

Cost-Effectiveness Report:

Rhode Island Energy's 2023 Energy Efficiency Plan

An Assessment and Report by

EERMC Consultant Team

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Working on Behalf of the



STATE OF RHODE ISLAND

**ENERGY EFFICIENCY &
RESOURCE MANAGEMENT COUNCIL**

Submitted to the Rhode Island Public Utilities Commission

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Summary of Consultant Team Findings

The Energy Efficiency and Resource Management Council (EERMC) Consultant Team finds that the *Annual Energy Efficiency Plan for 2023* (the “2023 EE Plan”), reviewed and endorsed by the Council on September 29, 2022, and filed September 30, 2022 by Rhode Island Energy (“the Company”), is cost-effective according to the “Rhode Island Test” (RI Test) and the historically referenced Total Resource Cost (TRC) test.

The EERMC submits these findings in compliance with the Least Cost Procurement (LCP) Standards adopted on July 23, 2020 by the Rhode Island Public Utilities Commission (PUC):

“The Council shall prepare memos on its assessment of the cost effectiveness of the EE Plans, pursuant to R.I. Gen. Laws §39-1-27.7(c)(5), and submit them to the PUC no later than three weeks following the filing of the respective EE Plans with the PUC, or in accordance with the procedural schedule set in the applicable docket.”

These findings and the remainder of this report were distributed to the EERMC on September 27, 2022 and presented to the EERMC by the EERMC Consultant Team at its September 29, 2022 meeting, where they were approved and adopted in a vote of the EERMC.

I. Introduction

This report was prepared by the Consultant Team and the EERMC to help fulfill the requirements of R.I.G.L. § 39-1-27.7(c)(5) related the PUC’s approval of the Company’s three-year procurement plan and related annual energy efficiency plans. Since 2010, the EERMC has directed the Consultant Team to prepare this report for all three-year and annual plans filed with the PUC. This version addresses the Company’s proposed *Annual Energy Efficiency Plan for 2023* (the “2023 EE Plan”), reviewed and endorsed by the Council on September 29, 2022. This report submits our finding that the EE Plan is cost-effective as evidence to the PUC. It also describes the nature and process of the review.

In order to assess the cost-effectiveness of the 2023 EE Plan, the EERMC Consultant Team reviewed the details of the Company’s Benefit-Cost Models (“BC Models”) for each draft of the 2023 EE Plan to ensure that they accurately reflect the proposed program designs in the Plans, recent evaluation results, and relevant TRM inputs (Section III). The Consultant Team reviewed and provided detailed comments on the first draft of the 2023 EE Plan on July 29th, provided technical comments on the BC Model August 5th, and engaged in a detailed review of the second draft 2023 EE Plan and associated BC Model upon receiving these documents from the Company on September 8th and 9th, respectively. The Consultant Team provided content on its findings to help inform the EERMC ahead of the September 29th EERMC vote.

II. Cost-Effectiveness Review

The Consultant Team reviewed the draft and final 2023 EE Plan to assess whether the cost-effectiveness analyses reflect recent evaluation results and relevant TRM inputs and are otherwise accurate.

As a result of these activities, the Consultant Team communicated with analysts and sector managers from the Company to address issues and questions related to program design and cost effectiveness. In numerous cases, this resulted in revisions to the 2023 EE Plan. Our key findings are that:

- The modeling and cost-effectiveness assumptions reviewed were sufficiently supported for the portfolio proposed by the Company, either in their original form or after iterating based on review provided during this process. Any issues identified in the BC Models or in the 2023 EE Plan related to cost-effectiveness analysis were addressed at the portfolio and program level by the Company’s analyst team.
- The Company appropriately used new results from both Rhode Island and relevant Massachusetts evaluations that were recently completed to update multiple measure baselines, net-to-gross ratios, measure lives, and other measure assumptions.

The final 2023 EE Plan presents the cost-effectiveness of the proposed 2023 programs using both the TRC and the RI Test. Table 1, below, summarizes the results in terms of benefit-cost ratio. Note that for this EE Plan, the Company is only reporting the RI Test without economic benefits included. This is a result of deliberations that occurred during the hearings on the 2022 EE Plan in Docket 5189. Even considering the RI Test without the economic benefits, both the electric and gas portfolios are robustly cost-effective; electric portfolio benefits are approximately 151% greater than total costs of the investments in 2023, while gas portfolio benefits exceed costs by 197%.

