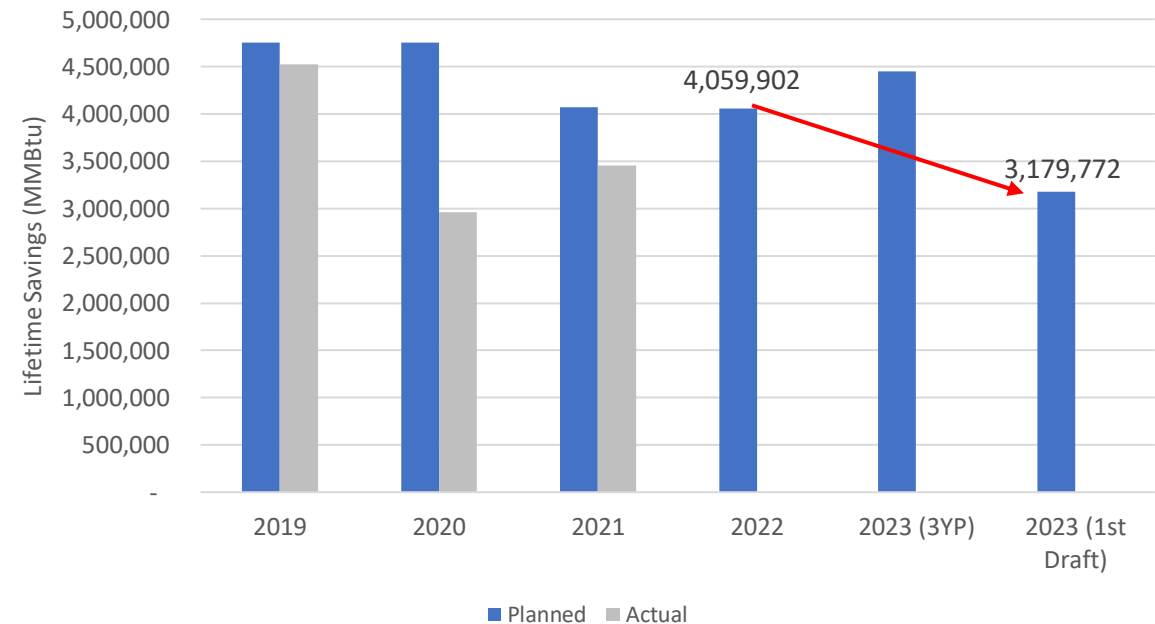
Portfolio Lifetime Savings

Key Takeaway 2023 Plan shows notable drop in lifetime savings in both electric (12%) and gas (22%)

Electric Lifetime Savings (MWh) - Portfolio Total



Gas Lifetime Savings (MMBtu) - Portfolio Total

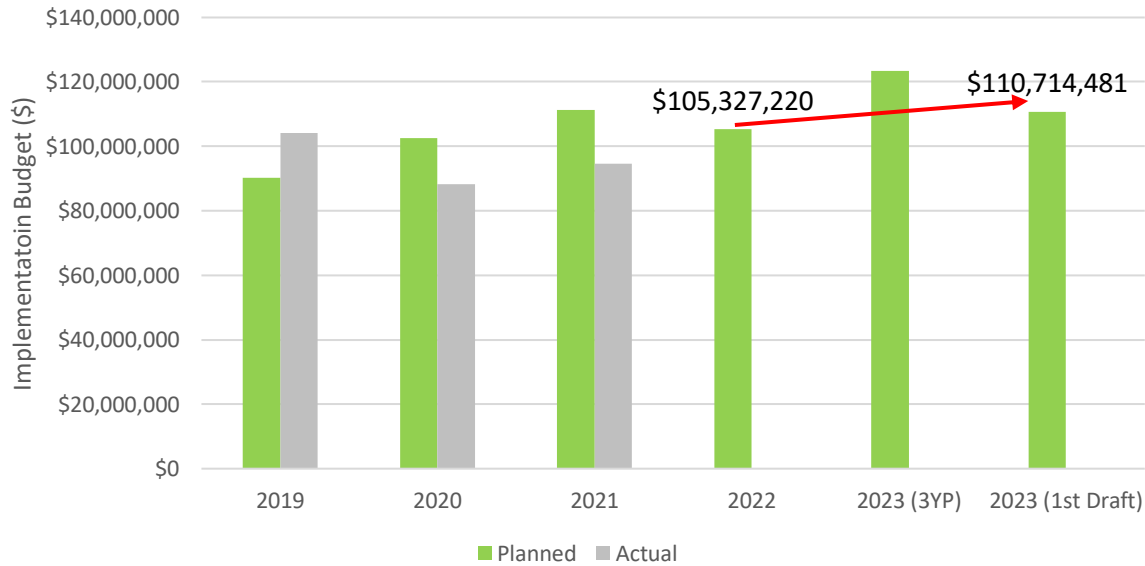




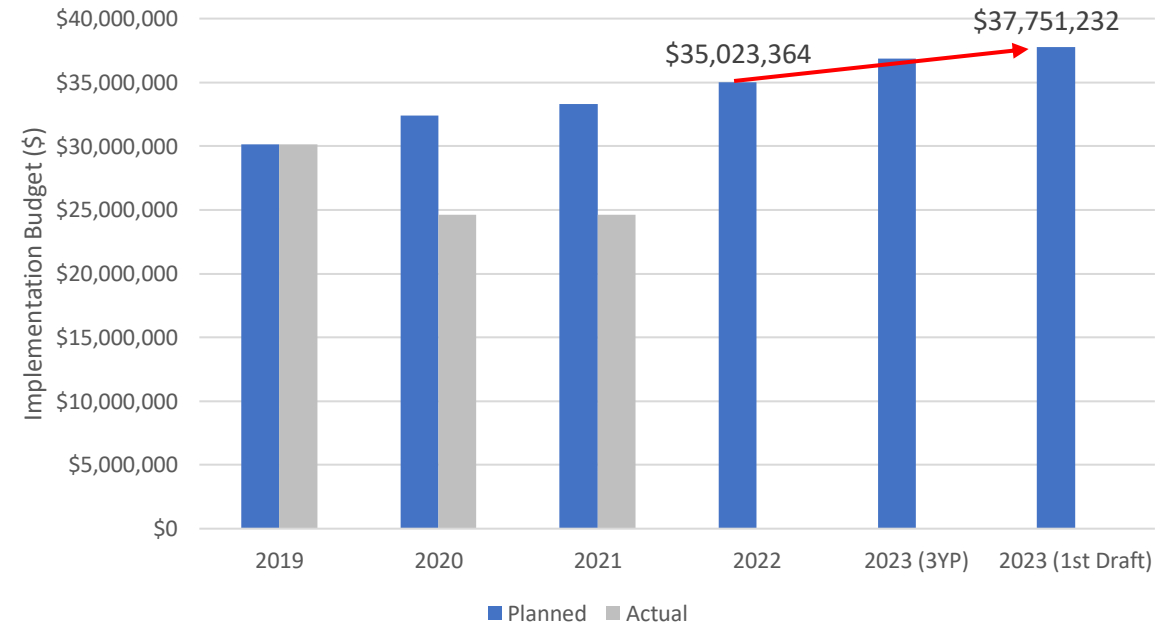
Implementation Budget

Key Takeaway Budget increase of ~5% from final 2022 Plan, in alignment with PUC guidance.

Electric Implementation Budget (\$) - Portfolio Total



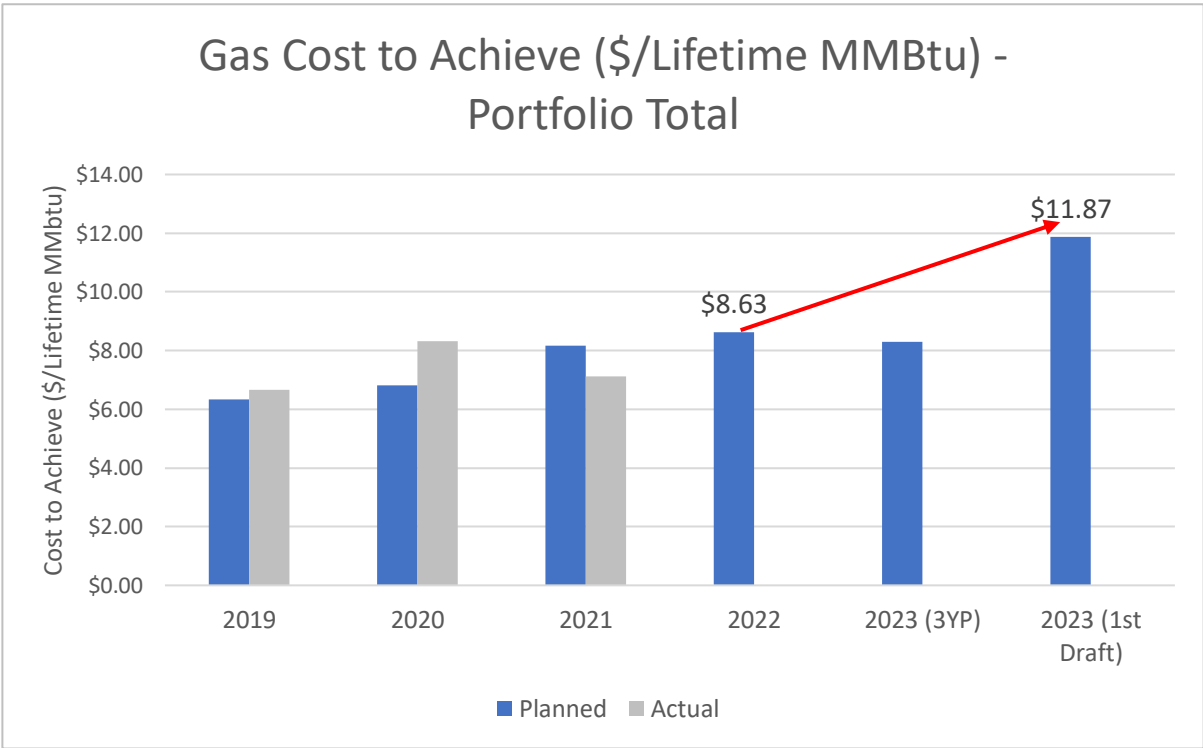
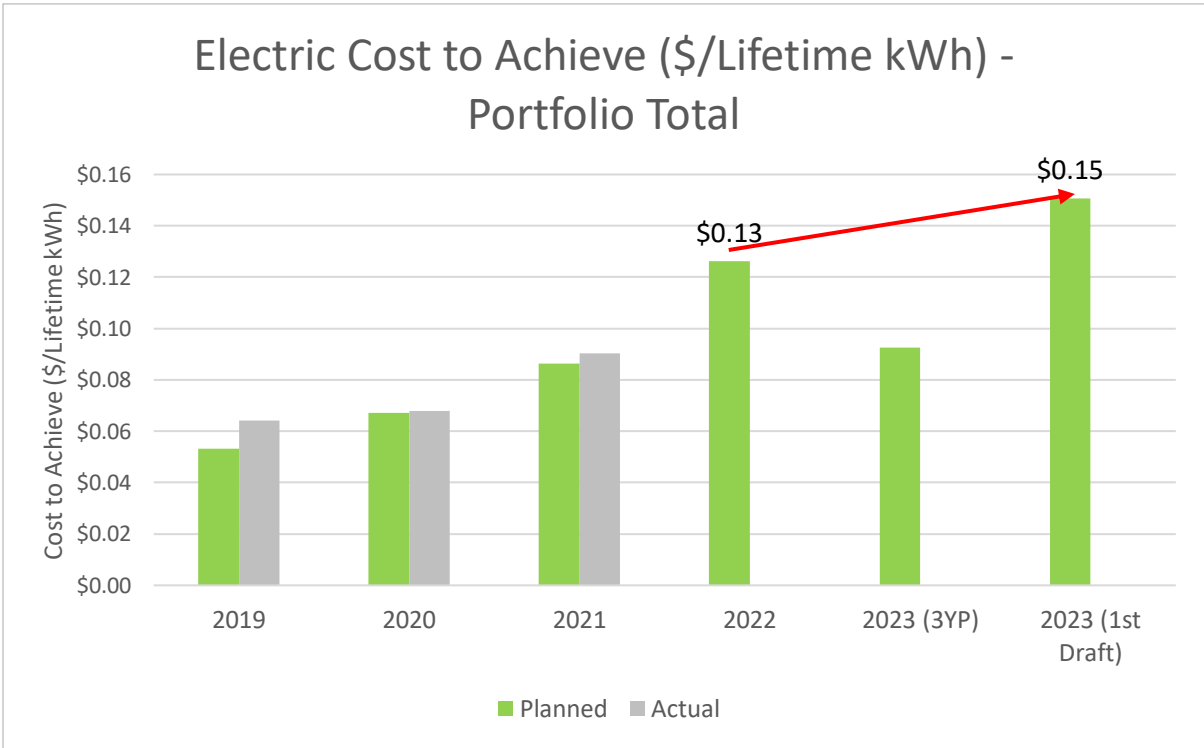
Gas Implementation Budget (\$) - Portfolio Total





Portfolio Cost to Achieve

Key Takeaway Electric cost to achieve rose from \$0.13/kWh to \$0.15/kWh between 2022 and 2023 1st Draft (15%). Gas cost to achieve rose from \$8.63/MMBtu to \$11.87/MMBtu (38%)





Overarching Findings

OVERVIEW

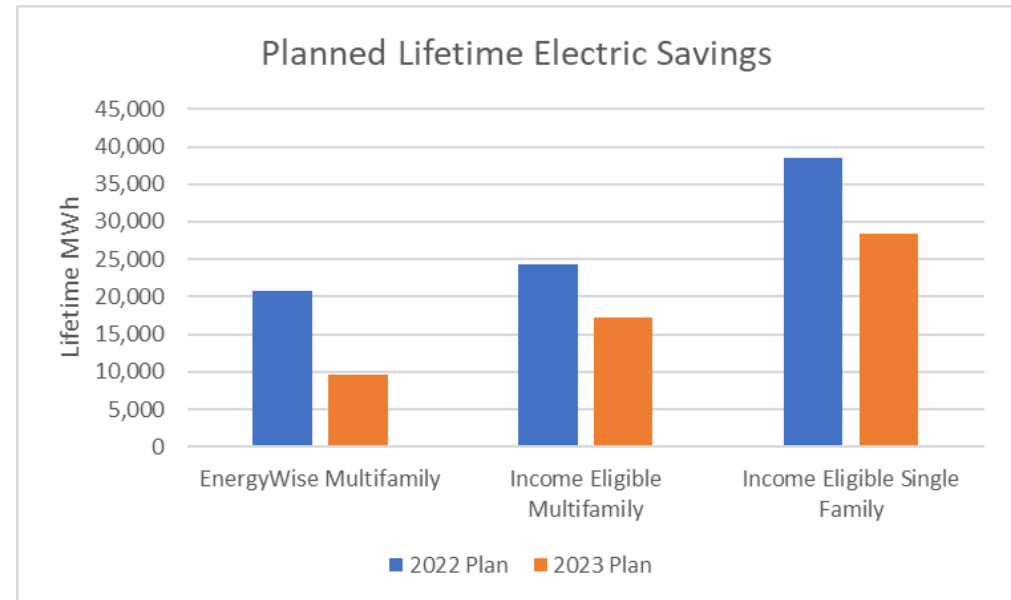
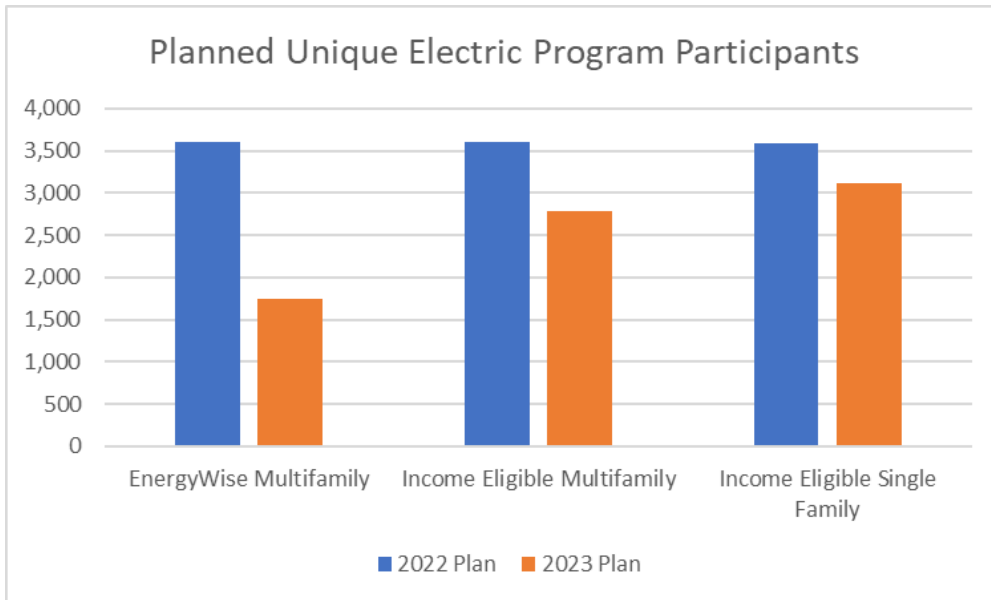




Incomplete Equity Content

Key Takeaway

Polished statements on equity prioritization at odds with reduced Income Eligible and Multifamily savings & participation; **few details on how** equity goals will be attained. **Equity commitments table blank** despite clear expectation of review opportunity.



Compared to 2022, participants and lifetime savings decrease for three key programs for equity (electric shown, but also true for gas)



Act on Climate & Carbon Reporting

Act on Climate compliance requirements still unclear

- Reporting only (as Plan currently suggests), or prioritizing/attaining emissions reductions?
- Plan presents carbon and local pollutant reporting as “secondary goals”
- Current plan reports only annual reductions of carbon dioxide

Several C-Team recommendations for GHG emissions reporting

- Suggest **reporting in units of CO2-equivalent (CO2e)** to enable inclusion of other GHG emissions in future (e.g., reduced gas leakage)
 - A current pilot exists to assess leak reduction as an efficiency measure
- Suggest **reporting avoided GHG emissions in multiple ways:**
 - **Annual reductions:** Avoided emissions this year (usually from energy savings)
 - **Lifetime reductions:** Avoided emissions for all years the efficiency upgrade is producing emissions reductions (similar to lifetime vs. annual energy savings)
 - **Annual reductions in 2030:** Avoided emissions in 2030 resulting from efficiency programs in the current program year



2022 Year-End Fund Balance

Large forecasted 2022 year-end fund balance a significant concern that is actively being investigated

Possible implication that Electric C&I will spend <\$1M in rest of 2022 quite concerning if true

Flagging here due to magnitude of fund balance, 2022 program delivery implications

Meeting planned with RI Energy between slide finalization and EERMC meeting – may have update



Inflation – QA and Budget Impacts

- The C-Team has identified two inflation-related items to raise:
- We are working to assess whether inflation is handled appropriately across the BC model and its inputs (e.g., program costs vs. avoided costs vs. non-energy impacts)

Council Discussion Question

Could higher-than-expected inflation be a potential reason for a budget increase above the PUC’s guideline of 5% growth each year?

Except of key requirement from PUC written ruling: “...present evidence that facts or other information presented at the time when the PUC set the target have since changed...”



