Liberty Utilities (New England Natural Gas Company) Corp. d/b/a Liberty
2019-2021 Energy Efficiency Term Report
PART TWO - NARRATIVE

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1. CORE INITIATIVE VARIANCES & COST-EFFECTIVENESS

As described below, several of the Company's core initiatives experienced significant variances between planned budgets and actual expenditures. In some cases, pursuant to § 3.8.1 of the Revised Energy Efficiency Guidelines set forth in D.P.U. 11-120-A, Phase II (January 31, 2013) ("Guidelines"), the Company requested that the Energy Efficiency Advisory Council ("EEAC") support the Company's determination to make significant mid-term modifications ("modifications" or "MTMs") to its 2019-2021 Energy Efficiency Plan. On April 14, 2021, the Company submitted a Level One MTM to the EEAC for its review and support. The modifications were for a projected overspend of $107,010, a 29 percent increase, in the Company's Residential New Buildings program, an overspend of $2,286,699, a 34 percent increase, in the Company's Residential Existing Buildings Program, and an overspend of $483,500, a 270 percent increase, in the C&I New Buildings Program.

This modification was submitted to the EEAC for support pursuant to § 3.8.1 (3) a change in the three-year term budget Energy Efficiency Program or Hard-to-Measure Energy Efficiency Program of greater than (1) 20 percent. The EEAC supported the Company's request for each modification to its planned budget on May 26, 2021.

A. Residential Programs

(1) RESIDENTIAL NEW BUILDINGS

The Residential New Buildings program was cost-effective for the term with a benefit-cost ratio of 3.48.

a. Residential New Homes & Renovations

Significant Variances[1] - Significant variances exist between: (1) planned and actual budget; and (2) preliminary and evaluated total resource benefits.

(1) Planned and Actual Expenditures

Actual expenses were 32 percent higher than planned. This cost increase was driven by higher than planned participation in 2019, which resulted in higher than planned expenditures, primarily occurring in the incentives cost category. Planned incentives for program year 2019 were $68,990, while actuals were $218,005 (a 216 percent increase over planned). The increased incentive costs were driven by a significant increase in participation. Liberty planned for 42 participants while the program served 139 participants. Costs and participation were lower than planned in 2020 and 2021, however the high spending and participation in the previous year triggered the variance.

(2) Preliminary and Evaluated Total Resource Benefits

A significant variance also exists between preliminary and evaluated total resource benefits, with evaluated benefits being 21 percent below planned benefits. This decrease represents a reduction in attributable energy savings resulting from two distinct baseline updates from recent evaluation studies.

The decrease in benefits is due to a reduction in attributable energy savings as a result of the 2019 Residential New Construction Baseline and Code Compliance Study (2019 Plan-Year Report D.P.U. 20-50 Appendix 4D, Study 19-27). The evaluation study updated the User Defined Reference Home ("UDRH"), last updated in 2016, based on current common installation practices for non-participating homes. The study found

1 Significant variances are defined in the D.P.U. 11-120-B Term Report Template as three-year core initiative variances between: (1) planned and actual core initiative budget of 10 percent or greater; (2) planned and preliminary core initiative total lifetime savings showing a decrease of 10 percent or greater; (3) planned and preliminary core initiative total resource benefits showing a decrease of 10 percent or greater; and (4) preliminary and evaluated core initiative total benefits of 10 percent or greater.

that program homes are significantly more efficient than non-program homes, but the difference between the two is decreasing.

Cost-Effectiveness - The Residential New Homes & Renovations core initiative was cost-effective for the term with a benefit-cost ratio of 3.48.

(2) RESIDENTIAL EXISTING BUILDINGS

The Residential Existing Buildings program was cost-effective for the term with a benefit-cost ratio of 1.33.

a. Residential Coordinated Delivery

Significant Variances - Significant variances exist between: (1) planned and actual budget; (2) planned and preliminary lifetime natural gas saving and (3) planned and preliminary total resource benefits.