Table 1. RI Test and TRC Test BCR Values

Portfolio	RI Test (without Economic Benefits)	TRC Test
Electric	2.51	1.36
Gas	2.97	1.54

The RI Test seeks to include a more complete set of benefits that better reflects state policy compared to the TRC. Importantly, the benefits associated with efficiency programs, including

reductions in greenhouse gas (GHG) emissions, have been included by relying on the 2021 version of the *Avoided Energy Supply Costs in New England* report (AESC). This year, the Company has proposed to consider the social cost of carbon in the Rhode Island Cost Test, which differs from past practice which had relied on the marginal abatement cost method for assigning a dollar value to avoided greenhouse gas emissions. Specifically, the 2023 EE Plan proposes to utilize an updated social cost of carbon (SCC) based on a supplemental study to the 2021 AESC¹. As stated in the 2023 EE Plan²:

“The AESC 2021 Supplemental Study found that the SCC was \$393/short ton, levelized over a 15-year period, and the May re-release of the 2021 AESC study found that the New England MAC (electric sector) was \$124/short ton, levelized over a 15-year period, both values being in 2021 dollars.”

A small portion of this value – representing the near-term value of carbon reductions given current and likely future carbon regulation – is already included or “embedded” in the avoided energy costs that compose a portion of the benefits under the TRC Test. Therefore, the RI Test includes the remaining value of carbon emissions up to the full per-ton value. The 2021 AESC also quantified benefits for non-embedded nitrogen oxide (NOx) reduction benefits. These are much smaller than the non-embedded GHG reduction benefits, but they do appear on the figures below as an additional benefit under the RI Test.

Increased spending from installing energy efficiency measures creates jobs in the local economy. Participant and program spending on efficiency often has positive benefits to the local economy as a greater portion of total efficiency costs are spent locally than is the case for the costs of additional supply. Yet these benefits are typically not included in TRC benefit calculations because they are difficult to quantify, requiring a regional economic model. Such an analysis was conducted for the Company in 2014, and updated in 2019, the results of which form the basis for the economic benefits historically included in the RI Test.³ During review of the economic development benefits in the 2022 EE Plan in Docket 5189, concerns were raised regarding whether the economic development benefits are capturing some of the benefits reflected in other RI Test categories. As a result, it was determined that economic development benefits should be reported separately from, rather than added together with, the other RI Test benefit

¹ The AESC 2021 Supplemental Study can be found at: https://www.synapse-energy.com/sites/default/files/AESC_2021_Supplemental_Study-Update_to_Social%20Cost_of_Carbon_Recommendation.pdf

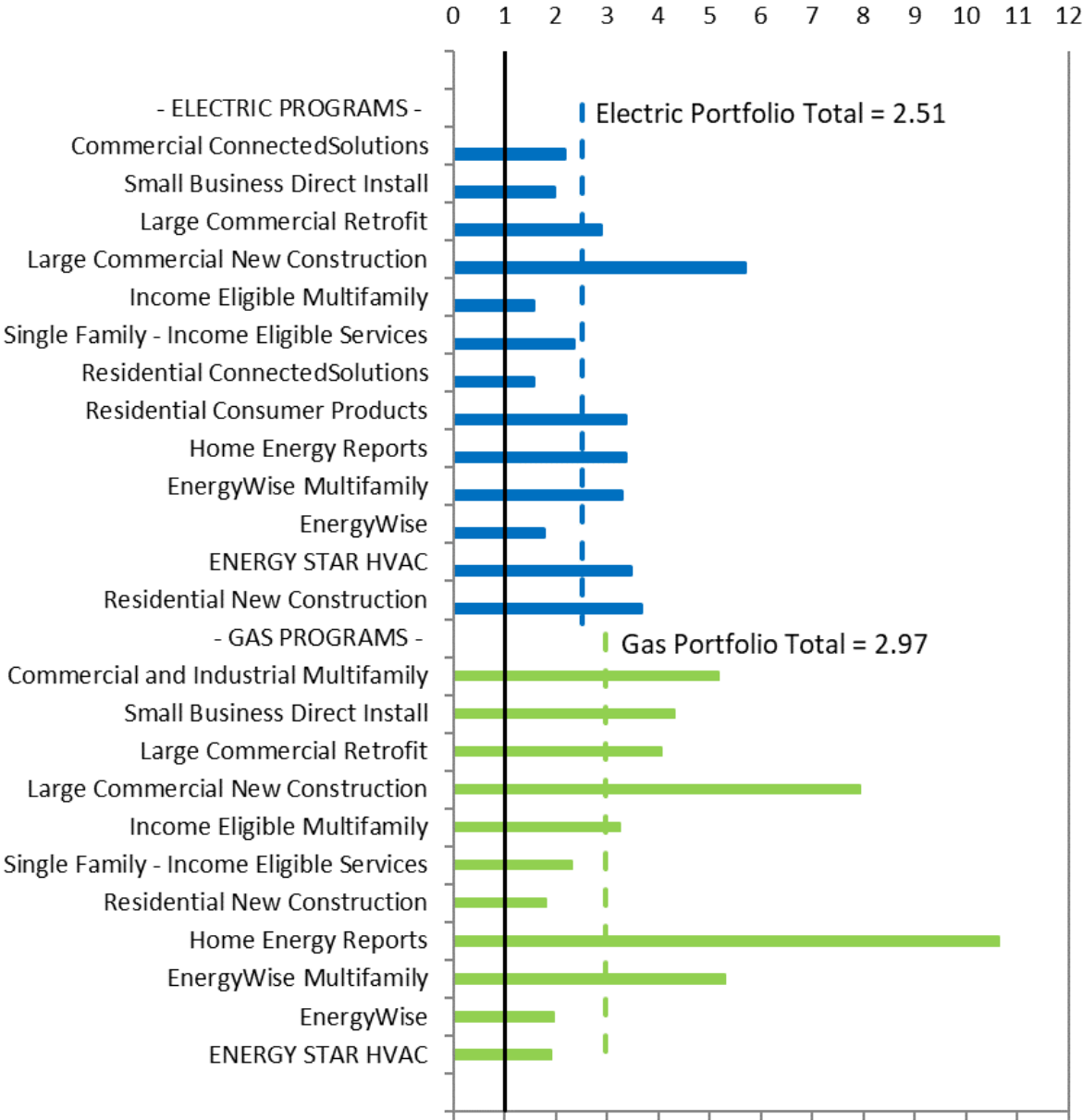
² This quote is drawn from the second draft of Rhode Island Energy's Annual Energy Efficiency Plan for 2023, Attachment 4, page 13. The second draft can be found at: <http://rieermc.ri.gov/wp-content/uploads/2022/09/2023-rie-annual-energy-efficiency-plan-second-draft.pdf>