COMMERCIAL AND INDUSTRIAL SECTOR REVIEW



Commercial & Industrial – Plan Highlights

Plan includes improvements to **increase non-lighting savings**, though many still in development

- Building Analytics Program, Streamlined New Construction participation pathways, and Workforce Development and expanded training opportunities

Additional BCR Model granularity helps with C-Team oversight moving forward

Planned C&I Connected Solutions capacity savings of 37,800 kW up 17% from 2022 Plan

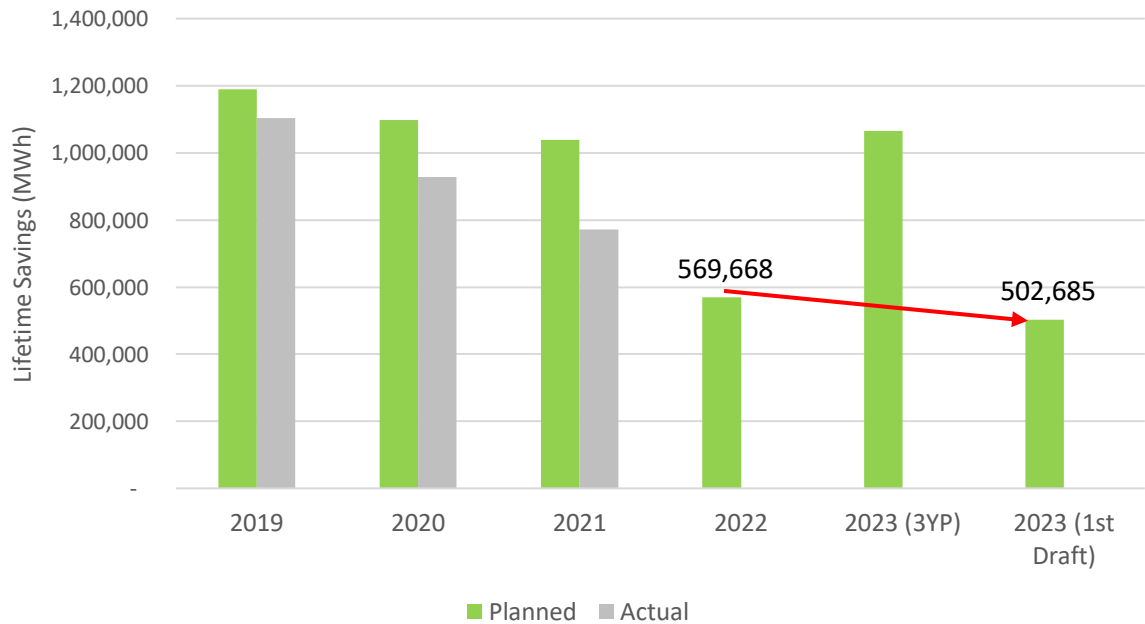
Small Business Gas Weatherization volume may “regress substantially” without additional funding according to 2023 Plan narrative



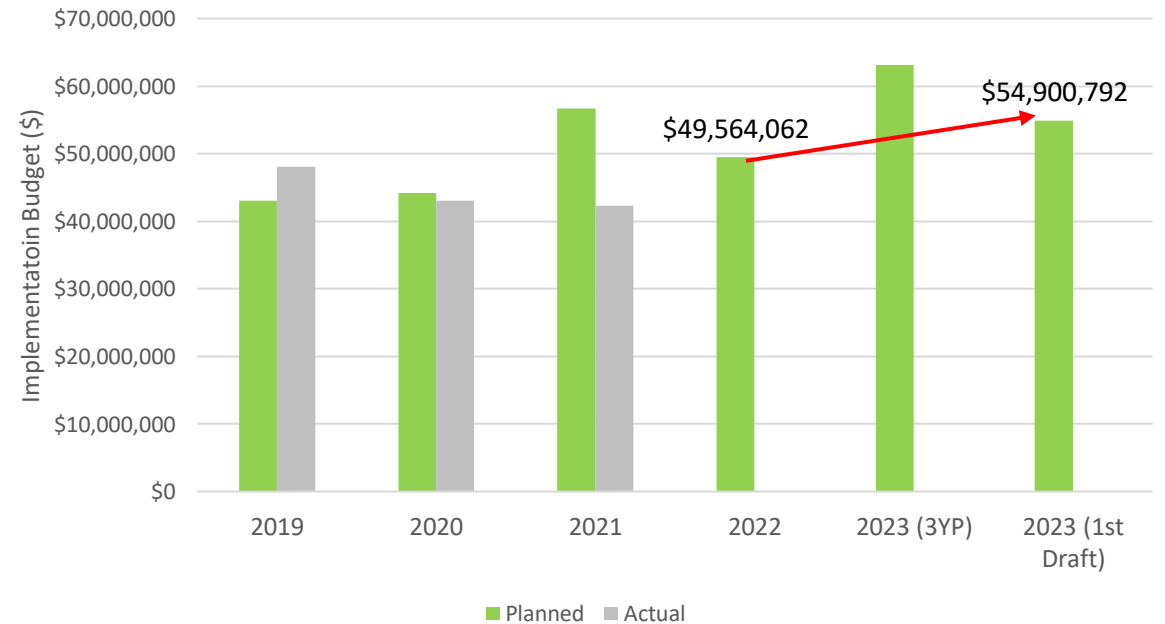
Commercial & Industrial - Electric

Key Takeaway Planned C&I lifetime savings decline while budget rises (electric shown, also true for gas).

Electric Lifetime Savings (MWh) - C&I Total



Electric Implementation Budget (\$) - C&I Total



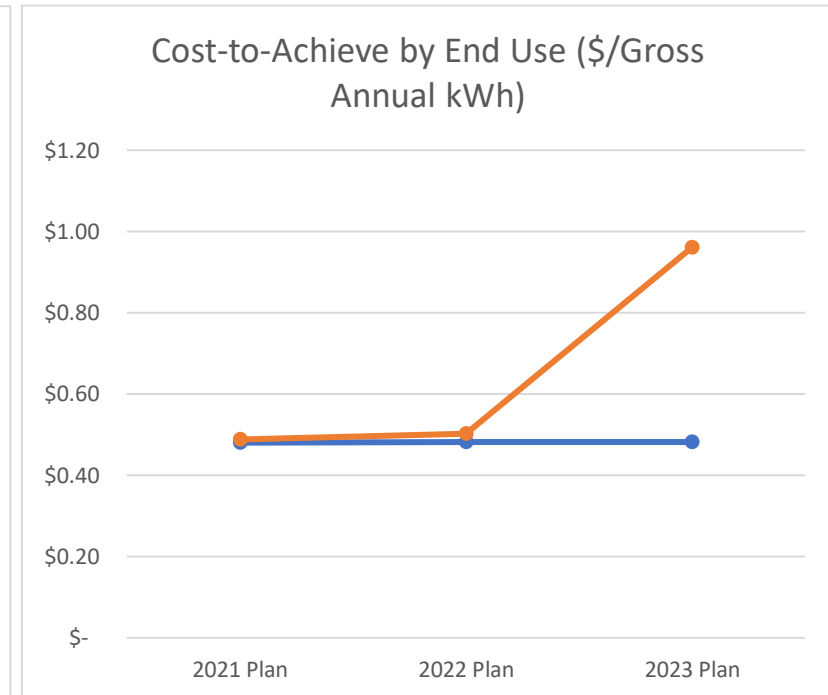
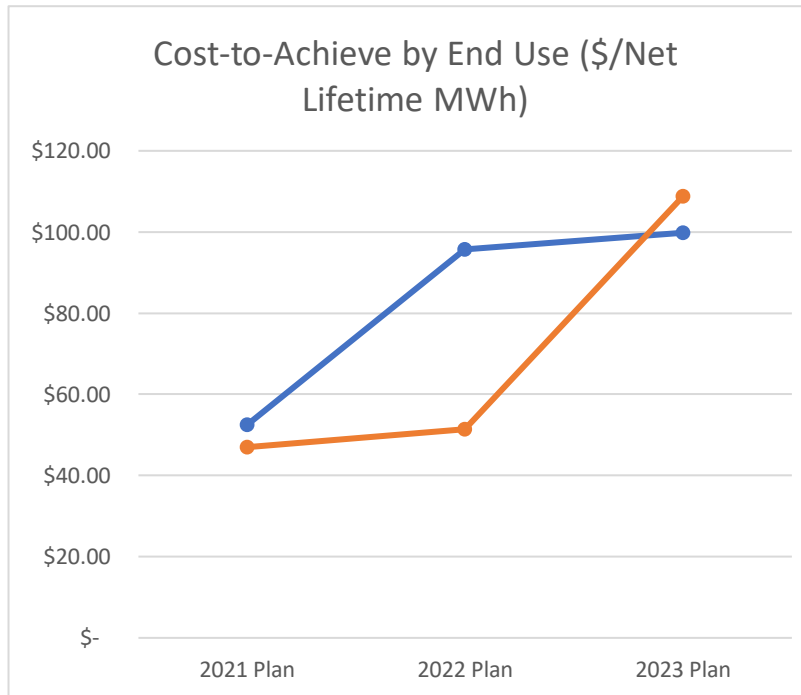


Commercial & Industrial - Electric

Reduced savings and **increased costs necessitate deeper understanding of cost assumptions**, though supply chain and inflation issues are acknowledged.

Non-lighting end uses saw Total Resource Cost per lifetime MWh increase 112% from 2022 to 2023. Increase still large when looking at gross annual savings (91.5%), so evaluation impacts not main driver.

Average Measure Life (Years)	2021	2022	2023
Lighting	12.4	7.1	7.2
Non-Lighting	14.1	13.5	12.5



Lighting — (blue line)
Non-Lighting — (orange line)

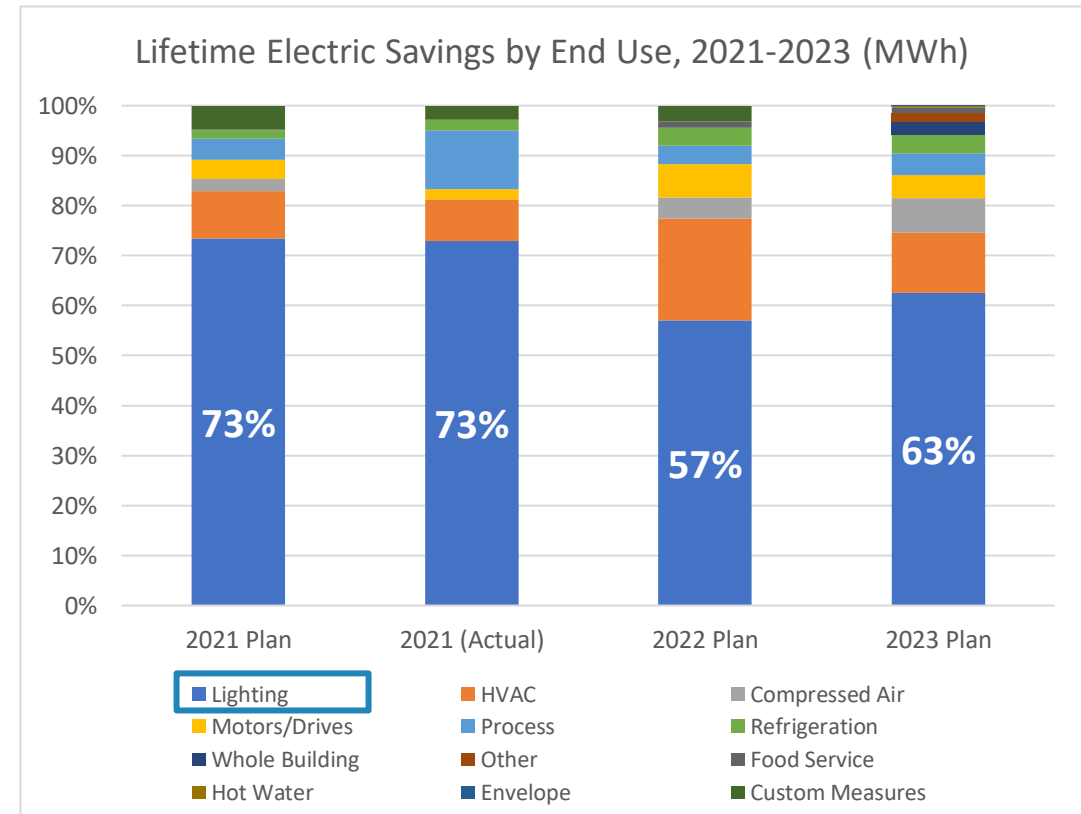
Note: Expect updated Evaluation Study results for 2023 Plan Second Draft



Commercial & Industrial - Electric

Key Takeaway Lack of diversification of savings from other end uses, despite 2023 Plan narrative. Three-Year Plan projected ~45% C&I lifetime MWh from lighting across 2021-2023.

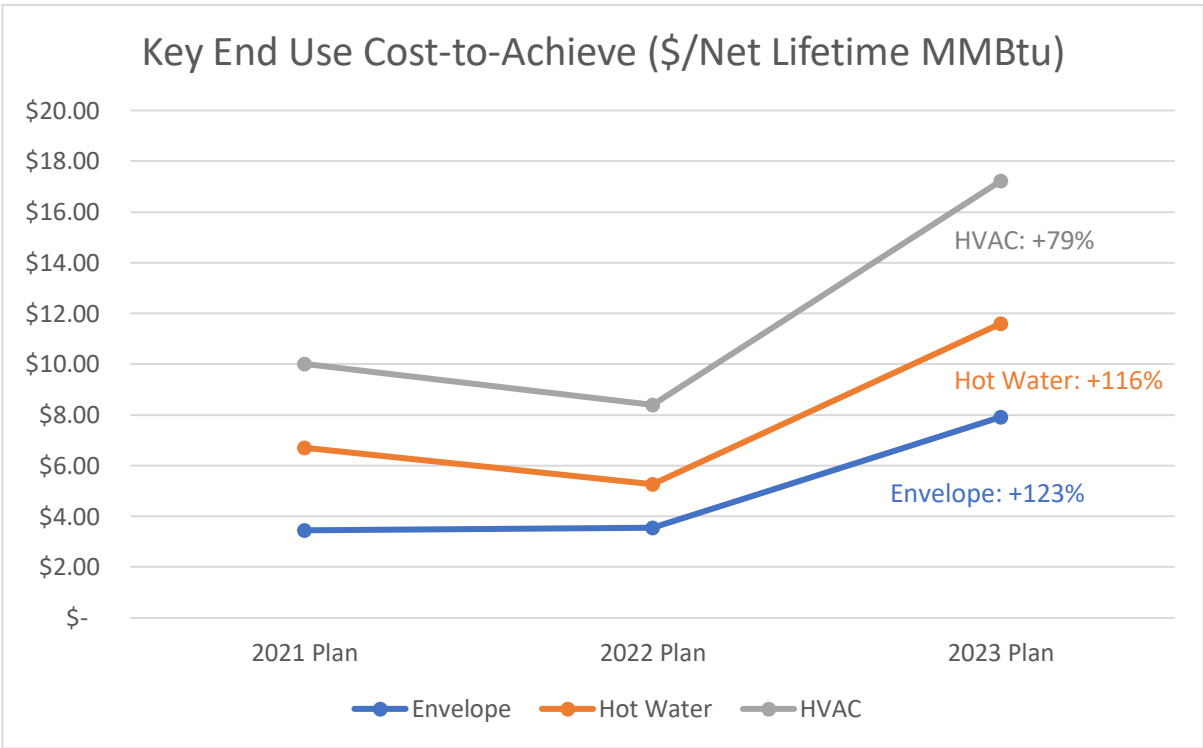
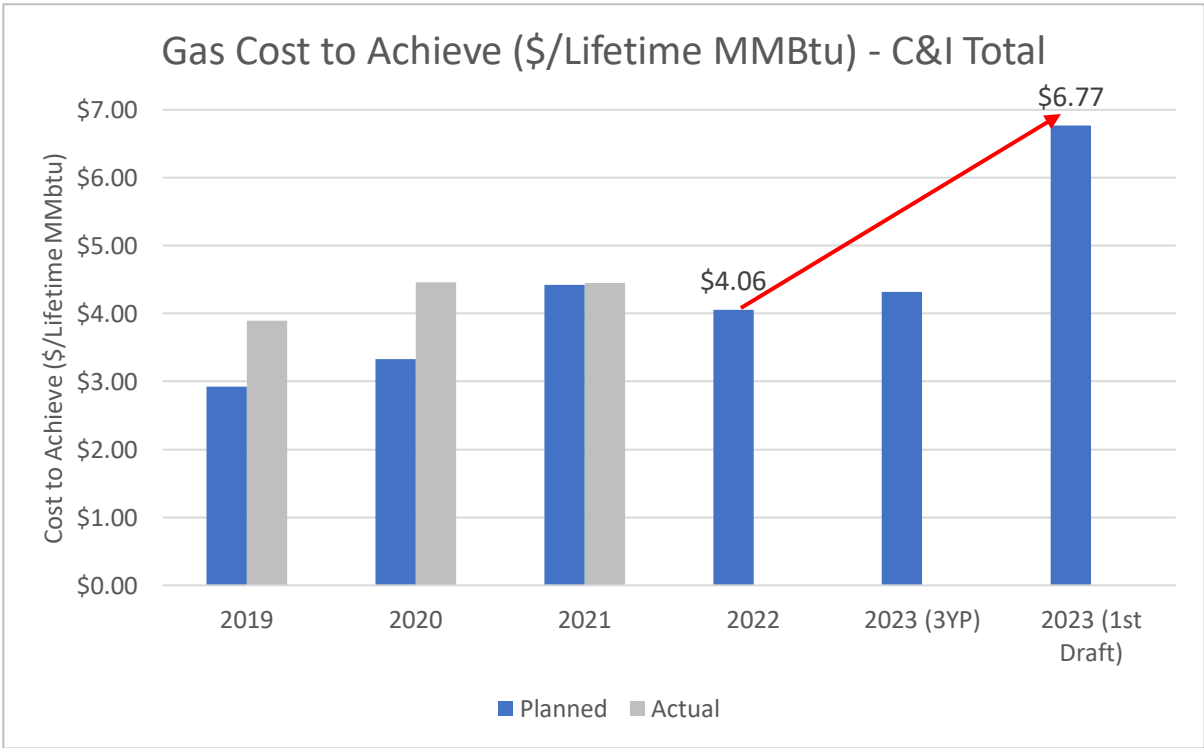
Total C&I Lifetime Electric Savings (MWh)			
Year	Lighting	Non-Lighting	Total
2021 Plan	763,660	275,476	1,039,135
2021 (Actual)	556,472	212,501	762,592
2022 Plan	324,711	244,957	569,668
2023 Plan	314,656	188,029	502,630





Commercial & Industrial - Gas

Key Takeaway 67% increase in total C&I Lifetime Gas Cost-to-Achieve from 2022 to 2023. Large increase seen across key end uses during the same period.





RESIDENTIAL SECTOR REVIEW



Residential - EnergyWise

Key Takeaway

Opportunities exist to reduce costs which could in turn allow for increased support for addressing weatherization barriers.

Plan continues 100% of weatherization projects to receive on-site close out

- Reducing this number, particularly for contractors with proven track records, would help to reduce costs

No indication of next steps following receipt of three comprehensive responses to RFI on qualified vendors to deliver building energy labels and home energy assessment automation

More attention needed to address pre-weatherization barriers

- More customer support needed to reduce participation bottlenecks
- Consideration of a direct incentive for addressing barriers



Residential - Multifamily

Key Takeaway	Plan does indicate it will leverage non-participant study, but lacks sufficient detail and does not go far enough to address non-participants.
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Changes for 2023 address customers with high propensity scores

- These are the non-participants that are most likely to participate under current program design with continued outreach

Does not address non-participants with low propensity scores, who make up over 50% of non-participants

- Non-participants who likely need new program design, marketing approaches, and/or delivery models



Residential – Income Eligible

Key Takeaway Unclear whether proposed changes for 2023 will drive improved program performance.