(1) Planned and Actual Expenditure

Actual expenses for the Residential Coordinated Delivery core initiative were 34 percent higher than planned over the term. In April 2020, in response to the COVID-19 pandemic, the PAs began offering 100 percent incentives for insulation measures for all customers. This increased costs for incentives paid out by the Company in 2020 and in 2021. The Company honored all contracts at the 100 percent incentive level which were signed by customers in 2020. Many of these projects were not completed until 2021 when customers were comfortable with contractors entering their homes. This caused significant costs increases for 2021. In addition to the 100 percent offer for insulation measures throughout much of 2020, Liberty also saw an increase in per home weatherization costs. In 2019 the average insulation project for a single-family home was approximately $2,980. In 2020, the Company this increased to $3,770 (a 27 percent cost increase). This increase may be attributable to a higher incentive offer. Since customers choose which measures to complete, prior to the 100 percent offer customers may have chosen not to complete more expensive insulation measures and once all insulation measures were offered at a full 100 percent rebate, customers would have been able to complete these higher cost insulation measures.

(2) Planned and Preliminary Lifetime Natural Gas Savings and (3) Planned and Preliminary Total Resource Benefits

Variances also exist between planned and preliminary lifetime natural gas savings (15 percent below planned levels) and planned and preliminary total resource benefits (11 percent below planned levels). These variances were caused by the lower participation experienced in 2020 during the COVID-19 pandemic. Examining lifetime natural gas savings and total resource benefits in each of the three years of the term, a drop was evident in 2020 when the programs had to be suspended due to COVID-19. The reduction in weatherization projects in 2020 resulted in preliminary lifetime natural gas savings falling to 34 percent below planned levels and total resource benefits falling to 31 percent below planned levels. In 2019, the Company completed 283 insulation jobs. This dropped to 222 in 2020 and rebounded to 309 in 2021.

Cost-Effectiveness – The Residential Coordinated Delivery core initiative was cost-effective for the term with a benefit-cost ratio of 1.47.

b. Residential Conservation Services

Significant Variances - Significant variances exist between planned and actual budget.

Expenditures for Residential Conservation Services ("RCS") for the term were 22 percent lower than planned due to the impact of the COVID-19 pandemic. A majority of the RCS budget is utilized to fund Home Energy Assessments ("HEAs"). In-person HEAs were suspended in mid-March due to the pandemic. While the PAs reacted quickly and developed and implemented Virtual Home Energy Assessments ("vHEAs"), it took time to ramp up production of vHEAs because Energy Specialists had to be brought back from furloughs and trained. Additionally, there was lower demand by customers throughout Q2 given health and safety concerns, and overall life disruption. Some customers also preferred to defer their HEA until in-home services could resume. The development of Health & Safety Protocols for in-home services implemented in late Q2 allowed for limited return to on-site HEA services. PAs did not return to typical volumes of HEAs/vHEAs until Q3 of 2020. The lost production could not be made up by year-end and the overall volume of HEAs/vHEAs completed during 2020 were approximately twenty-three percent below the previous year (669 in 2020 compared to 868 in 2019). HEAs did rebound to 824 in 2021.

In addition, Liberty anticipated and budgeted for increases in the cost to HEAs during the 2019-2021 term, however these cost increases were not realized resulting in lower expenditures than planned.

c. Residential Retail - Significant Variances

Significant Variances - Significant variances exist between: (1) planned and actual budget; and (2) preliminary and evaluated total resource benefits

(1) Planned and Actual Expenditures

Actual expenses for the Residential Retail core initiative were 86 percent higher than planned over the term. Higher than planned spending resulted from higher than planned participation which increased costs in the incentive cost category. Incentive expenditures were 97 percent higher than planned over the term. Increases in participation were most notable in several heating and water heating measures that greatly exceeded planned participation. These measures included: 95 percent gas furnaces (69 vs. 241); combination condensing boilers/water heaters (135 vs. 434); on demand water heaters (150 vs.398); indirect water heaters (75 vs. 262); and Wi-Fi thermostats (830 vs. 2161). While term-spending in the Residential Retail initiative was higher than planned, preliminary lifetime natural gas therm savings and preliminary total benefits were also considerably higher than planned (112 percent and 111 percent, respectively).