³ Macroeconomic Impacts of Rhode Island Energy Efficiency Investments: REMI Analysis of National Grid's *Energy Efficiency Programs*, National Grid Customer Department, November, 2014.

and cost categories, to avoid any potential double counting. Consequently, economic development benefits are not part of the calculation of RI Test BCRs in this report.

The Consultant Team has reviewed the quantification of the GHG reduction and economic benefits in the RI Test. Figure 1 presents the results of the RI Test for the 2023 EE Plan in graphical form, and again demonstrates that both the electric and natural gas efficiency programs have a BCR greater than or equal to 1.0, as required by the PUC-approved LCP Standards and R.I.G.L. § 39-1-27.7 (c)(5).

Figure 1. RI Test Benefit Cost Ratios by Program



Figures 2 & 3, below, show the major components of both the costs and benefits of the portfolios for the 2023 EE Plan, reflecting the version of the RI Test that excludes economic development benefits. As noted in the table above, the electric and gas portfolios are both cost-effective using this version of the RI Test. On the cost side, note that the BCR calculation includes an allowance for the Company’s shareholder incentive at the nominal or “target” value.

Figure 2. 2023 Planned Electric Costs and Benefits

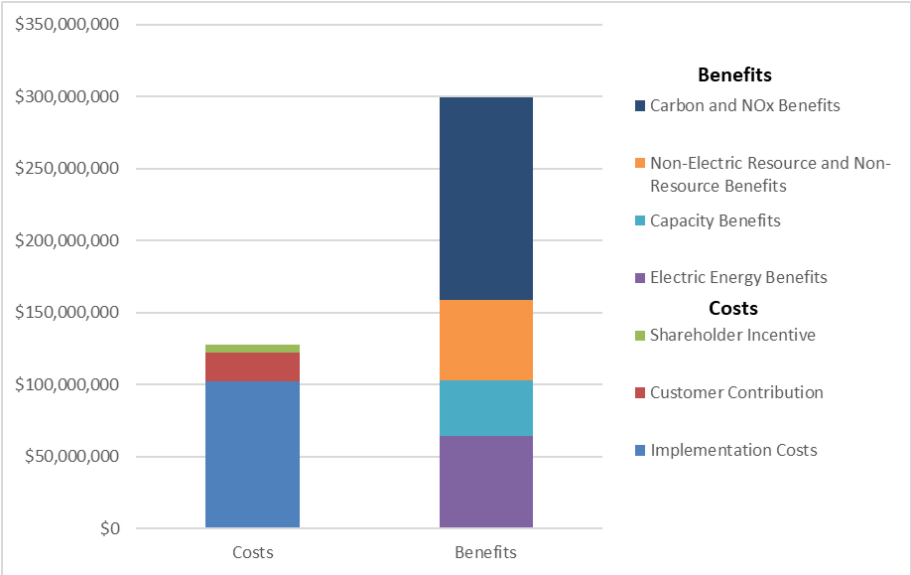
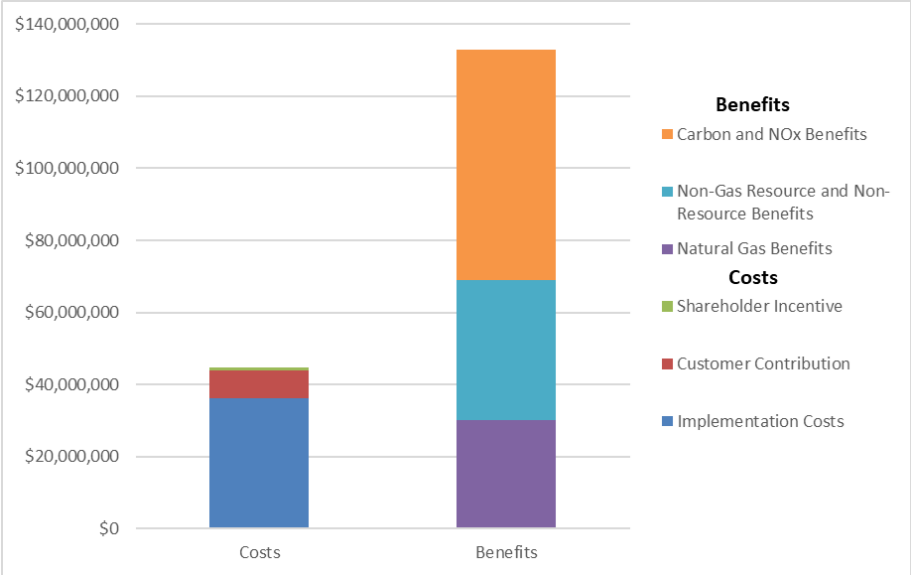


Figure 3. 2023 Planned Gas Costs and Benefits



The Consultant Team also reviewed the Company’s assessment of the cost of efficiency as compared to alternatives; the LCP standards require that efficiency be lower cost than acquisition of additional supply. The 2023 EE Plan reflects the updated guidance for assessing whether the cost of efficiency is less than the cost of supply. The Plan uses the RI Test as an appropriate starting point to determine which costs to include in this assessment. This test captures the aspects of the Docket 4600A Framework that pertain to energy efficiency programs. The source for many of these values is the aforementioned 2021 AESC Study. The benefits in the RI Test are associated with the cost savings to Rhode Island from investing in energy efficiency instead of investing in