Key Performance Indicator (KPIs) tracking and reporting included as a method for driving performance

- Unclear how this will drive Community Action Program (CAP) Agencies who have historically underperformed

Inter-agency CAP referral process could help mitigate geographical inequity

- More detail is needed to understand why a successful CAP would draw resources away from its own customers to assist customers in another CAPs territory

Some items flagged at Income Eligible planning Deep Dive meetings not addressed in First Draft

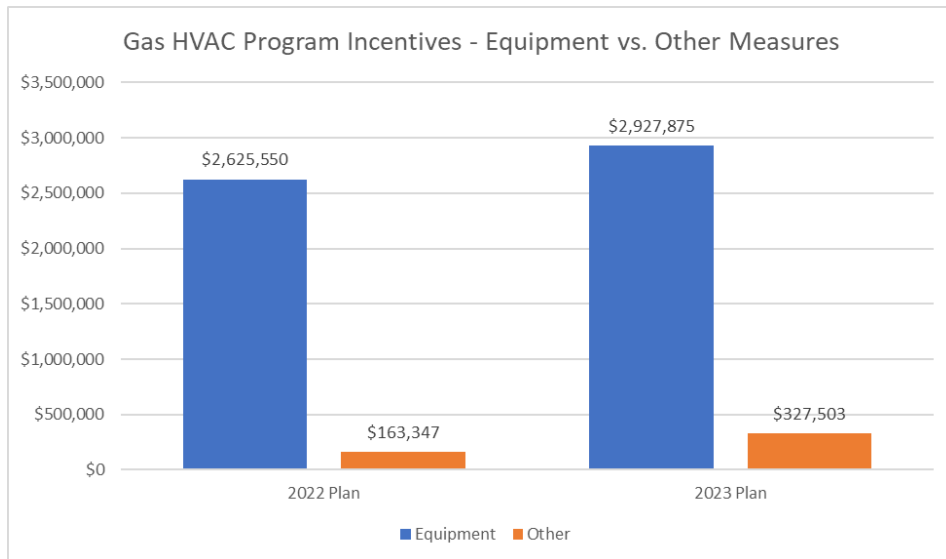
- Developing a connection between Appliance Management Program (AMP) audits and audits for Weatherization, which currently are conducted separately
- Improving or expanding data collection and reporting of weatherization barriers



Residential – HVAC

Would like to see stronger commitment to phase out gas equipment incentives

- This funding could support prioritized efficiency activities elsewhere



Equipment: Furnaces, Boilers, Water Heaters
Other: Showerheads, thermostats, controls

Would like to see stronger focus on heat pumps over central A/C

Measure	2023 Plan
Central AC	220
Central Heat Pump	35

Reduction in planned levels for key measures

Measure	2022 Plan	2023 Plan	Delta	% Change
Heat Pump Water Heater (<55 gal)	500	350	-150	-30%
Electric Resistance to Mini Split Heat Pump	425	337	-88	-21%



Council Member Discussion





APPENDICES





Appendix Outline

Next Steps & Process Overview

High-Level Review

Portfolio Data

Sector-Level Details



NEXT STEPS & PROCESS OVERVIEW





Next Steps

July 29th Comment Deadline: C-Team to finalize comments on 1st Draft 2023 EE Annual Plan, incorporating Council member input

C-Team available for Council member 1-on-1 discussions throughout planning process

Quantitative review ongoing, anticipated to continue beyond narrative comment submission

August 18th Council Meeting: Summary of comments and priorities for Final Draft review

Council member requests for coverage of specific topics/areas welcome

Default approach to focus on resolution of open questions and further quantitative findings

September 15th & 22nd Council Meetings: Discussion and vote on Final Draft of 2023 EE Annual Plan

Will include C-Team findings from review of Final Draft

Includes two meetings to ensure sufficient time to address any specific Council concerns

October 1st Deadline: Final Draft 2023 EE Annual Plan filed with the PUC



High-Level Process

Received 1st Draft 2023 EE Annual Plan on July 12th

Narrative text on 12th, BC Models 13th

Initial review informed Council materials

Continued review to inform talking points & Plan comments through tomorrow

Full narrative comments due back to RI Energy by July 29th

Quantitative review to continue due to several open questions, pending BC model clarifications



Further Details

HIGH-LEVEL REVIEW





Equity Details

2022 Final Draft Annual Plan contained 14 prioritized equity commitments

- Only included in final draft, precluding Council and stakeholder review
- Council expressed significant concern about lack of review opportunity during planning process and in writing to PUC

2023 First Draft Annual Plan lacks similar commitments

- Equity section contains slight text edits, blank table on commitments
- Concern regarding lack of review opportunity persists
 - No updates regarding progress on 2022 Plan commitments, adjustments due to learning-by-doing in 2022, or integration of Participant and Non-Participant studies recommendations
 - Sector sections contain some high-level references to equity and studies, subject to similar overarching concerns

Wish to note the inclusion of **equity efforts in the Commercial and Industrial sector**, something that has been historically out of focus

- That said, similar concerns present (e.g., equity provisions for Small Business lack specific targets)



Evaluation, Measurement & Verification

Some studies potentially applicable to the 2023 Plan still in progress or pending final decision on applicability (including some from MA and CT)

C&I lighting savings will be most impacted by Lighting Market Model Characterization, which is expected to have results ready in time for final draft 2023 EE Plan

Integration of some studies dependent on timely completion (on or before August 5th)

Plan accurately reflects recently completed RI studies in 2022 and planned RI studies for 2023

Participant and Non-Participant Studies not yet adequately incorporated into 2023 program strategies

Key consideration before Plan finalization: confirming proper input of EM&V factors from Technical Reference Manual Database into updated BCR Models



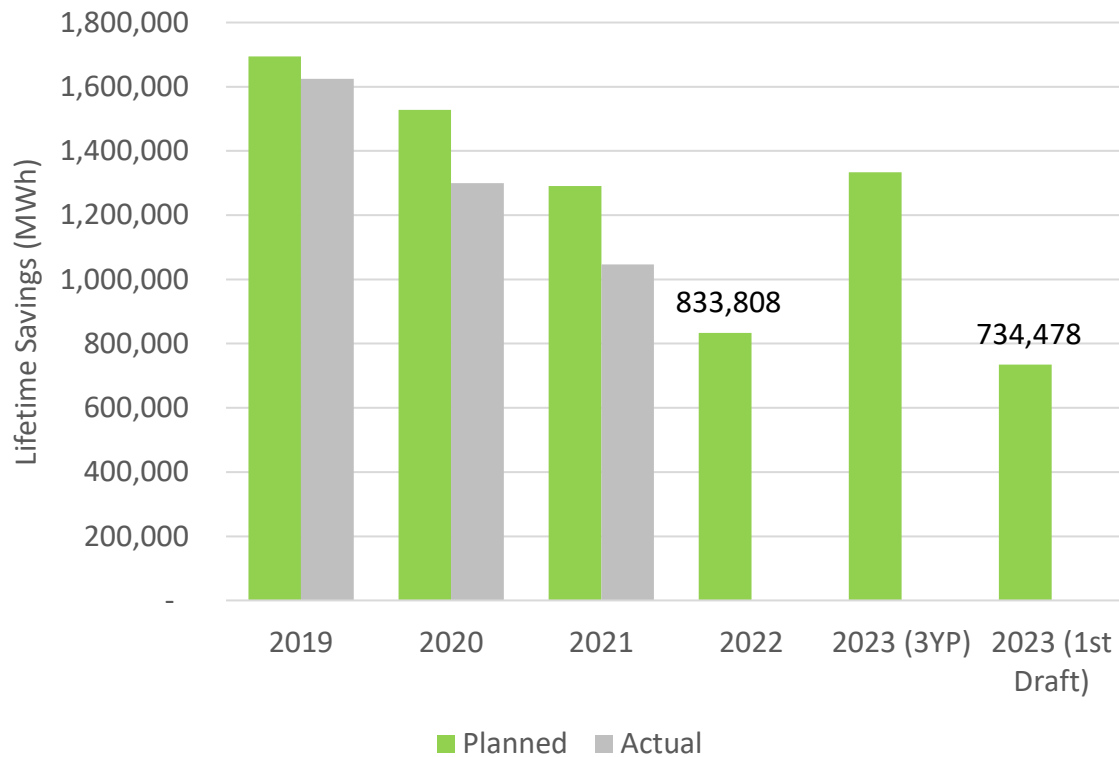
PORTFOLIO DATA



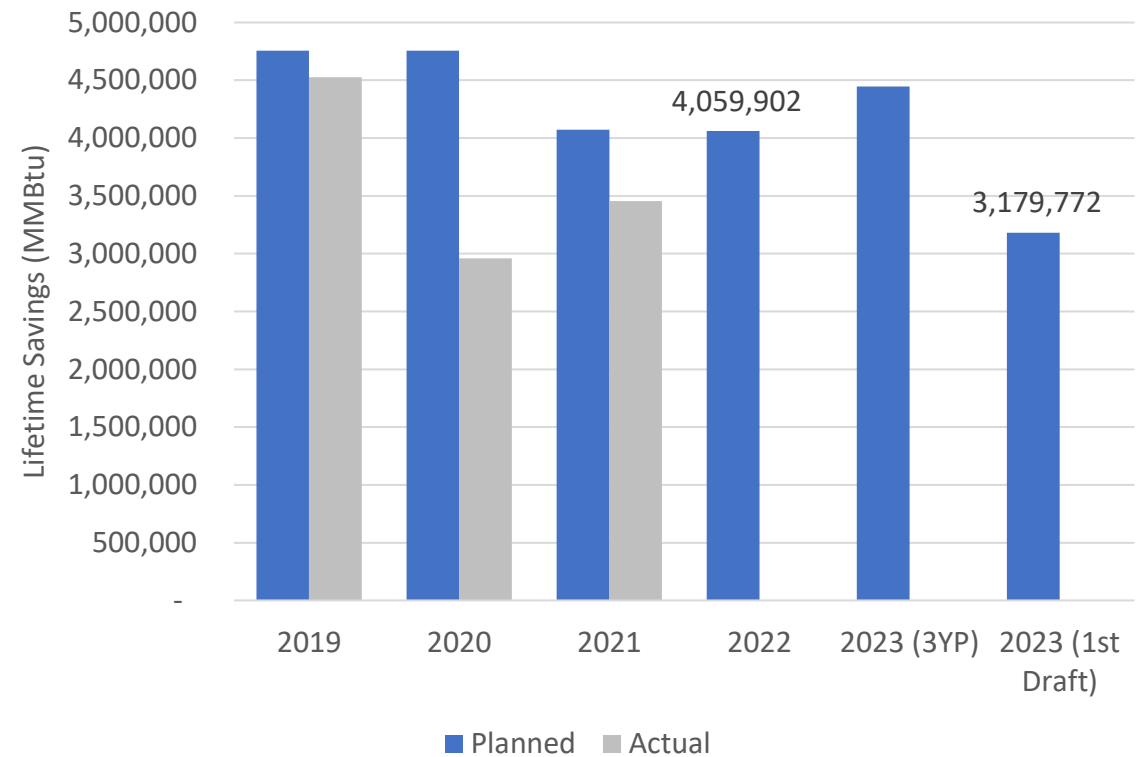


Portfolio Lifetime Savings

Electric Lifetime Savings (MWh) - Portfolio Total



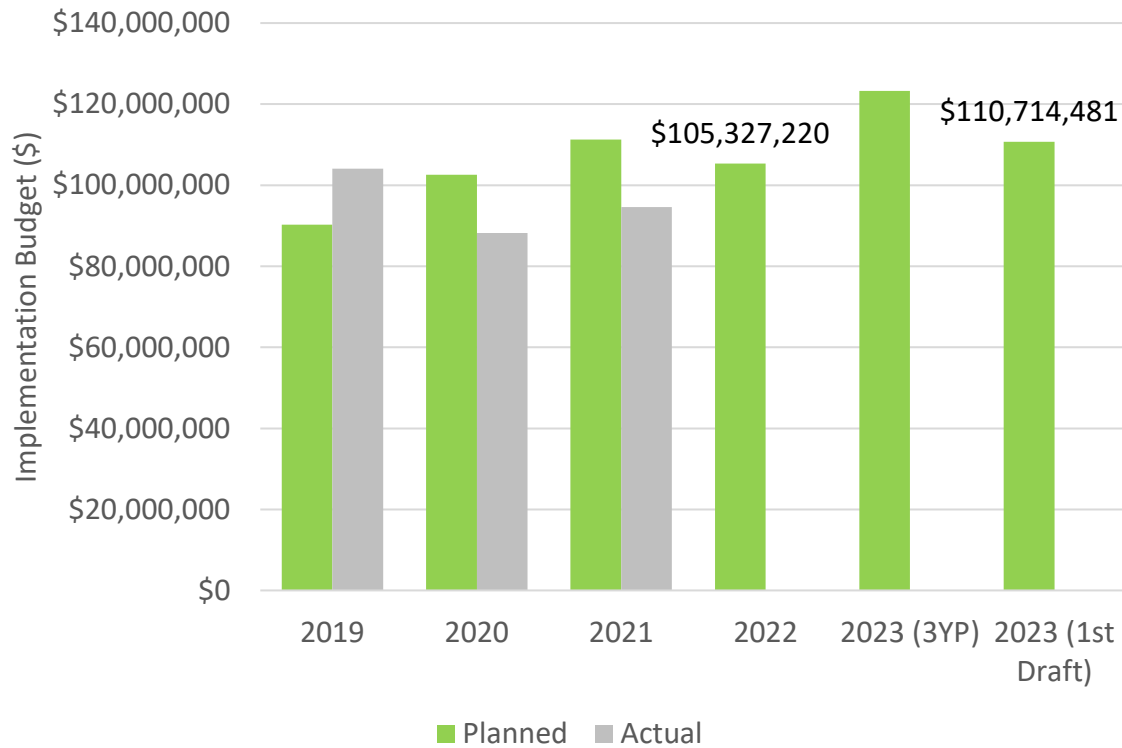
Gas Lifetime Savings (MMBtu) - Portfolio Total



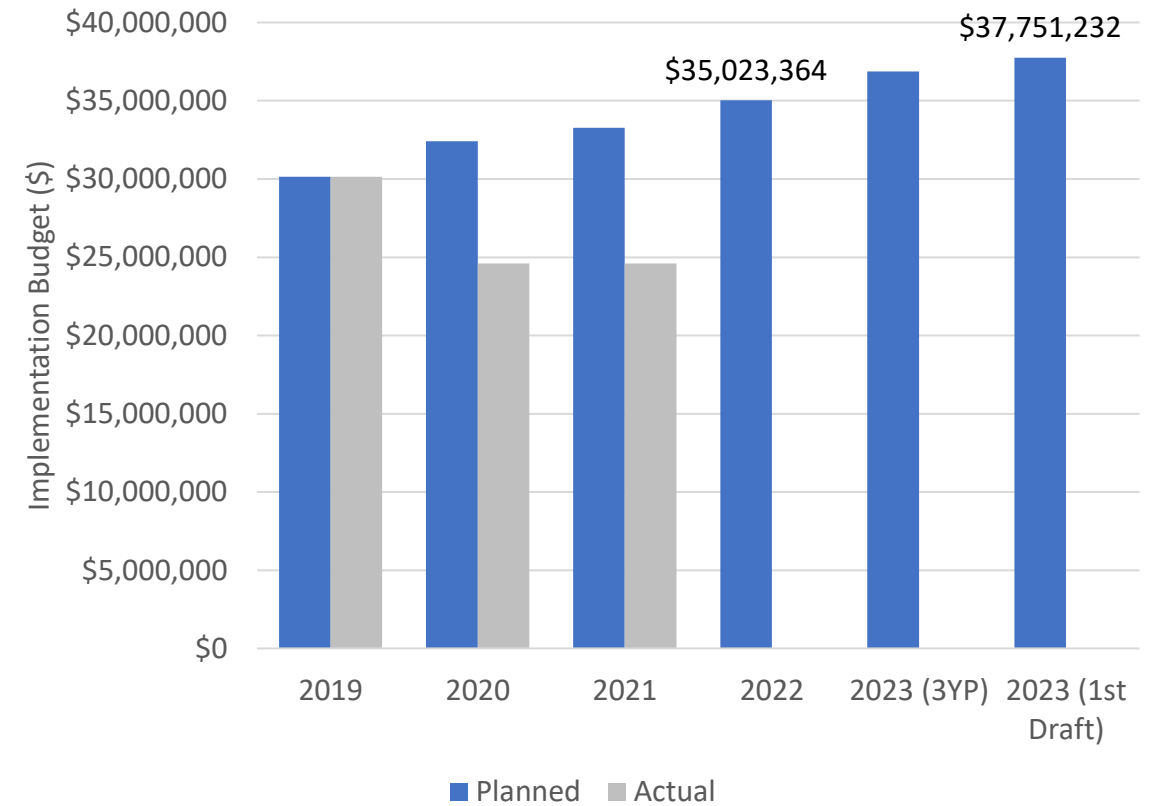


Portfolio Implementation Budget

Electric Implementation Budget (\$) - Portfolio Total



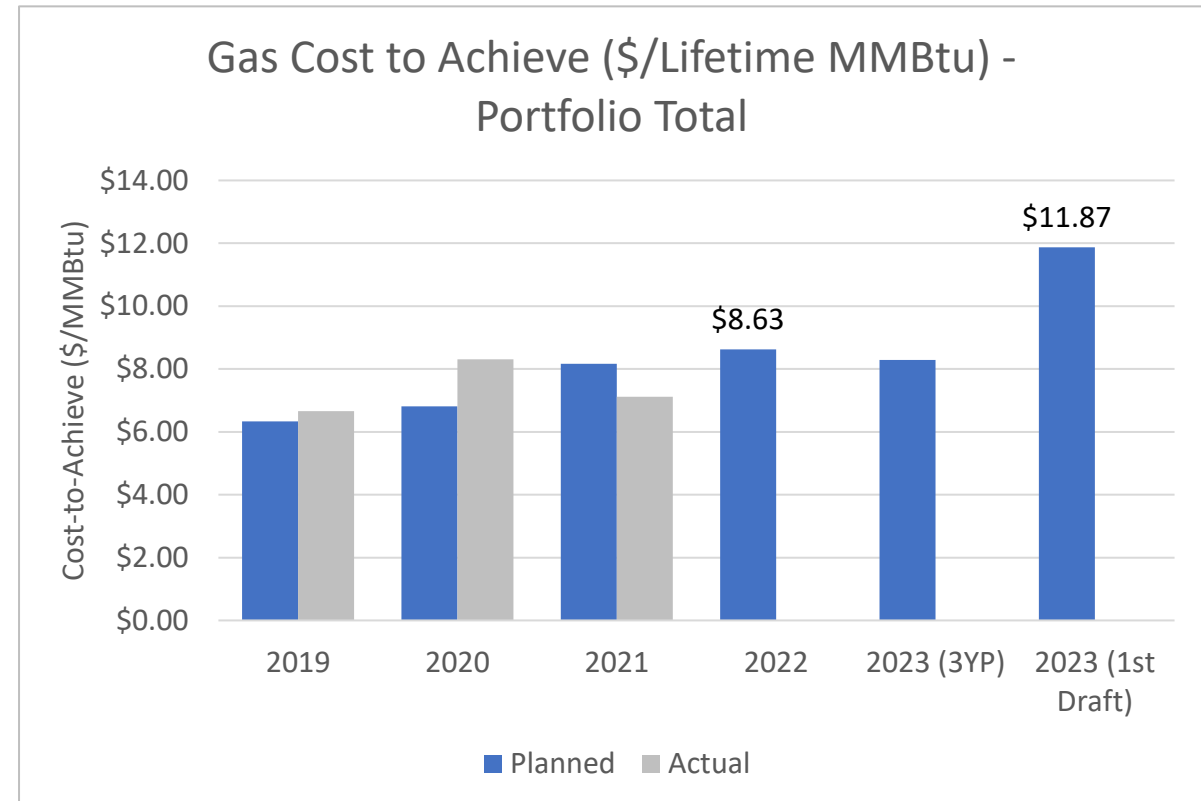
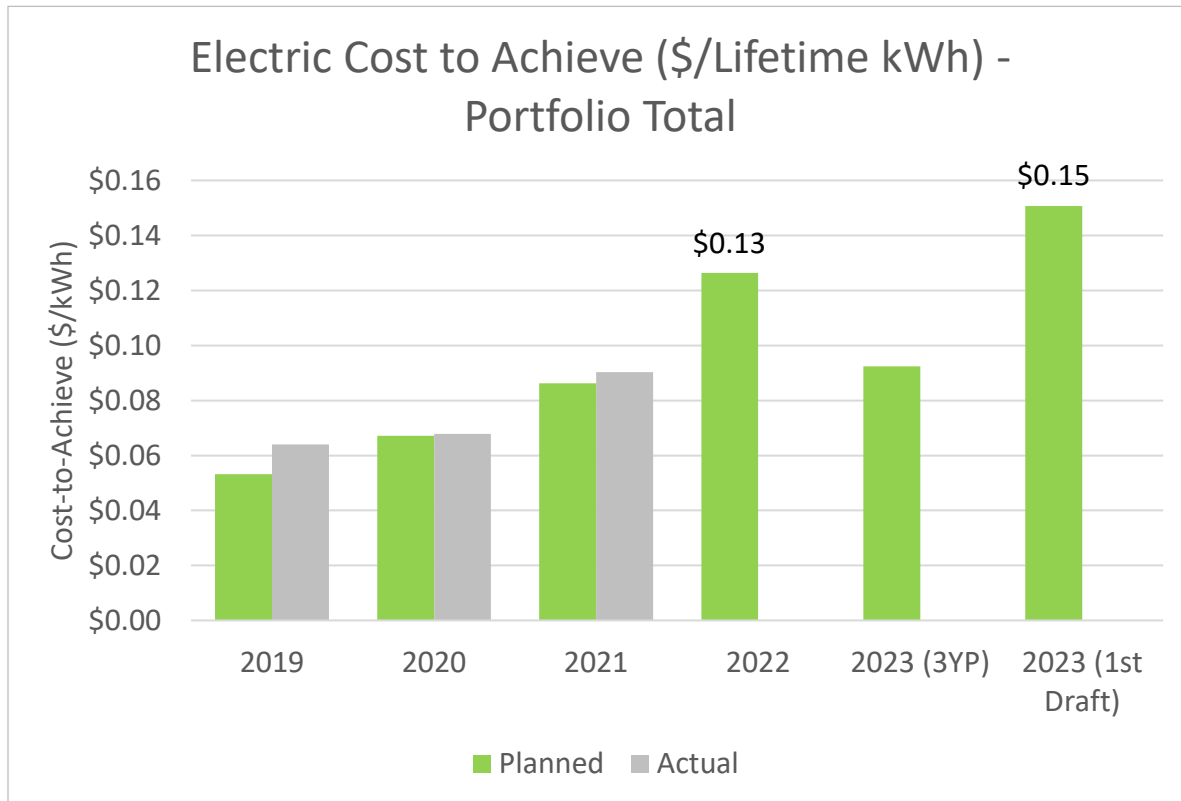
Gas Implementation Budget (\$) - Portfolio Total