(2) Preliminary and Evaluated Total Resource Benefits

Evaluated benefits for Residential Retail were 12 percent lower than the preliminary results. The primary driver for these differences occurred due to a recent evaluation study, *Comprehensive TRM Review (MA19R17-B-TRM)*, and can be found in Appendix 4D, Study 20-8. There were two primary reasons for this variance caused by baseline updates in HVAC equipment. First, the Company planned to use a boiler baseline of 82 AFUE but the baseline discovered during the evaluation was set at 86.5 AFUE efficiency. This reduced lifetime savings from 2,812 therms for preliminary savings to 1,926 therms in evaluated savings for the 95 AFUE boiler measure offering. The study results updated the baseline for furnaces from a value of 85 AFUE for preliminary results to a value of 89 AFUE for evaluated results. This caused a significant reduction in lifetime savings from 1,470 therms in preliminary savings to 816 therms in evaluated savings. The study also created savings reductions for tankless water heaters, storage water heaters and combination condensing boilers, although the magnitude of change was smaller. These updates came from baseline changes.

Cost-Effectiveness - The Residential Retail core initiative was cost-effective for the term with a benefit-cost ratio of 1.5.

d. Residential Behavior

The Residential Behavior core initiative includes two initiatives – Behavior and Active Demand Reduction.

i. Residential Behavior

Significant Variances - Significant variances exist between: (1) planned and actual budget; (2) planned and preliminary total lifetime savings; and (3) planned and preliminary total benefits.

(1) Planned and Actual Budget

Actual spending was higher than planned while lifetime therm savings and total benefits were all lower than planned. Liberty launched the Home Energy Report ("HER") program in December 2019, after releasing a Request for Proposals ("RFP") for a HER vendor in late spring 2019. Following the receipt and evaluation of bids, Liberty selected a vendor, and program deployment commenced shortly after contracting was completed. Liberty's HER program formally launched to customers in late December 2019, upon the release of a welcome letter to all HER recipients. Since the Company released the RFP for a Behavior program after the approval of the 2019-2021 Plan, the Company projected costs for a HER offer in the 2019-2021 Plan. These costs were lower than the vendor proposals, and therefore spending for the initiative was higher than planned.

(2) Planned and Preliminary Total Lifetime Savings

Throughout 2020, the HER program struggled to yield statistically significant positive savings for the Company. After a review of 2020 performance and attempts at numerous corrective actions, the Company determined that the initiative would not be cost-effective over the term. In January 2021, the Company filed a petition with the Department of Public Utilities, in D.P.U. 21-18, requesting a directive to cease offering the HER initiative. On May 4, 2021 the Department issued an Order approving the Company's termination of the offering. After consultation with the vendor, the Company is claiming no savings for the HER offer. The Company canceled the HER offer in July 2021 consistent with the Department's order and contract with its vendor.

(3) Planned and Preliminary Total Benefits

For the reasons discussed above, the Program Administrator will not achieve its savings and benefits goals by the end of the Three-Year Plan term for this core initiative and terminated the HER contract with the vendor prior to the end of the term as per the Department's order.

Cost-Effectiveness - The actual benefit-cost ratio for the Residential Behavior core initiative is 0.0.

B. Income Eligible Programs

(1) INCOME ELIGIBLE EXISTING BUILDINGS

The Income Eligible Existing Buildings program was cost-effective for the term with a benefit-cost ratio of 2.46.

a. Income Eligible Coordinated Delivery

Significant Variances - Significant variances exist between planned and actual budget.

Actual expenses for the Income Eligible Coordinated Delivery core initiative were 19 percent higher than planned over the term. Actual expenses exceeded planned expenses in both 2019 and 2021. Actual expenses were 36 percent higher than planned in 2019, and 27 percent higher than planned in 2021, driving this cost variance. For 2019, in the single-family market, both participation and costs were higher than planned. Single family weatherization costs were approximately 20 percent higher than planned, and the program weatherized 18 percent more homes than initially planned. The increased cost for weatherization occurred statewide. In 2021, the total number of homes weatherized was close to the planned amount, but weatherization costs were higher than planned. Weatherization costs were 23.6 percent higher than planned, contributing to this cost variance.