additional energy supply. For the purpose of the RI Test, these values are described as a benefit of energy efficiency in the form of avoided costs. It is reasonable to assume that these avoided cost values can also be applied as the costs of procuring additional energy supply for the purpose of this assessment. The RI Test also details what is considered a cost of energy efficiency. These are costs incurred by the utility to implement the 2023 EE Plan and the expense borne by the customer for its share of the energy efficiency measure cost.

The Plan enumerates all of the cost and benefit categories included in the RI Test and indicates which are included as a cost of efficiency, which are included as a cost of supply, and which are excluded from this comparison. The major categories that are excluded are economic development benefits, non-energy resource impacts such as water and sewer cost reductions, and other non-energy impact benefits other than those associated with income eligible rate discounts and reductions in arrearages. Tables 2 reflects the discussion in section 7.5 of the 2023 EE Plan, and shows that both the electric and gas portfolios, as proposed, are less than the cost of supply.

Table 2. Comparison of Cost of Electric Energy Efficiency and Alternative Supply

	Electric Portfolio	Gas Portfolio
Cost of Supply (\$M)	\$284.6	\$97.5
Cost of EE Programs (\$M)	\$125.6	\$44.7
Difference	\$159.0	\$52.8

Further, based on our participation in the discussions regarding this comparison and our review of the 2023 EE Plan, we believe that the Company has appropriately assessed the cost of efficiency and the cost of supply and determined that the former is less than the latter.

In summary, the EERMC Consultant Team concludes that the 2023 EE Plan meets the cost-effectiveness requirements of R.I.G.L. § 39-1-27.7(c)(5) and meets the revised LCP Standards guidance regarding the cost of efficiency and the cost of supply.

V. Conclusion

For the reasons stated herein, the EERMC and the EERMC's Consultant Team find that Rhode Island Energy's *Annual Energy Efficiency Plan for 2023* is cost-effective and is lower cost than the acquisition of additional supply pursuant to R.I.G.L. § 39-1-27.7 (c)(5).