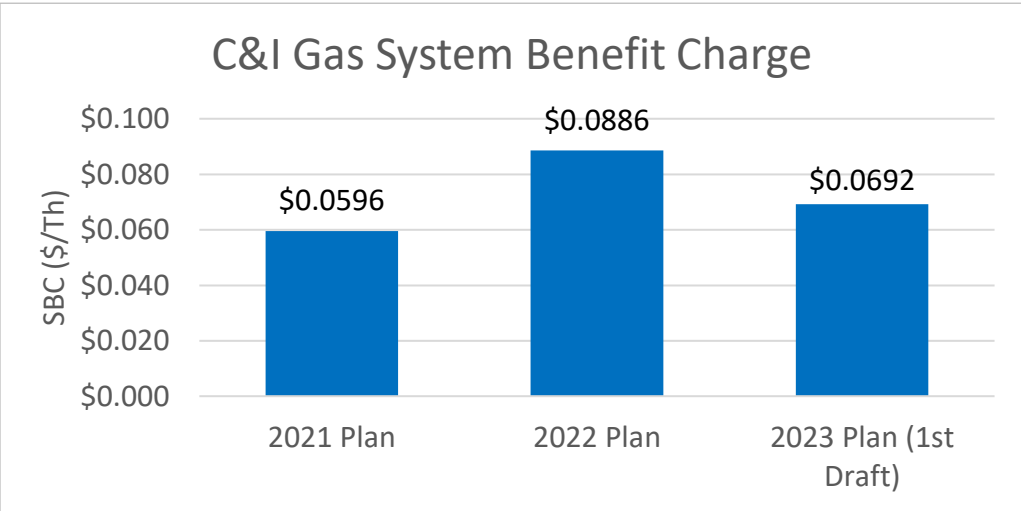
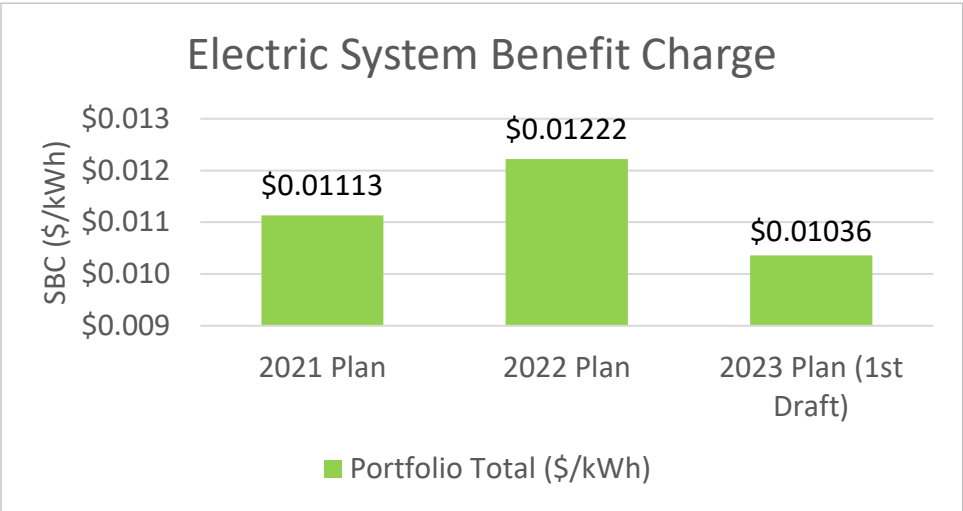
Portfolio Cost to Achieve

Electric cost to achieve has risen 19% from 2022 to 2023. Gas cost to achieve has increased 38% during the same period.

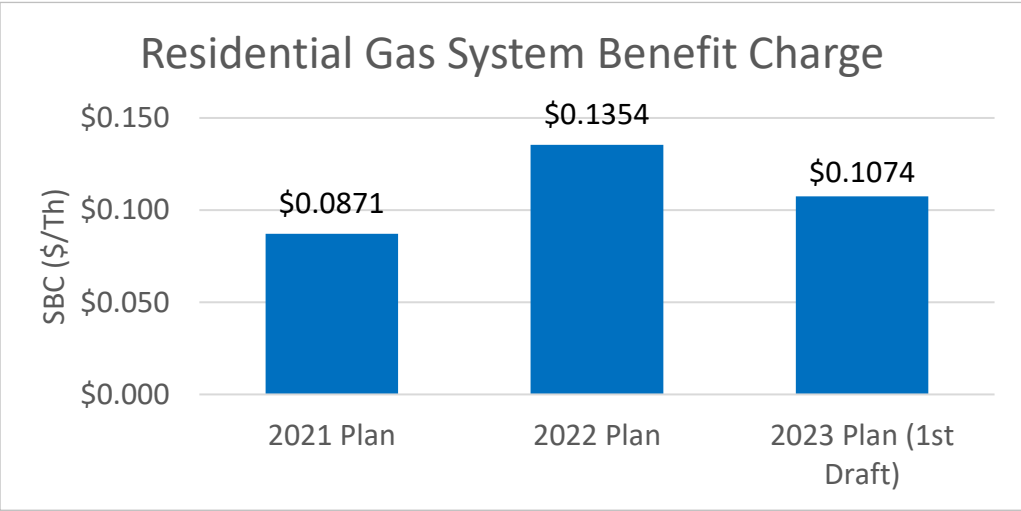




System Benefit Charge



Decrease in System Benefit Charge (SBC) across both portfolio partially attributable to high forecasted underspending in 2022





Portfolio Net Benefits: RI Test vs. PIM

Electric portfolio shows funding shift toward C&I sector, which has smallest difference between RI Test and PIM eligible net benefits. Gas shows no clear pattern.

Electric Total Benefits

Program	Reduction in Net Benefits	2023 (1st Draft) Implementation Budget Compared to 2022 Plan
C&I Total	-57.1%	10.8%
Income Eligible Total	-182.7%	-0.1%
Residential Total	-78.8%	1.0%
Portfolio Total	-73.0%	5.1%

Gas Total Benefits

Program	Reduction in Net Benefits	2023 (1st Draft) Implementation Budget Compared to 2022 Plan
C&I Total	-84.5%	10.9%
Income Eligible Total	-147.7%	-2.0%
Residential Total	-131.7%	14.9%
Portfolio Total	-112.8%	7.8%



Electric Lifetime MWhs

		LIFETIME MWhs				
% of 2023 Portfolio	Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 3YP	
9%	Small Business Direct Install	63,612	-782	-1.2%	-48,960	-43.5%
20%	Large Commercial New Construction	147,186	-45,157	-23.5%	-34,787	-19.1%
40%	Large Commercial Retrofit	291,888	-21,044	-6.7%	-480,121	-62.2%
68%	C&I Total	502,685	-66,983	-11.8%	-563,868	-52.9%
4%	Single Family - Income Eligible Services	28,475	-10,032	-26.1%	-15,574	-35.4%
2%	Income Eligible Multifamily	17,228	-7,081	-29.1%	-7,391	-30.0%
6%	Income Eligible Total	45,703	-17,113	-27.2%	-22,964	-33.4%
2%	Residential New Construction	15,377	431	2.9%	-4,587	-23.0%
10%	ENERGY STAR® HVAC	74,205	-3,512	-4.5%	4,536	6.5%
2%	EnergyWise	16,102	2,630	19.5%	2,350	17.1%
1%	EnergyWise Multifamily	9,443	-11,340	-54.6%	-13,468	-58.8%
4%	Home Energy Reports	29,649	2,797	10.4%	2,797	10.4%
0%	ENERGY STAR® Lighting	0	0		0	
6%	Residential Consumer Products	41,313	-6,241	-13.1%	-3,535	-7.9%
25%	Residential Total	186,090	-15,235	-7.6%	-11,908	-6.0%
100%	Portfolio Total	734,478	-99,331	-11.9%	-598,740	-44.9%



Electric Annual MWhs

		ANNUAL MWhs					
	% of 2023 Portfolio	Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 3YP	
	10%	Small Business Direct Install	10,201	225	2%	-188	-2%
	9%	Large Commercial New Construction	10,095	-2,494	-20%	-1,853	-16%
	36%	Large Commercial Retrofit	38,594	-2,538	-6%	-23,860	-38%
	55%	C&I Total	58,890	-4,807	-8%	-25,902	-31%
	3%	Single Family - Income Eligible Services	2,816	-498	-15%	-925	-25%
	1%	Income Eligible Multifamily	1,214	-324	-21%	-202	-14%
	4%	Income Eligible Total	4,030	-821	-17%	-1,127	-22%
	1%	Residential New Construction	779	-88	-10%	-257	-25%
	4%	ENERGY STAR® HVAC	4,376	-244	-5%	71	2%
	3%	EnergyWise	3,007	218	8%	1,576	110%
	1%	EnergyWise Multifamily	630	-793	-56%	-710	-53%
	28%	Home Energy Reports	29,649	2,797	10%	2,797	10%
	0%	ENERGY STAR® Lighting	0	0		0	
	5%	Residential Consumer Products	5,850	-1,034	-15%	-1,111	-16%
	41%	Residential Total	44,291	856	2%	2,366	6%
	100%	Portfolio Total	107,211	-4,772	-4%	-24,662	-19%



Electric Budget

IMPLEMENTATION BUDGET

% of 2023 Portfolio	Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 3YP	
			2022 Plan	% Change	2023 3YP	% Change
7%	Small Business Direct Install	\$7,199,233	-\$1,684,058	-19%	-\$1,732,904	-19%
9%	Large Commercial New Construction	\$10,254,263	\$1,220,116	14%	\$1,625,362	19%
25%	Large Commercial Retrofit	\$27,693,006	\$2,682,456	11%	-\$8,650,751	-24%
2%	C&I Financing	\$2,000,000	\$0	0%	-\$3,000,000	-60%
0%	Community Based Initiatives - C&I	\$93,461	\$8,496	10%	\$0	0%
0%	Commercial Pilots	\$0	\$0		\$0	
7%	Commercial ConnectedSolutions	\$7,503,330	\$3,109,718	71%	\$3,369,607	82%
0%	Commercial Workforce Development	\$157,500	\$0	0%	\$157,500	
50%	C&I Total	\$54,900,792	\$5,336,730	11%	-\$8,231,187	-13%
12%	Single Family - Income Eligible Services	\$13,559,806	\$284,481	2%	-\$1,652,480	-11%
3%	Income Eligible Multifamily	\$3,229,869	-\$309,080	-9%	-\$756,580	-19%
0%	Income Eligible Workforce Development	\$0	\$0		\$0	
15%	Income Eligible Total	\$16,789,675	-\$24,599	0%	-\$2,409,060	-13%
2%	Residential New Construction	\$1,686,274	\$69,296	4%	\$113,951	7%
6%	ENERGY STAR® HVAC	\$6,549,697	\$1,865,337	40%	\$1,934,912	42%
14%	EnergyWise	\$15,019,808	-\$537,145	-3%	-\$4,586,432	-23%
2%	EnergyWise Multifamily	\$1,882,753	-\$1,355,556	-42%	-\$1,501,704	-44%
2%	Home Energy Reports	\$2,658,311	\$19,174	1%	\$34,243	1%
0%	ENERGY STAR® Lighting	\$0	\$0		\$0	
3%	Residential Consumer Products	\$2,818,026	\$21,992	1%	-\$403,426	-13%
0%	Energy Efficiency Education	\$0	\$0		-\$40,000	-100%
0%	Comprehensive Marketing - Residential	\$310,731	\$62,787	25%	-\$55,288	-15%
0%	Community Based Initiatives - Residential	\$280,564	\$25,490	10%	-\$2,390	-1%
2%	Residential ConnectedSolutions	\$1,985,419	\$162,827	9%	-\$902,374	-31%
0%	Residential Pilots	\$0	\$0		\$0	
0%	Residential Workforce Development	\$0	\$0		\$0	
30%	Residential Total	\$33,191,582	\$334,203	1%	-\$5,408,510	-14%
1%	EERMC	\$766,245	\$0	0%	-\$396,152	-34%
1%	OER	\$1,328,695	-\$261,565	-16%	\$166,299	14%
	Rhode Island Infrastructure Bank	\$3,737,491	\$2,491	0%	\$3,737,491	
5%	Regulatory Total	\$5,832,431	-\$259,074	-4%	\$3,507,638	151%
100%	Portfolio Total	\$110,714,481	\$5,387,260	5%	-\$12,541,119	-10%



Electric Lifetime Cost to Achieve (\$/kWh)

\$/LIFETIME kWh

Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 3YP	
		Change	% Change	Change	% Change
Small Business Direct Install	\$0.11	-\$0.02	-18%	\$0.03	43%
Large Commercial New Construction	\$0.07	\$0.02	48%	\$0.02	47%
Large Commercial Retrofit	\$0.09	\$0.01	19%	\$0.05	102%
C&I Total	\$0.11	\$0.02	26%	\$0.05	85%
Single Family - Income Eligible Services	\$0.48	\$0.13	38%	\$0.13	38%
Income Eligible Multifamily	\$0.19	\$0.04	29%	\$0.03	16%
Income Eligible Total	\$0.37	\$0.10	37%	\$0.09	31%
Residential New Construction	\$0.11	\$0.00	1%	\$0.03	39%
ENERGY STAR® HVAC	\$0.09	\$0.03	46%	\$0.02	33%
EnergyWise	\$0.93	-\$0.22	-19%	-\$0.49	-35%
EnergyWise Multifamily	\$0.20	\$0.04	28%	\$0.05	35%
Home Energy Reports	\$0.09	-\$0.01	-9%	-\$0.01	-8%
ENERGY STAR® Lighting					
Residential Consumer Products	\$0.07	\$0.01	16%	\$0.00	-5%
Residential Total	\$0.18	\$0.02	9%	-\$0.02	-9%
Portfolio Total	\$0.15	\$0.02	19%	\$0.06	63%



Electric Annual Cost to Achieve (\$/kWh)

\$/ANNUAL kWh

Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 PUC Compliance Filing	
		Change (\$)	Change (%)	Change (\$)	Change (%)
Small Business Direct Install	\$0.71	-\$0.18	-21%	-\$0.15	-18%
Large Commercial New Construction	\$1.02	\$0.30	42%	\$0.29	41%
Large Commercial Retrofit	\$0.72	\$0.11	18%	\$0.14	23%
C&I Total	\$0.93	\$0.15	20%	\$0.19	25%
Single Family - Income Eligible Services	\$4.82	\$0.81	20%	\$0.75	18%
Income Eligible Multifamily	\$2.66	\$0.36	16%	-\$0.16	-6%
Income Eligible Total	\$4.17	\$0.70	20%	\$0.44	12%
Residential New Construction	\$2.17	\$0.30	16%	\$0.65	43%
ENERGY STAR® HVAC	\$1.50	\$0.48	48%	\$0.42	40%
EnergyWise	\$4.99	-\$0.58	-10%	-\$8.71	-64%
EnergyWise Multifamily	\$2.99	\$0.71	31%	\$0.46	18%
Home Energy Reports	\$0.09	-\$0.01	-9%	-\$0.01	-8%
ENERGY STAR® Lighting					
Residential Consumer Products	\$0.48	\$0.08	19%	\$0.02	4%
Residential Total	\$0.75	-\$0.01	-1%	-\$0.17	-19%
Portfolio Total	\$1.03	\$0.09	10%	\$0.10	10%



Gas Lifetime MMBtus

		LIFETIME MMBtus					
% of 2023 Portfolio	Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 3YP		
16%	Large Commercial New Construction	507,961	-280,802	-36%	25,447	5%	
29%	Large Commercial Retrofit	925,439	-407,070	-31%	-716,030	-44%	
2%	Small Business Direct Install	64,521	-27,179	-30%	9,375	17%	
2%	Commercial & Industrial Multifamily	60,158	-71,062	-54%	-81,711	-58%	
49%	C&I Total	1,558,079	-786,112	-34%	-762,919	-33%	
5%	Single Family - Income Eligible Services	169,180	-49,667	-23%	-61,064	-27%	
6%	Income Eligible Multifamily	196,519	-76,566	-28%	-119,026	-38%	
12%	Income Eligible Total	365,699	-126,233	-26%	-180,090	-33%	
16%	Energy Star® HVAC	516,670	76,953	18%	-249,609	-33%	
15%	EnergyWise	467,356	-11,195	-2%	-28,642	-6%	
4%	EnergyWise Multifamily	134,723	-12,341	-8%	-14,588	-10%	
2%	Home Energy Reports	74,245	-19,302	-21%	-19,302	-21%	
2%	Residential New Construction	62,999	-1,900	-3%	-12,185	-16%	
39%	Residential Total	1,255,993	32,215	3%	-324,327	-21%	
100%	Portfolio Total	3,179,772	-880,130	-22%	-1,267,336	-28%	



Gas Annual MMBtus

		ANNUAL MMBtus					
% of 2023 Portfolio	Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 3YP		
12%	Large Commercial New Construction	34,808	-18,148	-34%	4,602	15%	
29%	Large Commercial Retrofit	80,414	-62,474	-44%	-116,963	-59%	
2%	Small Business Direct Install	5,688	-425	-7%	174	3%	
1%	Commercial & Industrial Multifamily	3,950	-4,853	-55%	-5,494	-58%	
45%	C&I Total	124,859	-85,901	-41%	-117,681	-49%	
3%	Single Family - Income Eligible Services	8,230	-2,712	-25%	-3,282	-29%	
5%	Income Eligible Multifamily	12,652	-2,048	-14%	-1,747	-12%	
7%	Income Eligible Total	20,883	-4,760	-19%	-5,029	-19%	
11%	Energy Star® HVAC	30,691	3,950	15%	-13,254	-30%	
7%	EnergyWise	19,725	-1,125	-5%	-2,003	-9%	
2%	EnergyWise Multifamily	6,466	-1,814	-22%	-2,252	-26%	
26%	Home Energy Reports	74,245	-19,302	-21%	-19,302	-21%	
1%	Residential New Construction	3,476	-134	-4%	-554	-14%	
48%	Residential Total	134,602	-18,425	-12%	-37,367	-22%	
100%	Portfolio Total	280,344	-109,085	-28%	-160,077	-36%	



Gas Budget

IMPLEMENTATION BUDGET

% of 2023 Portfolio	Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 3YP	
7%	Large Commercial New Construction	\$2,502,435	-\$684,150	-21%	-\$335,398	-12%
14%	Large Commercial Retrofit	\$5,295,779	\$599,475	13%	-\$36,453	-1%
1%	Small Business Direct Install	\$360,862	\$4,977	1%	-\$204,141	-36%
2%	Commercial & Industrial Multifamily	\$759,329	-\$197,935	-21%	-\$270,490	-26%
0%	Comprehensive Marketing - Commercial and Industrial	\$0	\$0		\$0	
1%	Commercial Pilots	\$268,042	\$52,262	24%	\$45,782	21%
0%	Finance Costs	\$0	\$0		\$0	
0%	Community Based Initiatives - C&I	\$31,154	\$2,832	10%	\$0	0%
3%	RIIB	\$1,262,509	\$1,262,509		\$1,262,509	
0%	Commercial Workforce Development	\$67,500	\$0	0%	\$67,500	
28%	C&I Total	\$10,547,611	\$1,039,971	11%	\$529,310	5%
14%	Single Family - Income Eligible Services	\$5,459,967	-\$911,797	-14%	-\$1,342,572	-20%
10%	Income Eligible Multifamily	\$3,678,649	\$729,703	25%	\$698,304	23%
0%	Income Eligible Workforce Development	\$0	\$0		\$0	
24%	Income Eligible Total	\$9,138,616	-\$182,094	-2%	-\$644,268	-7%
11%	Energy Star® HVAC	\$4,174,651	\$442,187	12%	-\$161,825	-4%
26%	EnergyWise	\$9,934,177	\$1,288,247	15%	\$680,763	7%
4%	EnergyWise Multifamily	\$1,527,363	\$38,209	3%	\$36,415	2%
1%	Home Energy Reports	\$445,567	\$3,739	1%	\$4,277	1%
3%	Residential New Construction	\$965,157	\$451,994	88%	\$350,374	57%
0%	Comprehensive Marketing - Residential	\$69,096	\$1,063	2%	-\$1,813	-3%
0%	Residential Pilots	\$0	\$0		\$0	
0%	Community Based Initiatives - Residential	\$93,461	\$8,496	10%	-\$1,308	-1%
0%	Residential Workforce Development	\$0	\$0		\$0	
46%	Residential Total	\$17,209,472	\$2,233,936	15%	\$906,883	6%
1%	EERMC	\$259,518	-\$228,274	-47%	-\$118,010	-31%
2%	OER	\$596,016	-\$135,672	-19%	\$218,488	58%
2%	Regulatory Total	\$855,534	-\$363,945	-30%	\$100,478	13%
100%	Portfolio Total	\$37,751,232	\$2,727,868	8%	\$892,403	2%



Gas Lifetime Cost to Achieve (\$/MMBtu)