In the multi-family market, participation was higher than expected over the term. In 2019, 80 multifamily units were planned, while 170 were served. One very large project that had been budgeted for during planning was larger than anticipated and impacted more units than initially anticipated. This increased the costs associated with the project. In 2019, a second, sizable multi-family project impacting 54 units increased costs because it had not been accounted for during planning. Multi-family participation once again far exceeded planned participation in 2021. A 48-unit property received new boilers in 2021 which drove up costs in this core initiative and contributed to the cost variance.

Cost-Effectiveness - The Income Eligible Coordinated Delivery core initiative was cost-effective for the term with a benefit-cost ratio of 2.46.

C. Commercial and Industrial ("C&I") Programs

(1) C&I NEW BUILDINGS

The C&I New Buildings program was cost-effective for the term with a benefit-cost ratio of 4.18.

a. C&I New Buildings & Major Renovations

Significant Variances - Significant variances exist between planned and actual budget.

The variance was required for the completion of two large, new construction projects completed in Liberty's service territory in 2019 and 2021. Historically, Liberty has not experienced significant C&I new construction in its service territory. Based on historical experience and data, Liberty planned accordingly with realistic budgets and savings goals, but during this term two large projects were completed causing the Company to greatly exceed the program budget.

While these projects resulted in a significant budget variance, they also brought in considerable therm savings and benefits, driving lifetime therm savings to 996 percent, well-over planned levels and total resource benefits to 939 percent above planned levels.

The completion of these two projects also helped bring in needed savings in the C&I sector which saw low demand in the existing building program during the COVID-19 pandemic.

Cost-Effectiveness - The C&I New Buildings & Major Renovations core initiative was cost-effective for the term with a benefit-cost ratio of 4.18.

(2) C&I EXISTING BUILDINGS

The C&I Existing Buildings program was cost-effective for the term with a benefit-cost ratio of 2.54.

a. C&I Existing Buildings Retrofit

Significant Variances - Significant variances exist between: (1) planned and actual budget; (2) planned and preliminary total lifetime therm savings; (3) planned and preliminary total resource benefits; and (4) preliminary and evaluated total benefits.

(1) Planned and Actual Budget

Over the term, program costs were 27 percent below planned levels. This underspending was primarily driven by a 40 percent underspend in the participant incentive cost category. In 2020, the COVID-19 pandemic severely reduced demand for in-person energy efficiency services that are typically offered through this program's multiple offerings. Many customers were unwilling to allow engineers and auditors onsite, which interfered with energy efficiency work. The businesses in the Company's service territory were hit especially hard during the pandemic and primarily focused their efforts on keeping their businesses open and operational during this time. The reduced demand for services was experienced throughout the core initiative and the sub-offerings (Large C&I Custom, Direct Install Turnkey and Residential End Use). Overall, participant incentives were 75 percent below planned levels in 2020 and 50 percent below planned levels in 2021.

In response to underperformance in 2020, the Company hired an additional vendor to assist in reaching small and mid-sized customers and providing a more comprehensive and "hand-holding" approach to energy efficiency services. The additional vendor engaged with 77 customers in 2021 through a combination of site visits or project completions.

(2) Planned and Preliminary Total Lifetime Therm Savings and Resource Benefits

Low demand for energy efficiency services caused by COVID-19 over the term resulted in lower than planned lifetime natural gas savings, which was 48 percent lower than planned, and lower than planned total resource benefits, which was 49 percent lower than planned.

(3) Preliminary and Evaluated Total Benefits

Evaluated total benefits were thirteen (13) percent lower than preliminary. Two different evaluations are contributing to the reduction in evaluated benefits.

1) *Impact Evaluation of 2019 Custom Gas Installations (2019-2021 Term Report D.P.U. 22-110 – D.P.U. 22-119 Appendix D, Study 21-11*) – The recent custom gas impact evaluation provided a realization rate of 80 percent for the statewide realization rate, which the Company adopts as its realization rate per report recommendations. This realization rate is eight percent lower than the preliminary custom gas realization rate the company used for planning and contributed to a reduction in total evaluated benefits in this core initiative.

2) *Prescriptive Measures NRNC and ISP Results (Three-Year Plan D.P.U. 21-120 – D.P.U. 21-129 Appendix J, Study 25)* – This review updated the adjusted measure life (AML) of C&I faucet aerators, low-flow showerheads, and pre-rinse spray valves. This review derives from the adoption of legislation that created new

standards for water fixtures in Massachusetts. This update resulted in a significant reduction in lifetime water benefits from these measures and contributed to the variance between preliminary and evaluated total benefits in this core initiative

Over-performance in other C&I core initiatives did offset some sector level lifetime therm savings and benefits shortfalls experiences by C&I Existing Buildings Retrofit core initiative. Specifically, the Company completed two large C&I New Construction projects during the term which were discussed under the C&I New Buildings section of the variance descriptions.

Cost-Effectiveness - The C&I Existing Buildings Retrofit core initiative was cost-effective for the term with a benefit-cost ratio of 1.88.

b. C&I New & Replacement Equipment

Significant Variances - Significant variances exist between: (1) planned and actual budget; (2) planned and preliminary total lifetime MWh savings; and (3) preliminary and evaluated total benefits.

(1) Planned and Actual Budget

Actual spending in this core initiative was 78 percent higher than planned. This budget variance was driven by higher than planned spending in the incentive and sales, technical assistance, and training cost categories, both resulting from higher than expected demand for food services equipment.

The primary driver of the budget variance in sales, technical assistance, and training was overperformance of achieved therm savings within this core initiative. The Company exceeded the net annual therm savings goal by 91 percent and the net lifetime therm savings goal by 79 percent. A vendor within this core initiative is paid management fees based on the therm savings delivered to the program (pay-for-performance). Over the term, this vendor overperformed, specifically in the delivery of savings from kitchen equipment. Due to the overperformance of kitchen equipment (53 units were planned, and 129 units were achieved), the pay-for-performance management fee structure, actual expenditures to the sales, technical assistance, and training commercial and industrial core new and replacement equipment core initiative exceeded the planned budget. In addition, the Company competed more custom projects within this core initiative than planned. Custom projects often require engineering analysis and fees paid out of the sales, technical assistance, and training budgets. The additional projects required unplanned engineering expenses which also contributed to the budget overspend.

(2) Planned and Preliminary Total Lifetime MWh Savings

The variance between planned and preliminary total lifetime electric savings (MWh) is due to lower than planned production for the Heating System, Furnace, Gas 95 percent and Heating System, Furnace, Gas 97 percent measures. These are the only measures planned by the Company in this core initiative which have kWh savings. Since fewer than planned were achieved (15 were planned and 2 were achieved) this triggered a variance for lifetime electric savings.

(3) Preliminary and Evaluated Total Benefits

The final variance was due to evaluation. Evaluated total benefits are 83 percent higher than preliminary total benefits. This is due to an increase in non-energy impacts (NEI) values resulting from the C&I Operation & Maintenance (O&M) and Non-O&M Study.[2] The primary objective of the study was to develop O&M NEI values broadly across all C&I measures and programs, and non-O&M NEI values (excluding health and safety (H&S) NEIs) with a focus on energy-efficiency measures common to small businesses programs (though application of these NEIs would not be limited to small business programs). The overall impact of these NEI values boosted evaluated benefits across all C&I programs for 2021. Specifically, the application of new NEIs from the study increased 2021 CNRE NEI benefits from $0 preliminary NEI benefits to $1,971,088 evaluated NEI benefits. The increase in NEI benefits was most notable among the mid-stream food services equipment.

<u>Cost-Effectiveness</u> - The C&I New & Replacement Equipment core initiative was cost-effective for the term with a benefit-cost ratio of 3.96.

2. LOW-INCOME COST ALLOCATION

The Green Communities Act requires that at least ten percent of electric efficiency funding and 20 percent of gas efficiency funding be spent on low-income programs. G.L. c. 25 § 19(c).