\$/LIFETIME MMBtu

Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 3YP	
		Value	%	Value	%
Large Commercial New Construction	\$4.93	\$0.89	22%	-\$0.95	-16%
Large Commercial Retrofit	\$5.72	\$2.20	62%	\$2.47	76%
Small Business Direct Install	\$5.59	\$1.71	44%	-\$4.65	-45%
Commercial & Industrial Multifamily	\$12.62	\$5.33	73%	\$5.36	74%
C&I Total	\$6.77	\$2.71	67%	\$2.45	57%
Single Family - Income Eligible Services	\$32.27	\$3.16	11%	\$2.73	9%
Income Eligible Multifamily	\$18.72	\$7.92	73%	\$9.27	98%
Income Eligible Total	\$24.99	\$6.04	32%	\$7.07	39%
Energy Star® HVAC	\$8.08	-\$0.41	-5%	\$2.42	43%
EnergyWise	\$21.26	\$3.19	18%	\$2.60	14%
EnergyWise Multifamily	\$11.34	\$1.21	12%	\$1.35	14%
Home Energy Reports	\$6.00	\$1.28	27%	\$1.28	27%
Residential New Construction	\$15.32	\$7.41	94%	\$7.14	87%
Residential Total	\$13.70	\$1.46	12%	\$3.39	33%
Portfolio Total	\$11.87	\$3.25	38%	\$3.58	43%



Gas Annual Cost to Achieve (\$/MMBtu)

<u>\$/ANNUAL MMBtu</u>		2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 PUC Compliance Filing	
Program	2023 (1st Draft)				
Large Commercial New Construction	\$71.89	\$11.72	19%	-\$22.06	-23%
Large Commercial Retrofit	\$65.86	\$32.99	100%	\$38.84	144%
Small Business Direct Install	\$63.44	\$5.22	9%	-\$39.02	-38%
Commercial & Industrial Multifamily	\$192.25	\$83.51	77%	\$83.20	76%
C&I Total	\$84.48	\$39.36	87%	\$43.17	105%
Single Family - Income Eligible Services	\$663.40	\$81.09	14%	\$72.50	12%
Income Eligible Multifamily	\$290.75	\$90.14	45%	\$83.77	40%
Income Eligible Total	\$437.62	\$74.13	20%	\$60.06	16%
Energy Star® HVAC	\$136.02	-\$3.56	-3%	\$37.34	38%
EnergyWise	\$503.63	\$88.96	21%	\$77.77	18%
EnergyWise Multifamily	\$236.23	\$56.36	31%	\$65.21	38%
Home Energy Reports	\$6.00	\$1.28	27%	\$1.28	27%
Residential New Construction	\$277.69	\$135.53	95%	\$125.13	82%
Residential Total	\$127.85	\$29.99	31%	\$33.05	35%
Portfolio Total	\$134.66	\$44.73	50%	\$50.97	61%



Active Demand kW Savings

ConnectedSolutions (kW Active Demand)

Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 3YP	
		kW	%	kW	%
Commercial ConnectedSolutions	37,800	5,400.0	17%	-4,200.0	-10%
Residential ConnectedSolutions	7,878	512.9	7%	-625.9	-7%
Portfolio Total	45,678	5,912.9	15%	-4,825.9	-10%



Active Demand Cost to Achieve (\$/kW)

ConnectedSolutions (\$/kW)

Program	2023 (1st Draft)	2023 (1st Draft) Compared to 2022 Plan		2023 (1st Draft) Compared to 2023 3YP	
		Amount	%	Amount	%
Commercial ConnectedSolutions	\$198.50	\$62.90	46%	\$100.08	102%
Residential ConnectedSolutions	\$252.02	\$4.56	2%	-\$87.57	-26%
Portfolio Total	\$207.73	\$51.41	33%	\$68.70	49%



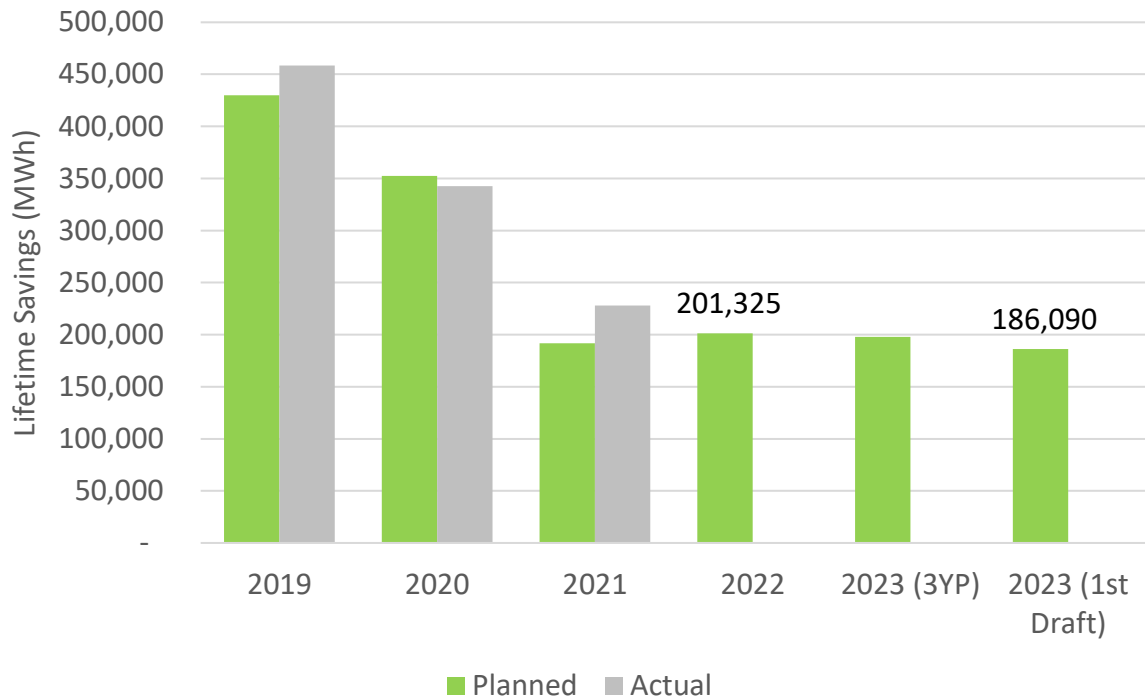
SECTOR-LEVEL DETAILS



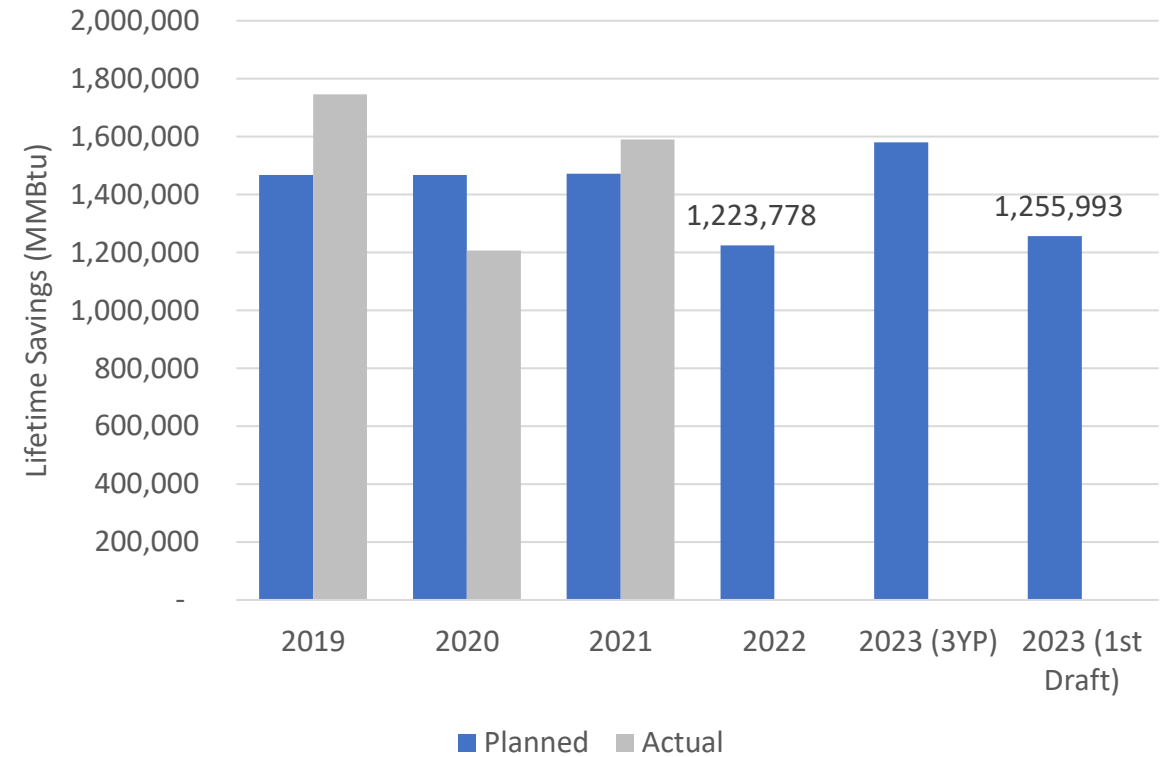


Residential Lifetime Savings

Electric Lifetime Savings (MWh) - Residential Total



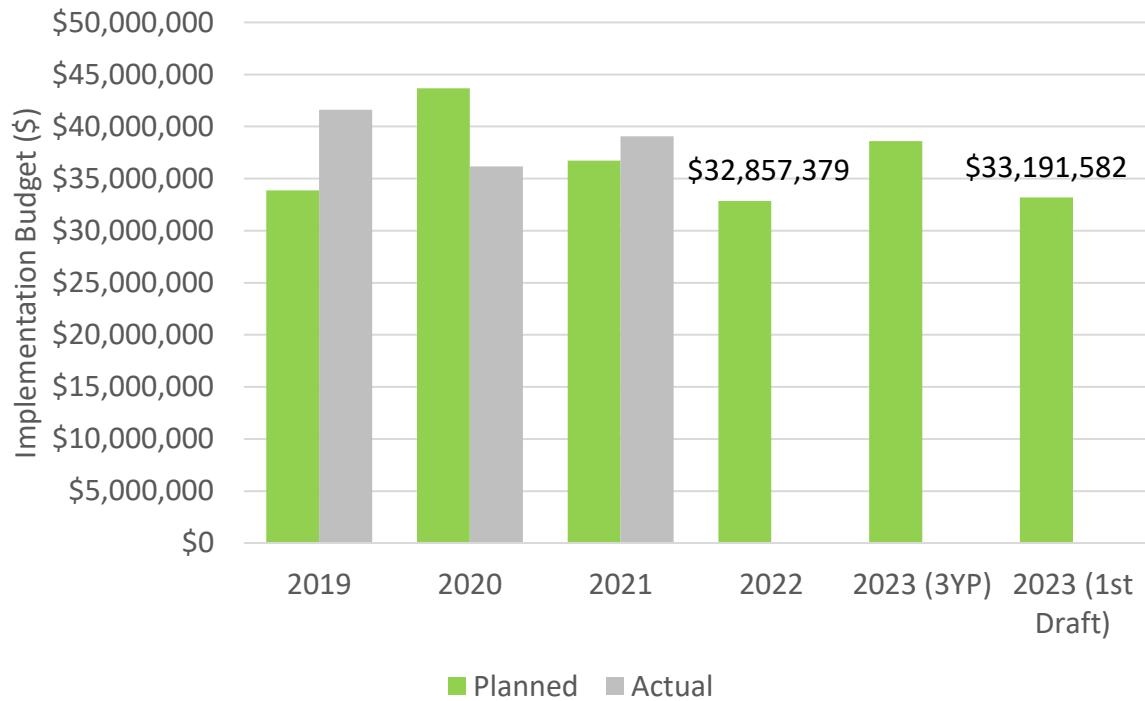
Gas Lifetime Savings (MMBtu) - Residential Total





Residential Implementation Budget

Electric Implementation Budget (\$) - Residential Total



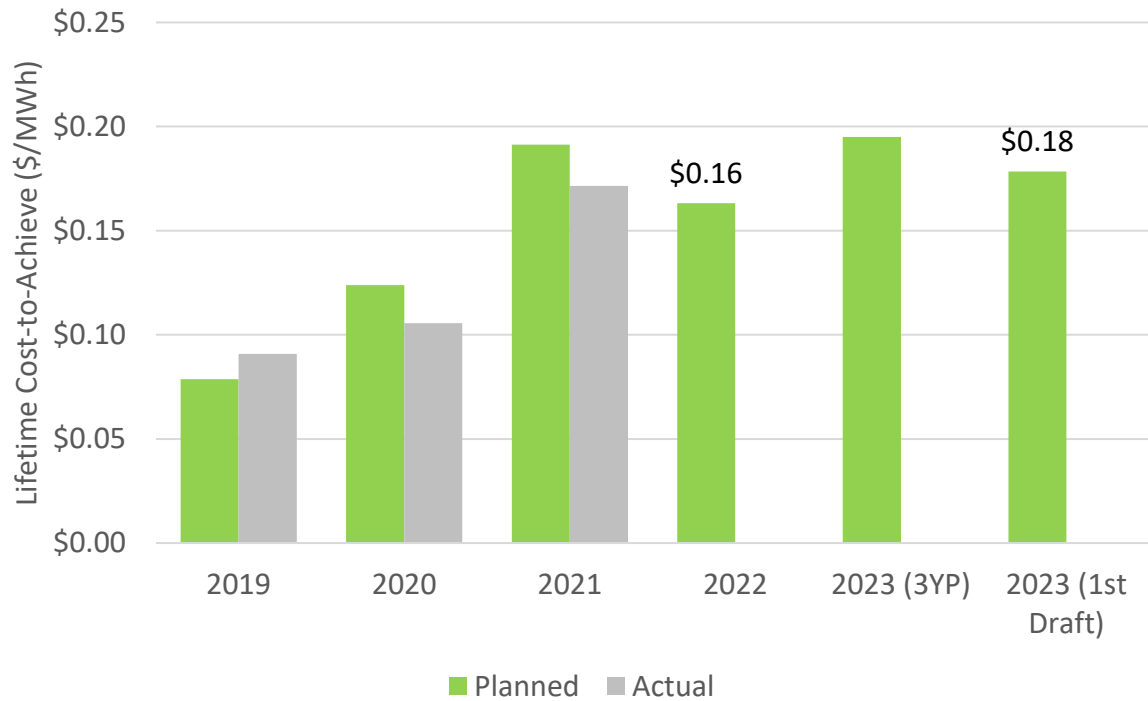
Gas Implementation Budget (\$) - Residential Total



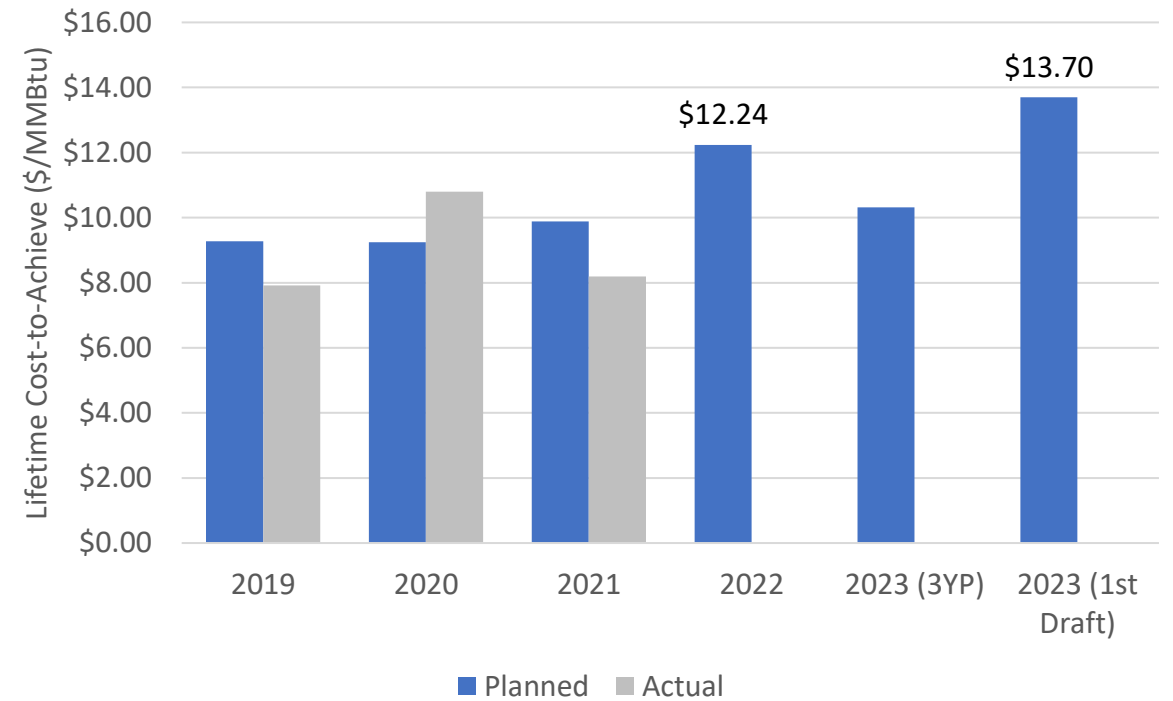


Residential Lifetime Cost-to-Achieve

Electric Cost to Achieve (\$/Lifetime kWh) - Residential Total



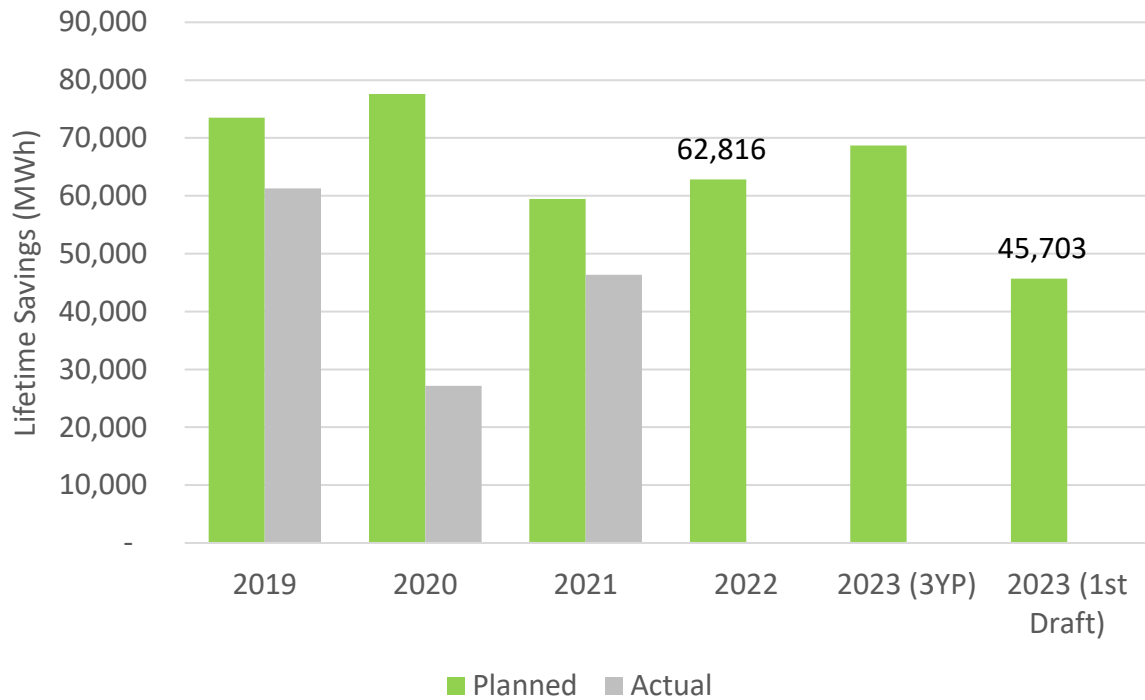
Gas Cost to Achieve (\$/Lifetime MMBtu) - Residential Total