Please refer to the *Customer Sector Cost Allocation* table in the Company's Data Tables for a summary and comparison of planned budget allocation and actual expenditures by customer sector. As shown in this table, actual expenditures in the low-income sector were 21.8 percent of total gas funding. The Company has, therefore, met the statutory minimum requirement.

3. MINIMIZATION OF ADMINISTRATIVE COSTS

The Green Communities Act requires that energy efficiency programs minimize administrative costs to the fullest extent practicable. G.L. c. 25 § 19(b). In accordance with the GCA, the

[2] D.P.U. 21-120 - D.P.U.21-129, Appendix J, Study 34,"C&I O&M and non-O&M NEI with Small Business Focus" (MA20X10-B-CIOMNEI)

Company has sought to minimize administrative costs to the fullest extent practicable. See the attached testimony outlining the drivers of administrative costs and specific actions taken to minimize those costs.

Please refer to the *Administrative Costs* table in the Company's Data Tables for a summary and comparison by core initiative of (i) planned and actual Program Planning and Administration ("PP&A") costs, and (ii) planned and actual PP&A costs as a percent of total program costs. As shown in the table, actual PP&A spending in the residential sector was 15 percent more than the budgeted, and income eligible sector PP&A spending sector was 2 percent more than the budgeted. The reason for these increases in PP&A spending was due to greater than planned spending other third-party vendor services that are charged within the PP&A cost category. Internal costs were lower than planned. Services for general administrative support, such as BCR screenings, and the Company's energy efficiency tracking system, were also greater than planned. The Company is currently reviewing proposals from vendors as part of an ongoing RFP for an energy efficiency tracking system. The Company expects some cost efficiencies from utilizing a single vendor across multiple jurisdictions which should help to minimize external PP&A costs.

4. COMPETITIVE PROCUREMENT

The Green Communities Act requires that energy efficiency programs utilize competitive procurement processes to the fullest extent practicable. G.L. c. 25 § 19(b). In accordance with the GCA, the Company has utilized competitive procurement processes to the fullest extent practicable.

Please refer to the *Competitive Procurement* table in the Company's Data Tables for a summary and comparison of planned and actual program outsourced activities by sector. As shown in the table, significant differences exist between planned and actual outsourced activities and competitively procured activities in the residential, income eligible and commercial and industrial sectors.

In the residential sector, total outsourced activities were 21 percent greater than planned and competitively procured activities were 6 percent greater than planned. This increase in outsourced costs are reflective of the overall cost increase in the residential sector. Increased in spending in the PP&A, and marketing cost categories within the residential sector. In addition, MassCEC workforce development costs were not included in the plan and contribute to the cost increase. Finally, in the plan, the Liberty excluded from the competitive procurement table costs associated with DOER assessments, EEAC Consultant fees, and Low-Income Assessments, but those costs should have been included. This causes costs to appear higher, although they are not new costs and are generally consistent with the planned budget. The residential competitively procured costs are relatively consistent with plan as the change is less than six (6) percent.

In the income-eligible sector, total outsource costs were 28 percent greater than planned. This was due to an increase in outsourced vendor spending in the STAT cost category. Consistent with the residential sector MassCEC workforce development costs were not included in the plan and contribute to the increase in outsourced costs as do costs Liberty previously excluded from competitive procurement tables for costs associated with DOER assessments and Low-Income Assessments. Competitively procured spending was 17 percent lower than planned. This decrease was also driven by the MassCEC workforce development costs and addition of DOER assessments and Low-Income Assessments, all are non-competitively procured costs.

In the C&I sector, total outsourced activities were 56 percent greater than planned and competitively procured activities were 41 percent greater than planned. These variances are due to overall greater than planned outsourced vendor spending in the EM&V and STAT cost categories. EM&V spending was up 16 percent over planned spending and STAT was 31 percent greater than planned. Vendors in these cost categories are primarily outsourced and competitively procured, thus contributing to the greater than planned competitively procured activities (up 41 percent from planned) in the commercial and industrial sector.

While the majority of the Company's procurements were conducted via a competitive procurement process, there are some exceptions when the Company opts to not undertake a competitive procurement process. These non-competitively procured services occurred in one of seven circumstances: (1) proprietary; (2) non-responsive bids; (3) continuation; (4) technical services and exclusive capability; (5) unique skills and exclusive capability; (6) regulated; and (7) minimum cost threshold. Each scenario is further described below.

Some services require items that are under patent, copyright, or proprietary design. These come directly from the manufacturer and comparable alternatives are unavailable. In these circumstances, the Company must contract directly with that manufacturer in order to obtain the services of that item. These circumstances are rare, and the Company strives to avoid them when possible.

Occasionally, the Company will solicit bids, but will not receive any responsive bids from the requested bidders. In these circumstances, the Company will try to reissue the RFP. If not possible, however, then then the Company will select a vendor that is most qualified to perform the services.

The continuation of work by the same vendor may be needed to complete an existing project when additional work, items, or services are required, but they were not known to be needed when the original order was placed to complete an existing project. While the original order may have been competitively procured, because this continuation of work is technically a different contract, it is considered a sole-sourced contract by the Company.

A procurement may be for technical service in connection with the assembly, installation, or servicing of equipment of a highly technical or specialized nature and there is the only qualified source. Prior to executing these procurements, the Company will conduct a reasonable inquiry to verify that only one vendor is qualified, and no other potential vendors are known.

Related to the technical service exception, a procurement may be for a specialized service and only one vendor has that unique skill and capability. Prior to executing these procurements, the Company will conduct a reasonable inquire to verify that only one vendor qualified, and no other potential vendors are known.

The Company has certain contractual obligations with entities due to regulatory mandates. Because the selection of these entities is out of the Company's control, the Company cannot conduct a competitive procurement process for them. This category of costs can contribute to a significant amount of non-competitive costs for the Company. For example, the GCA states "The low-income residential demand-side management and education programs shall be implemented through the low-income weatherization and fuel assistance program network and shall be coordinated with all electric and gas distribution companies in the commonwealth with the objective of standardizing implementation." The Low-Income Energy Affordability Network (LEAN) was established among the other agencies of the low-income and fuel assistance program network to provide the services required for implementing the coordination requirements of the statute. This network is primarily made up of small Community Action Agencies that provide Energy Efficiency Services (as well as other assistance services) within specific geographic areas. Given that the Company does not have control over this contractor network, these costs are classified as non-competitively procured. Additionally, in 2021, "An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy" was enacted which required the Company to provide funding to the Massachusetts Clean Energy Center for workforce development programs. Given these costs were mandated by the new legislation, they are categorized as non-competitively procured.

Finally, the Company may procure services at a cost below a certain threshold that would justify the use of a competitive procurement process.

5. BENEFIT-COST RATIO SCREENING TOOL

Please see Appendix A for the Benefit-Cost Ratio Screening Tool in Microsoft Excel format.

6. STATEWIDE TECHNICAL REFERENCE MANUAL/LIBRARY

The Technical Reference Manual ("TRM") documents how the energy efficiency Program Administrators consistently, reliably, and transparently calculate savings resulting from the installation of prescriptive energy efficiency measures. The TRM provides methods, formulas, and default assumptions for estimating energy, peak demand, and other resource impacts from energy efficiency measures. The Technical Reference Manual – 2021 Report Version is available at Appendix B. Please see Appendix 3 to the Company's 2019 Plan-Year Report in D.P.U. 20-50 for the Technical Reference Manual – 2019 Report Version, and Appendix 3 to the Company's 2020 Plan-Year Report in D.P.U. 21-70 for the Technical Reference Manual – 2020 Report Version.

The electronic version, the eTRM, is available at:
https://www.masssavedata.com/Public/TechnicalReferenceLibrary.