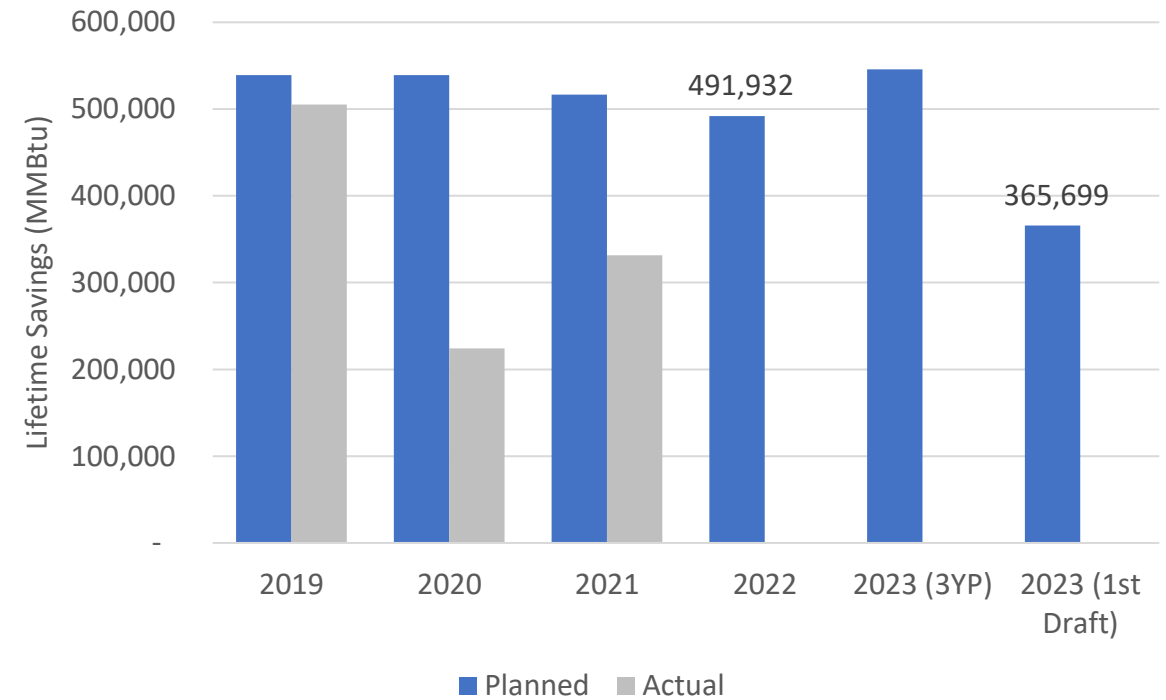


Income Eligible Lifetime Savings

Electric Lifetime Savings (MWh) - Income Eligible Total

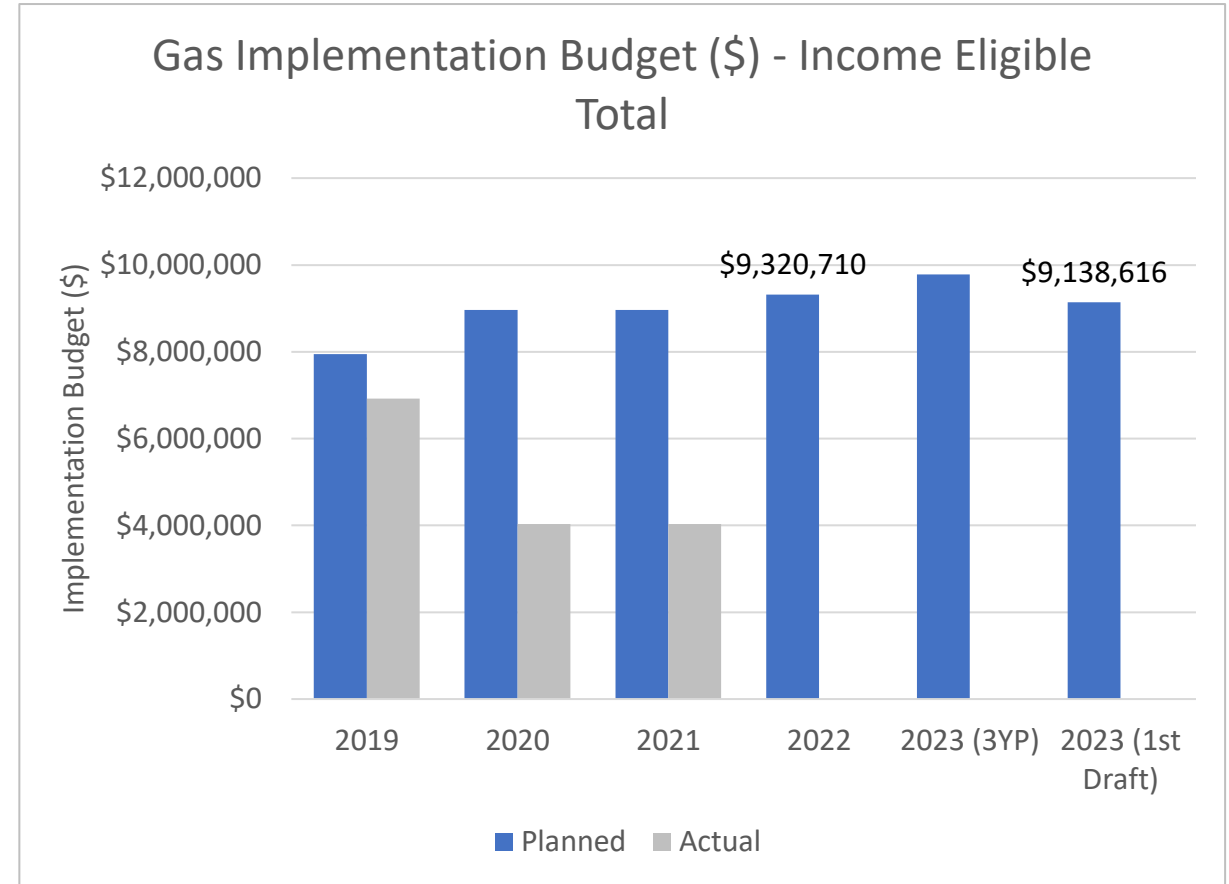
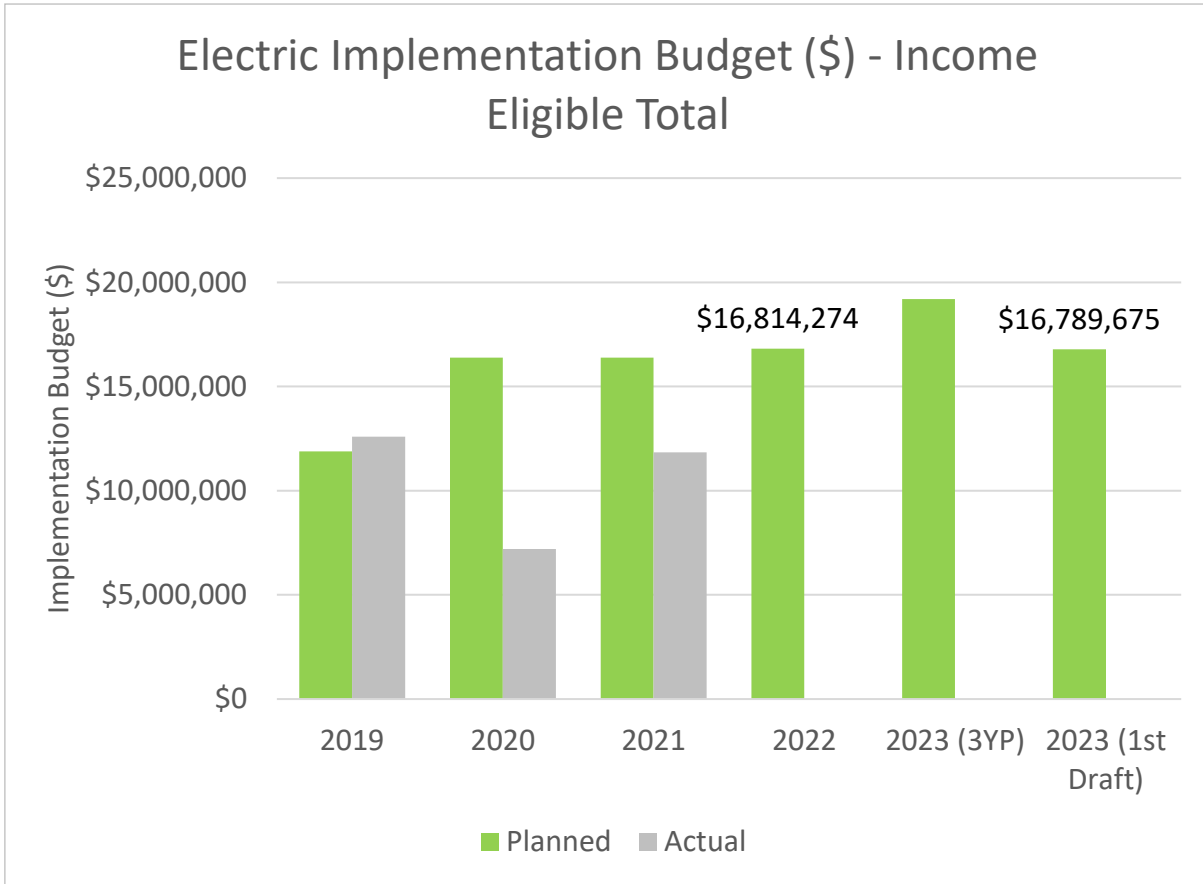


Gas Lifetime Savings (MMBtu) - Income Eligible Total





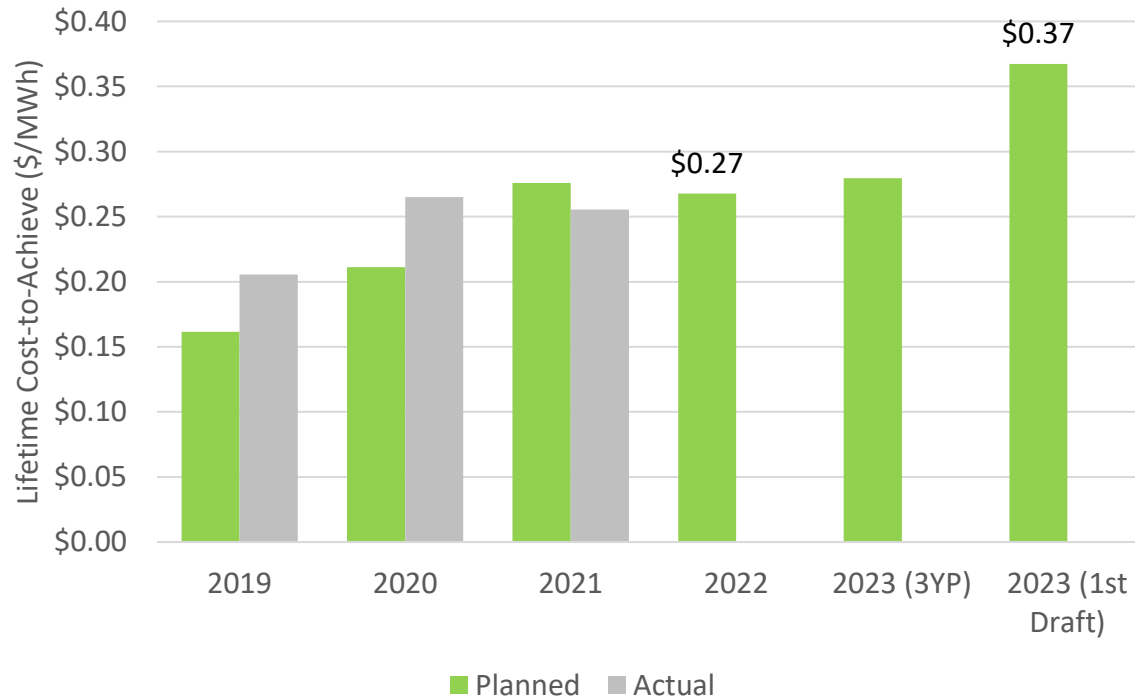
Income Eligible Implementation Budget



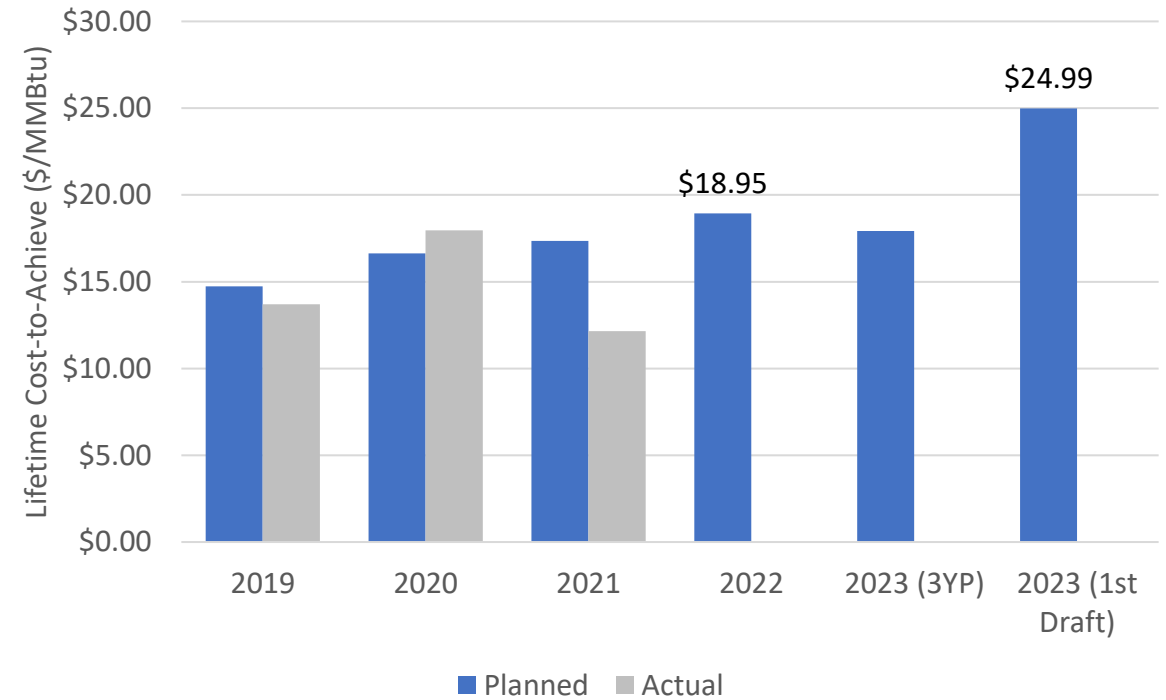


Income Eligible Lifetime Cost-to-Achieve

Electric Cost to Achieve (\$/Lifetime kWh) - Income Eligible Total



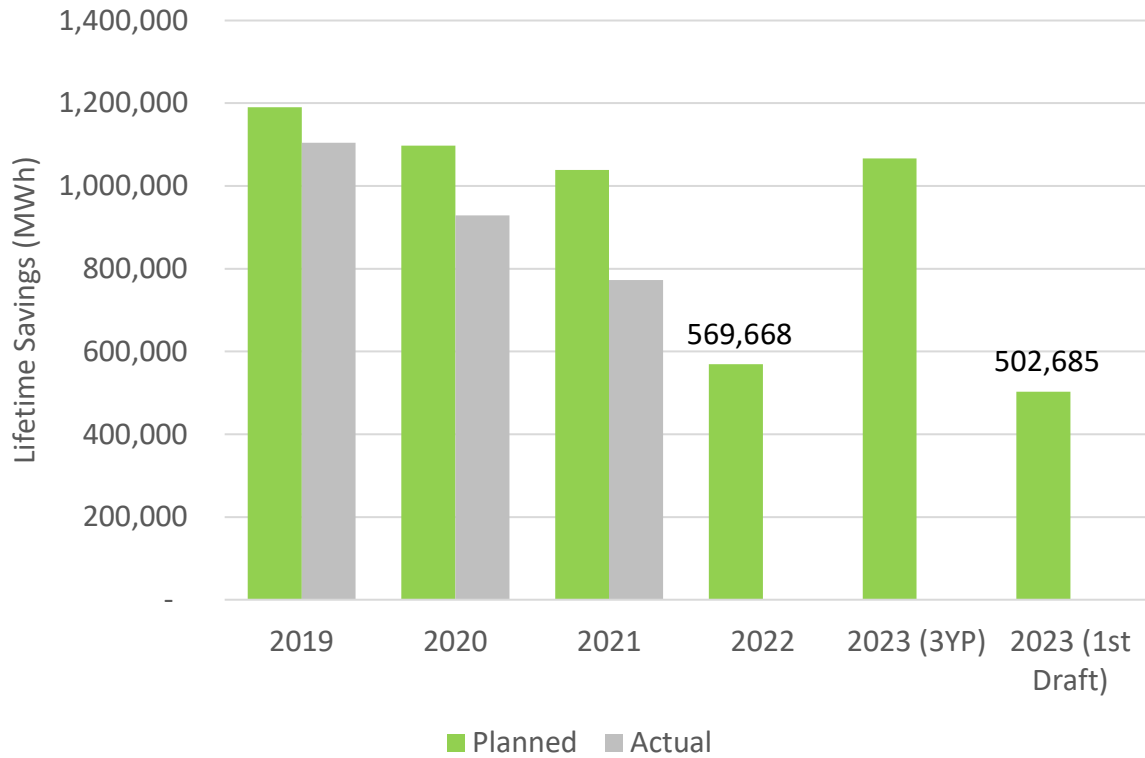
Gas Cost to Achieve (\$/Lifetime MMBtu) - Income Eligible Total



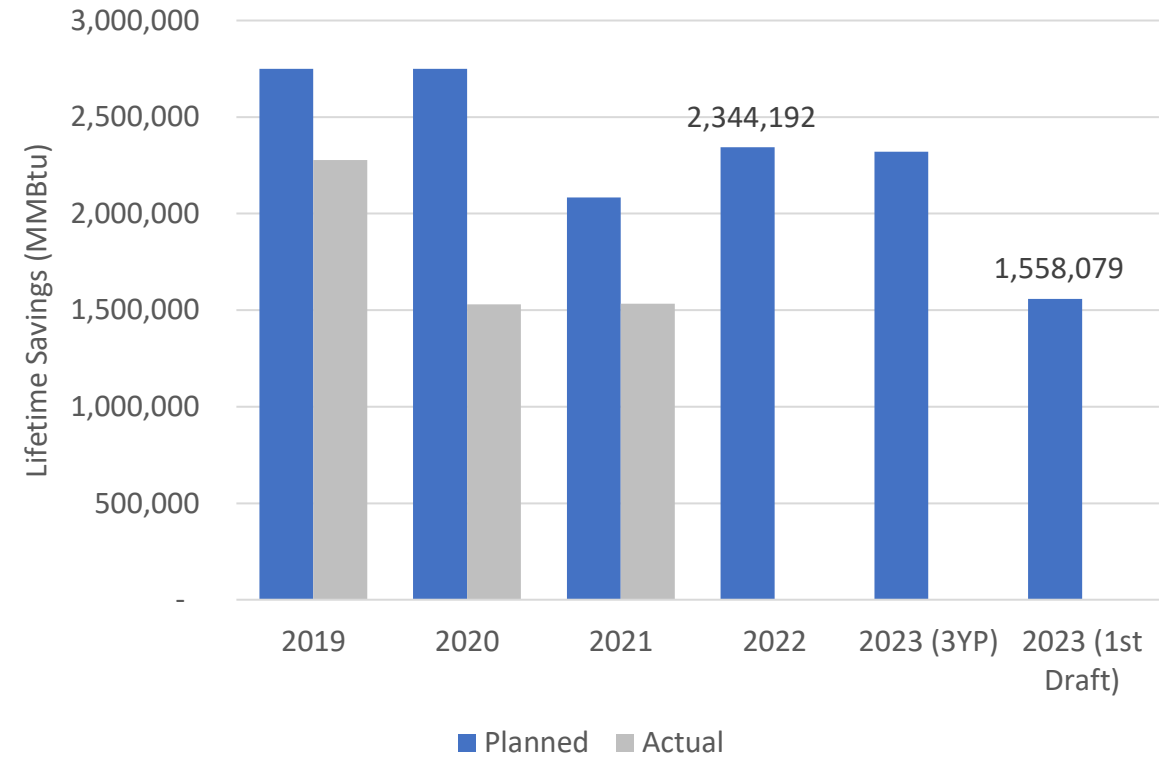


C&I Lifetime Savings

Electric Lifetime Savings (MWh) - C&I Total



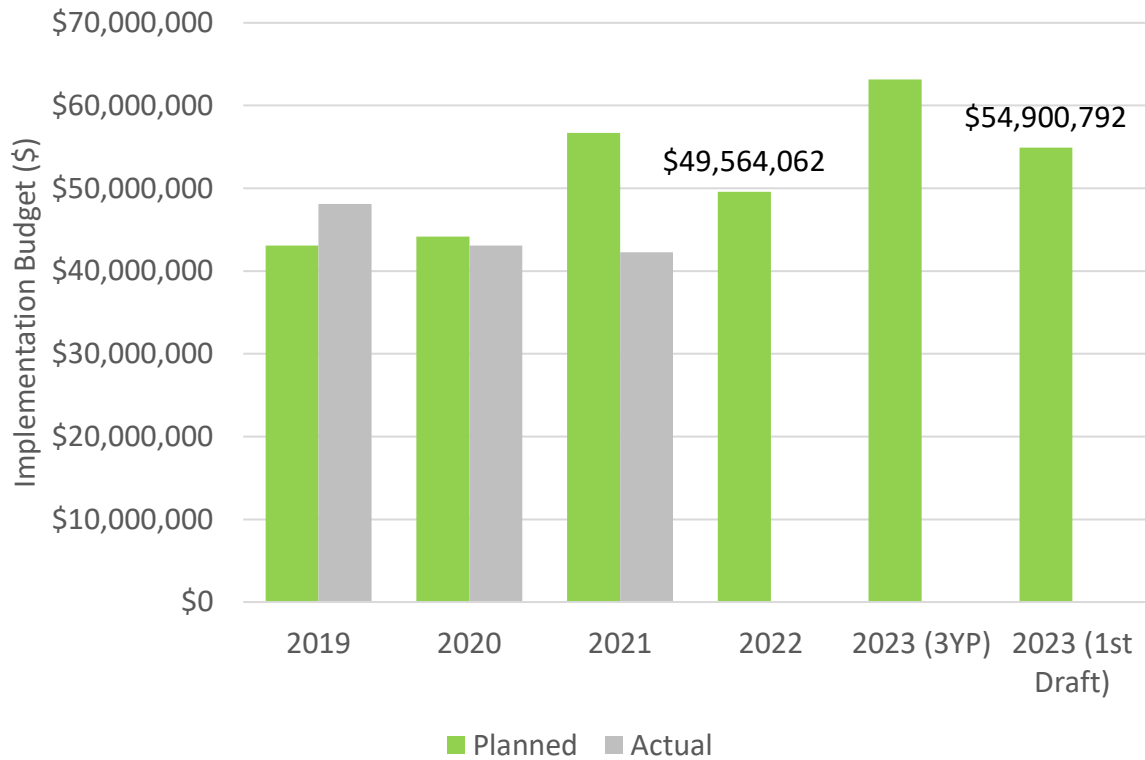
Gas Lifetime Savings (MMBtu) - C&I Total



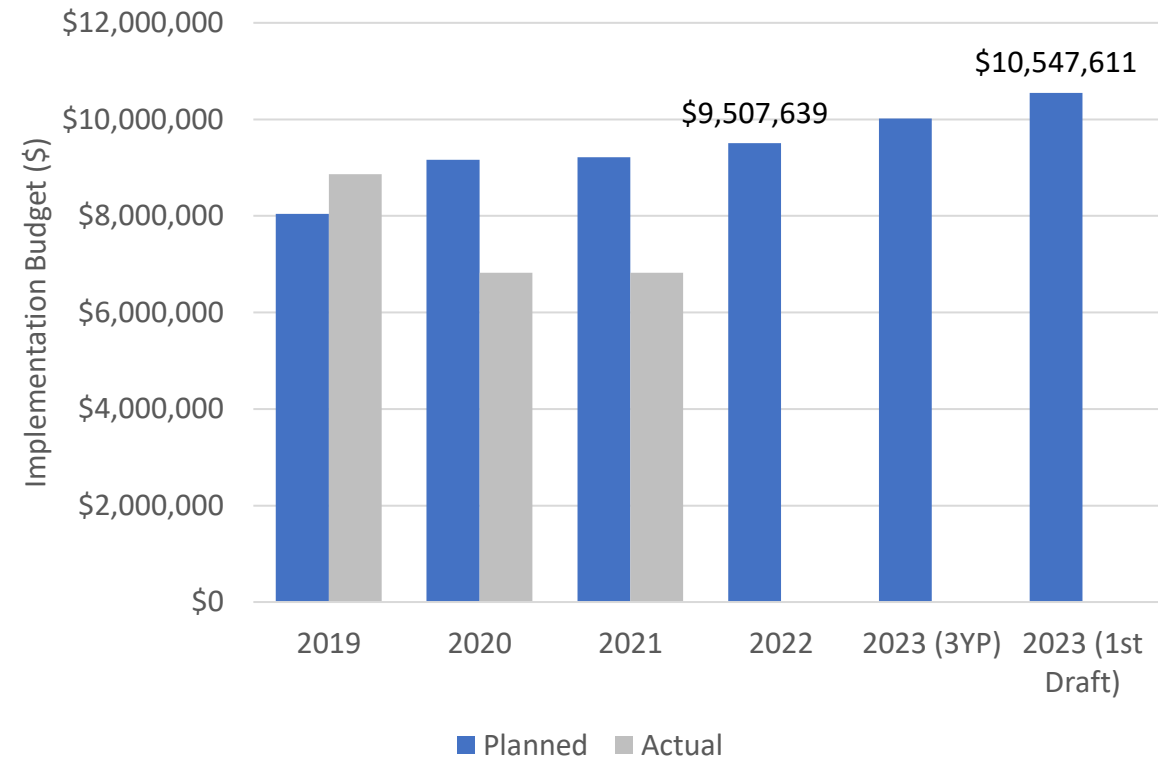


C&I Implementation Budget

Electric Implementation Budget (\$) - C&I Total

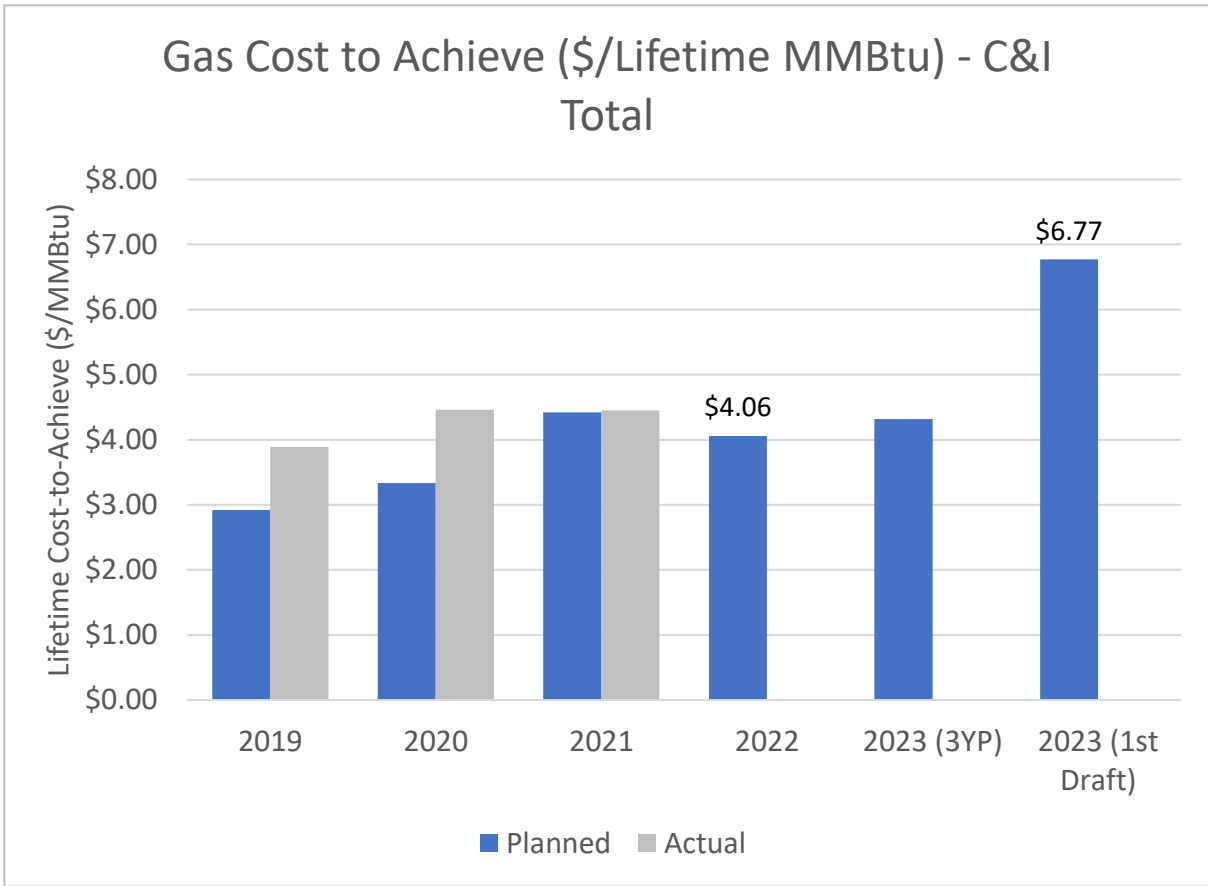
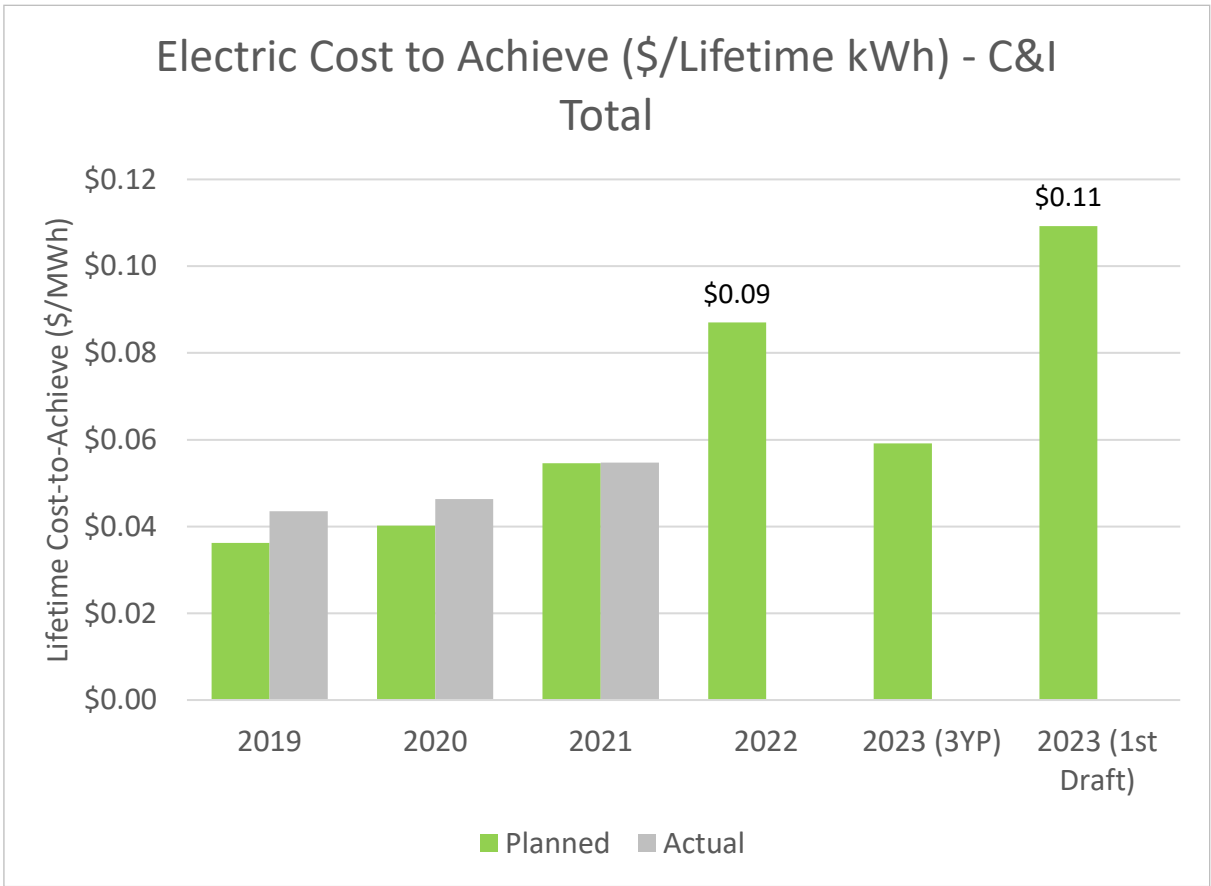


Gas Implementation Budget (\$) - C&I Total





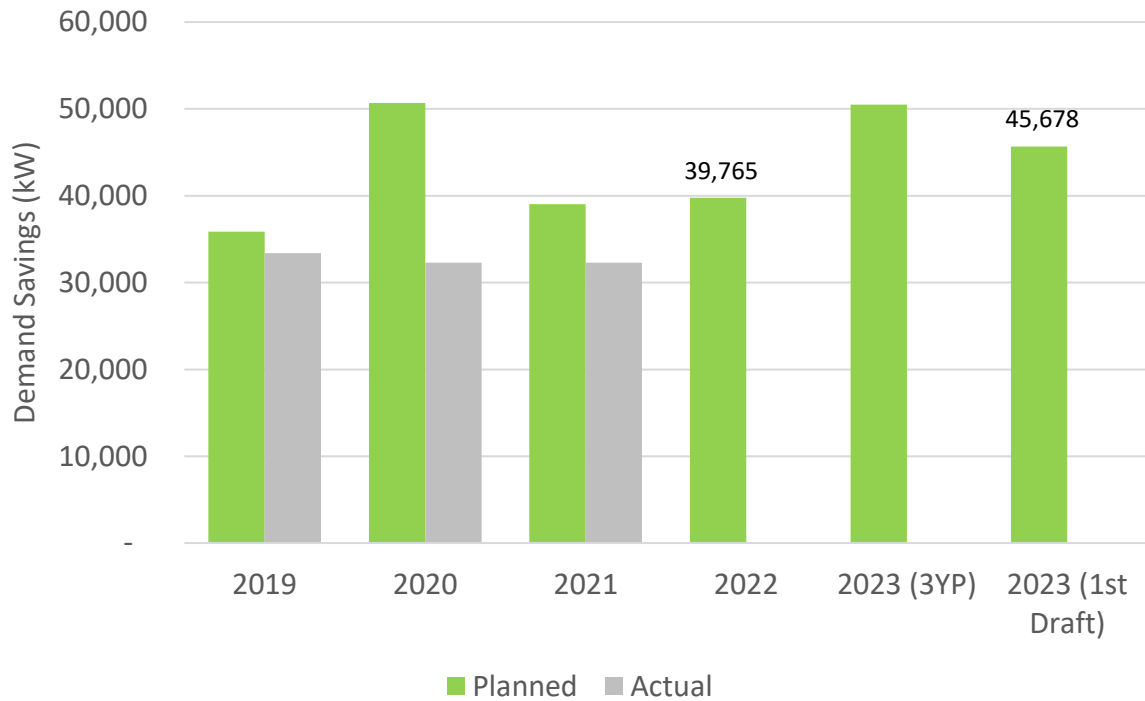
C&I Lifetime Cost-to-Achieve





Active Demand – Electric Portfolio

Electric Demand Savings Savings (kW) - Portfolio Total



Electric Cost to Achieve (\$/kW) - Portfolio Total

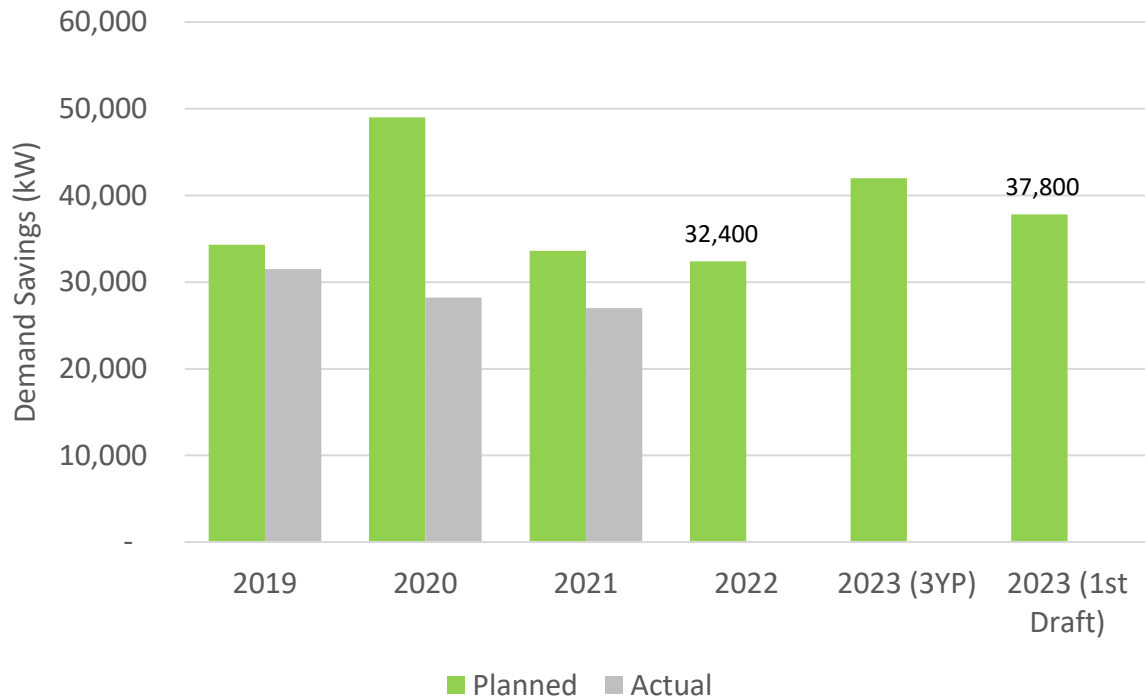




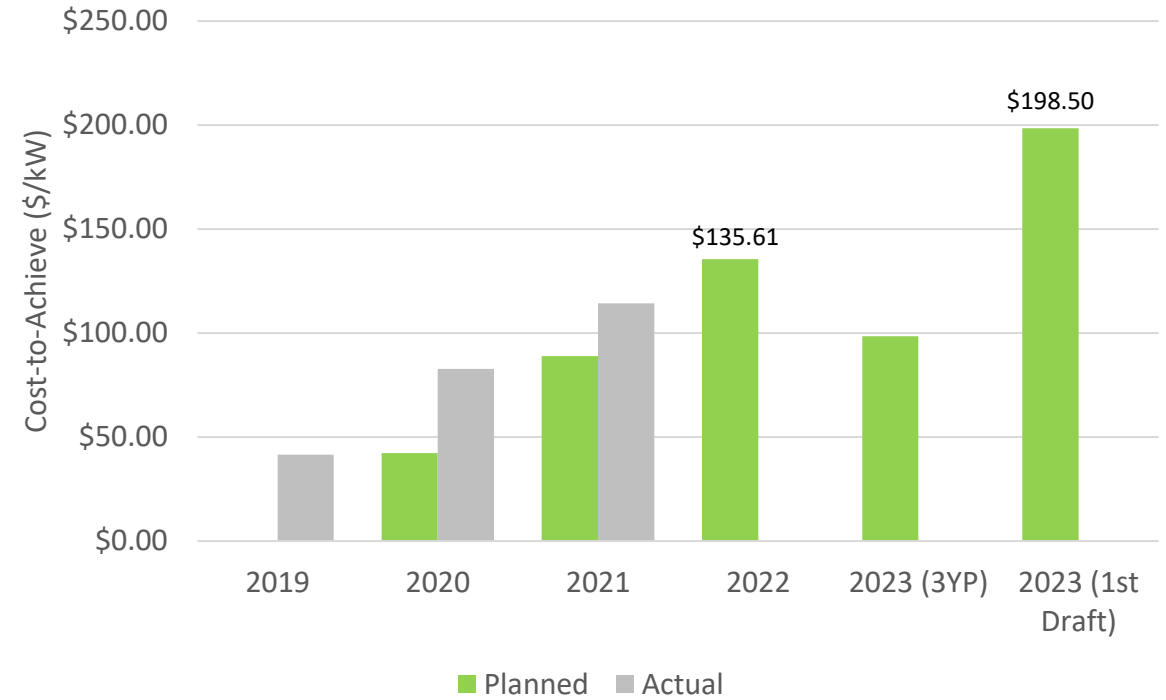
Active Demand – C&I Connected Solutions



Electric Demand Savings (kW) - Commercial Connected Solutions



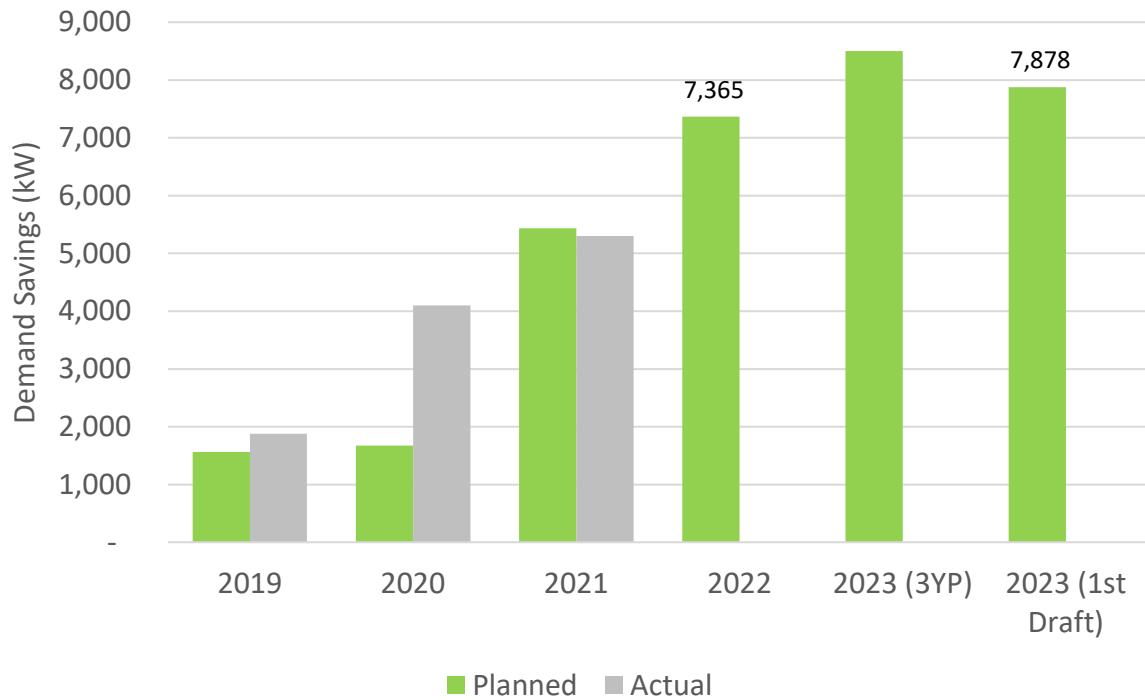
Electric Cost to Achieve (\$/kW) - Commercial Connected Solutions