7. STATEWIDE EVALUATION STUDIES

A. Previously Submitted Evaluation Studies Incorporated by Reference

Under the guidance and direction of the Evaluation Management Committee, 131 evaluation studies were completed during the 2019-2021 term. The majority of these studies were previously submitted to the Department in D.P.U. 20-50 (*2019 Energy Efficiency Plan-Year Report*), D.P.U. 21-70 (*2020 Energy Efficiency Plan-Year Report*) and D.P.U. 21-120 through D.P.U. 21-129 (*2022-2024 Electric & Gas Three-Year Energy Efficiency Plan*). Previously submitted studies are incorporated in the instant docket by reference. Please refer to the table in Appendix C-1 for a complete list of these studies. The table provides the name of each study, the applicable fuel, the location of the study in each report/plan, and the primary EM&V contractor conducting the study. All completed studies are also available on the Massachusetts Energy Efficiency Advisory Council's website at: http://ma-eeac.org/studies/.

B. Annual Summary for Year Three (2021)

Please see Appendix C-2 for a list of evaluation studies that were completed after the Program Administrators filed their 2022-2024 Three-Year Plan and are included in this Term Report. Summaries of these evaluations are included at Appendix C-3 and full copies are available at Appendix C-4. Additionally, all currently completed studies are available on the Council's website at: http://ma-eeac.org/studies/.

C. Summary of the Studies with the Most Significant Effects

The Massachusetts PAs completed 32 evaluation studies in 2021 and early 2022, which are included with the 2019-2021 Term Report (D.P.U. 18-110 – D.P.U. 18-119). Appendix C-5 highlights five 2021 studies with the most significant results regarding PA baseline assumptions, energy savings, non-energy impacts ("NEIs"), and future program design:

1. C&I Custom Gas and Electric Impact Evaluations (2019-2021 Term Report, Appendix C-2, Study 21-11 and 21-12).
2. Non-Residential New Construction Market Characterization Study (2022-2024 Three-Year Plan, Appendix J, Study 9).
3. Residential Building Equipment Use and Characterization Study (2019-2021 Term Report, Appendix C-2, Study 21-1).
4. Energy Optimization Fuel Displacement Study (2022-2024 Three-Year Plan, Appendix J, Study 6).
5. C&I Operation & Maintenance ("O&M") and Non-O&M NEI Study (2022-2024 Three-Year Plan, November 1, 2021, Appendix J, Study 34).

D. Evaluation Studies Recommendations Table

Appendix C-6 provides a table summarizing all evaluation study recommendations and, if applicable, whether the Program Administrators (or the Program Administrator for PA-specific recommendations) have implemented the recommendation to date.

8. THREE-YEAR COSTS

A. Invoice Summary Table

Please refer to Appendix D for an invoice summary table for each core initiative, sorted by budget category. The Company will continue to maintain all invoices associated with the implementation of its energy efficiency programs.

The invoice summary table is a summary of the record of how invoices were initially paid, whereas the Company's total expenditures accounts for QA/QC, additional manual adjustments, and journal entries made subsequently. Additionally, the table represents vendor invoices only. It does not include costs that are not paid via an invoice to a vendor, such as internal labor costs, internal expenses, or direct incentive payments to participants, or loans repaid by participants as part of multi-year financing opportunities in certain core initiatives. Therefore, the totals in this table will not match the totals in the Term Report Data Tables.

B. Sponsorships and Subscriptions

Please refer to Appendix E for a list of all organizations or items the Company sponsored or subscribed to during the term. The list includes the following: (a) name of the sponsored organization or item, (b) description of organization or item, (c) cost category; (d) annual funding, (e) purpose of the item, (f) whether the organization is a lobbyist, and (g) an analysis describing why the expense was reasonable, prudently incurred, and how it provided a direct benefit to Massachusetts' ratepayers. Appendix E also provides, where applicable, supporting documentation to justify the purpose and benefit. For any sponsored organization that is a registered lobbyist, Appendix E also provides a commitment from the organization not to use program funds for lobbying activities.

9. PERFORMANCE INCENTIVE MODELS

Please refer to Appendix F for the Performance Incentive calculation tables for calculations of performance incentives based on 2019-2021 achievement. Please refer to Appendix G for an illustrative report showing a calculation of the value component using net benefits.

10. RENTER, INCOME, AND LANGUAGE DATA

Please refer to Appendix H for additional data related to renters, income level, and language.

11. INVESTIGATIONS REPORT

Please refer to Appendix I for a report in response to the Department's Memorandum dated July 12, 2022.