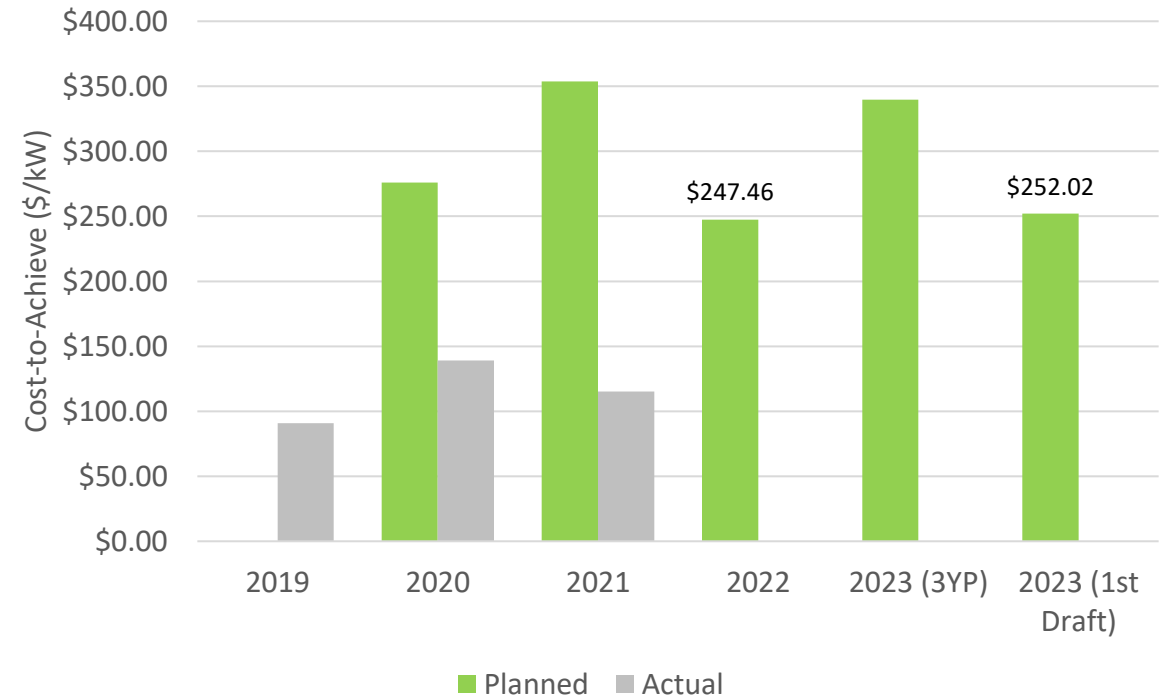


Active Demand – Res Connected Solutions

Electric Demand Savings Savings (kW) - Residential Connected Solutions



Electric Cost to Achieve (\$/kW) - Residential Connected Solutions

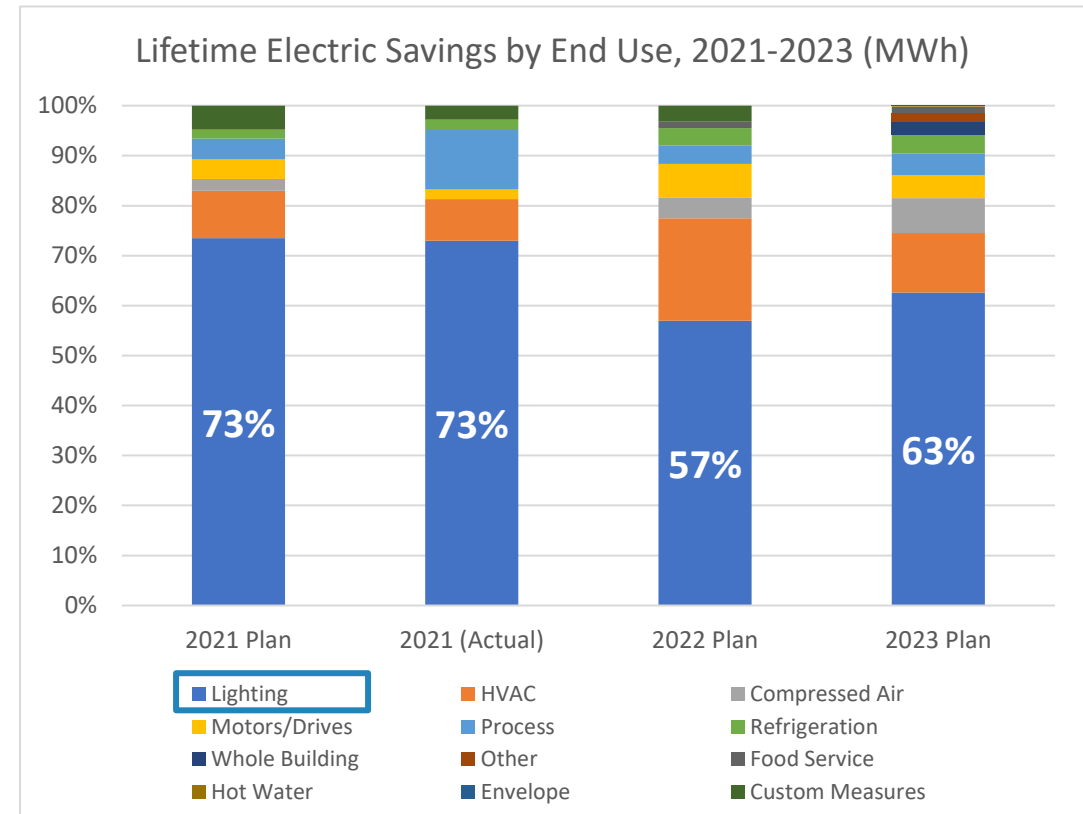




Commercial & Industrial - Electric

Key Takeaway Lack of diversification of savings from other end uses, despite 2023 Plan narrative. Three-Year Plan projected ~45% C&I lifetime MWh from lighting across 2021-2023.

Total C&I Lifetime Electric Savings (MWh)			
Year	Lighting	Non-Lighting	Total
2021 Plan	763,660	275,476	1,039,135
2021 (Actual)	556,472	212,501	762,592
2022 Plan	324,711	244,957	569,668
2023 Plan	314,656	188,029	502,630





Lifetime C&I Savings by End Use

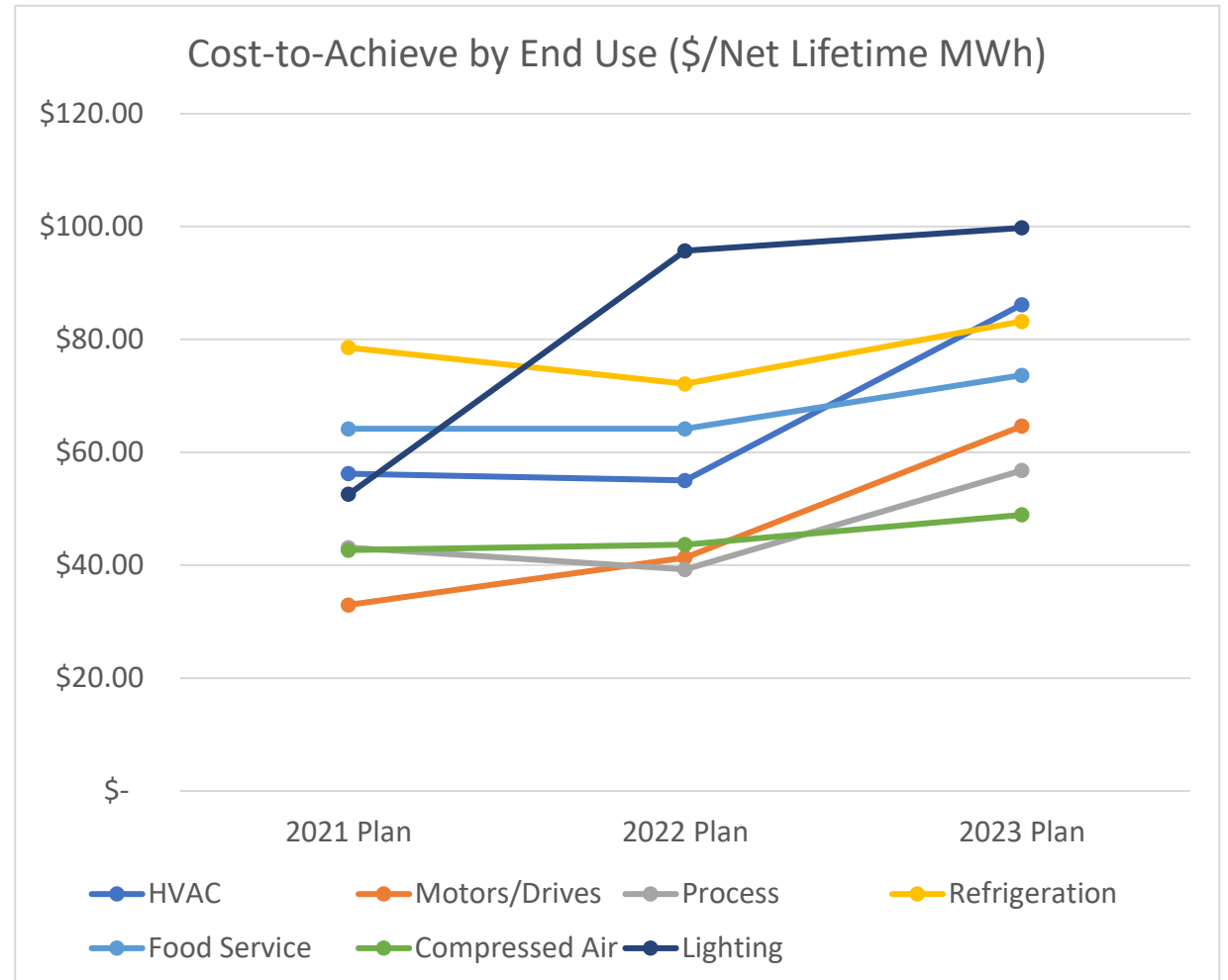
End Use	Lifetime Electric Savings (MWh)	
Lighting	314,656	62.6%
HVAC	60,094	12.0%
Compressed Air	34,835	6.9%
Motors/Drives	23,390	4.7%
Process	21,757	4.3%
Refrigeration	18,830	3.7%
Whole Building	12,940	2.6%
Other	8,926	1.8%
Food Service	5,978	1.2%
Hot Water	717	0.1%
Envelope	507	0.1%
Home Energy Services	56	0.0%
Grand Total	502,685	100%

End Use	Lifetime Gas Savings (MMBtu)	
HVAC	763,728	49.0%
Other	309,904	19.9%
Hot Water	177,787	11.4%
Food Service	104,630	6.7%
Motors/Drives	91,854	5.9%
Process	81,636	5.2%
Whole Building	21,881	1.4%
Envelope	6,660	0.4%
Behavior	-	0.0%
Grand Total	1,558,079	100%



Electric C&I Net Cost-to-Achieve

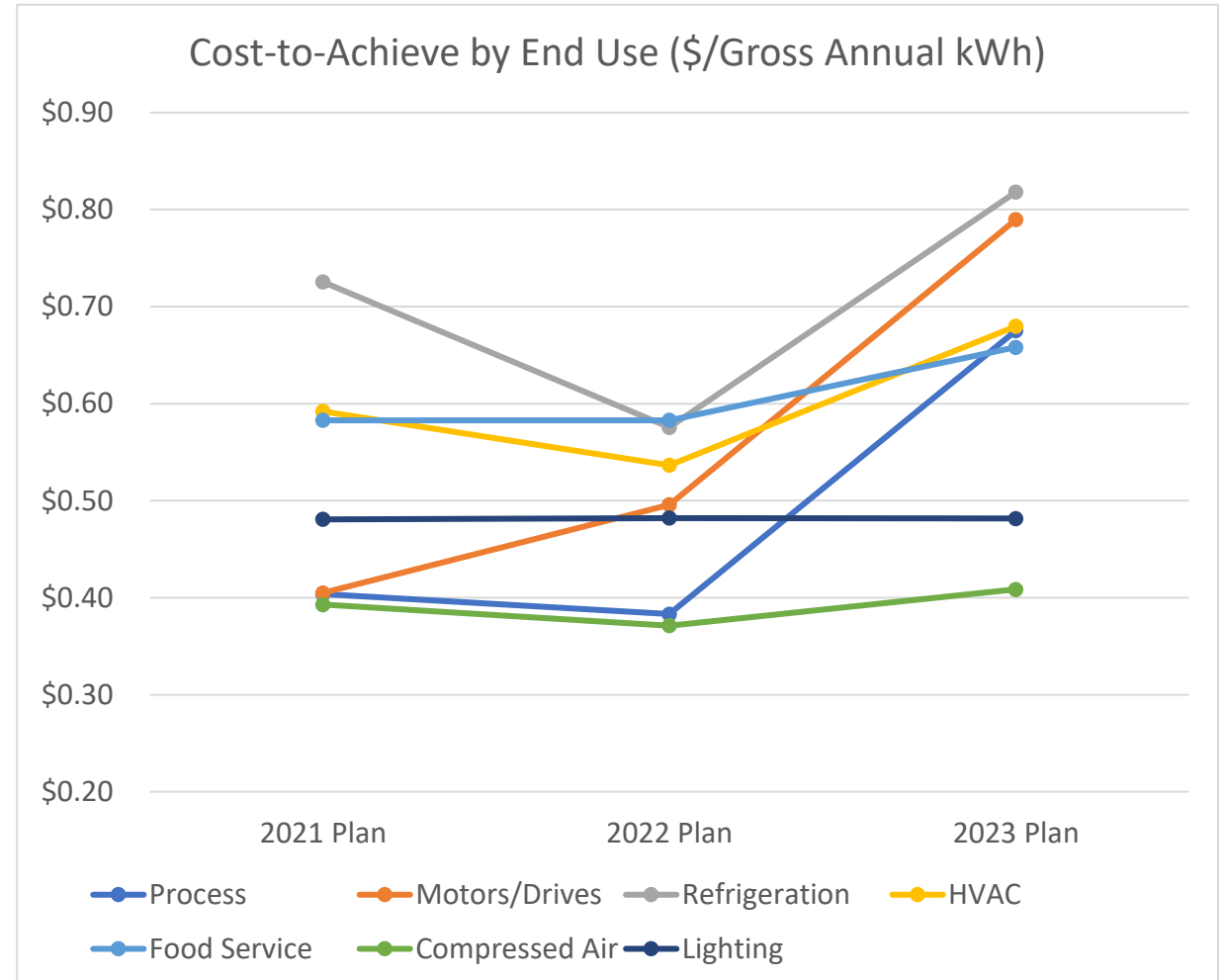
End Use	\$/Net Lifetime kWh	% Increase over 2022
HVAC	\$86.15	57%
Motors/Drives	\$64.64	56%
Process	\$56.79	45%
Refrigeration	\$83.18	15%
Food Service	\$73.63	15%
Compressed Air	\$48.93	12%
Lighting	\$99.78	4%





Electric C&I Gross Cost-to-Achieve

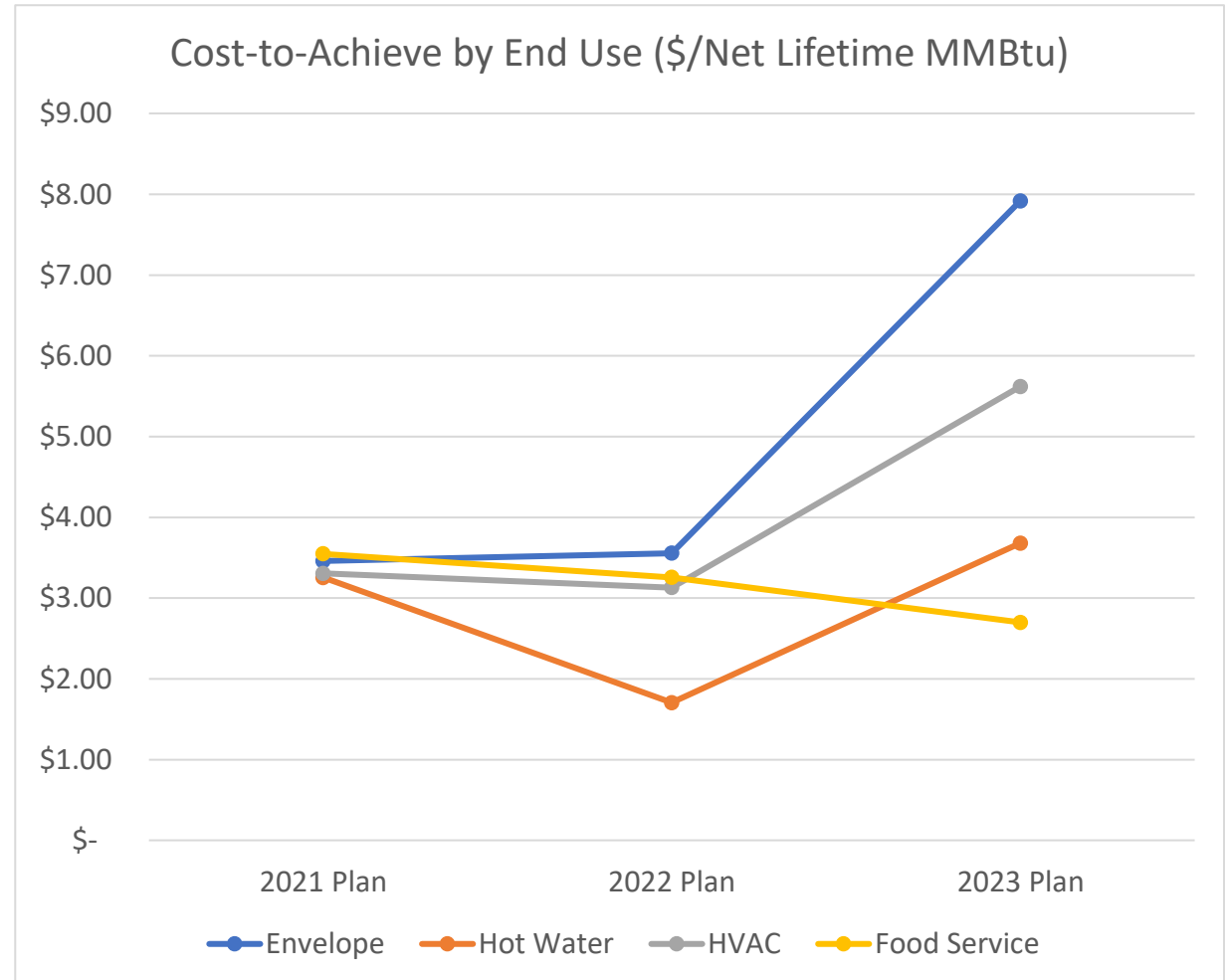
End Use	\$/Gross Annual kWh	% Increase over 2022
Process	\$0.68	76%
Motors/Drives	\$0.79	59%
Refrigeration	\$0.82	42%
HVAC	\$0.68	27%
Food Service	\$0.66	13%
Compressed Air	\$0.41	10%
Lighting	\$0.48	0%





Gas C&I Net Cost-to-Achieve

End Use	\$/Net Lifetime MMBtu	% Increase over 2022
Envelope	\$3.56	123%
Hot Water	\$1.71	116%
HVAC	\$3.13	79%
Food Service	\$3.26	-17%





Gas C&I Gross Cost-to-Achieve

End Use	\$/Net Lifetime MMBtu	% Increase over 2022
Envelope	\$11.44	206%
Hot Water	\$41.40	174%
HVAC	\$39.40	72%
Food Service	\$22.52	-18%

