

**BEFORE THE
STATE OF RHODE ISLAND
PUBLIC UTILITIES COMMISSION**

**IN: REVIEW OF RHODE ISLAND)
ENERGY'S ANNUAL ENERGY)
EFFICIENCY PLAN)
FOR 2023)**

DOCKET NO. 22-33-EE

**JOINT PRE-FILED DIRECT TESTIMONY
OF
SAMUEL C. ROSS, CRAIG K. JOHNSON, AND ADRIAN CAESAR**

**SUBMITTED ON BEHALF OF
THE RHODE ISLAND
ENERGY EFFICIENCY AND RESOURCE MANAGEMENT COUNCIL**

NOVEMBER 4, 2022

1 **I. INTRODUCTION**

2

3 **SAMUEL C. ROSS**

4

5 **Q. Please state your name and business address.**

6 A. My name is Samuel Ross. My business address is: Optimal Energy, 10600 Route
7 116, Hinesburg, VT 05461.

8

9 **Q. On whose behalf are you testifying?**

10 A. I am testifying on behalf of the Rhode Island Energy Efficiency and Resource
11 Management Council (EERMC).

12

13 **Q: Please summarize your work with the EERMC relevant to your role**
14 **providing testimony in this docket.**

15 A: I am a Senior Consultant at Optimal Energy, the prime contractor for the
16 EERMC's Consultant Team. I have been among the lead consultants on the
17 Consultant Team for the past five years, and I have represented the EERMC in
18 past dockets related to energy efficiency plans. I have worked in close
19 collaboration with the EERMC throughout the 2023 Annual Energy Efficiency
20 Plan (2023 Plan) development process and had overall responsibility for the
21 Consultant Team's review of the 2023 Plan. I was also the co-author for the
22 Councils' *Cost-Effectiveness Report: Rhode Island Energy's 2023 Energy*
23 *Efficiency Plan*¹.

24

25 **Q: What is the purpose of your Testimony in this proceeding?**

26 A: The purpose of my testimony is to describe the EERMC's process for engaging in
27 the development of Rhode Island Energy's 2023 Plan.

28

¹ The Summary Report can be found here: <https://ripuc.ri.gov/sites/g/files/xkqbur841/files/2022-10/2233-EERMC-CostEffectReport%2010-12-22.pdf>

1 **CRAIG K. JOHNSON**

2

3 **Q. Please state your name and business address.**

4 A. My name is Craig Johnson. My business address is: Optimal Energy, 10600 Route
5 116, Hinesburg, VT 05461.

6 **Q. On whose behalf are you testifying?**

7 A. I am testifying on behalf of the Rhode Island EERMC.

8 **Q: Please summarize your work with the EERMC relevant to your role**
9 **providing testimony in this docket.**

10 A: I am a Consultant at Optimal Energy, the prime contractor for the EERMC's
11 Consultant Team. I have been a member of the Consultant Team since 2014, and I
12 have represented the EERMC in past dockets related to energy efficiency plans. I
13 have worked in close collaboration with the EERMC throughout the 2023 Annual
14 Energy Efficiency Plan (2023 Plan) development process and oversaw the review
15 of residential and income eligible components of the 2023 Plan. I was also the co-
16 author for the Councils' *Cost-Effectiveness Report: Rhode Island Energy's 2023*
17 *Energy Efficiency Plan.*

18

19 **Q: What is the purpose of your Testimony in this proceeding?**

20 A: The purpose of my testimony is to describe the EERMC's process for engaging in
21 the development of Rhode Island Energy's 2023 Plan.

22

23 **ADRIAN CAESAR**

24

25 **Q. Please state your name and business address.**

26 A. My name is Adrian Caesar. My business address is: Optimal Energy, 10600 Route
27 116, Hinesburg, VT 05461.

28

29 **Q. On whose behalf are you testifying?**

30 A. I am testifying on behalf of the Rhode Island EERMC.

1 **Q: Please summarize your work with the EERMC relevant to your role**
2 **providing testimony in this docket.**

3 A: I am a Senior Analyst at Optimal Energy, the prime contractor for the EERMC's
4 Consultant Team. I have been a member of the Consultant Team since 2019, and I
5 have represented the EERMC in past dockets related to energy efficiency plans. I
6 have worked in close collaboration with the EERMC throughout the 2023 Annual
7 Energy Efficiency Plan (2023 Plan) development process and oversaw the review
8 of commercial and industrial components of the 2023 Plan.

9
10 **Q: What is the purpose of your Testimony in this proceeding?**

11 A: The purpose of my testimony is to describe the EERMC's process for engaging in
12 the development of Rhode Island Energy's 2023 Plan.

13

14 **II. EERMC PLAN REVIEW PROCESS**

15

16 **Q: Can you describe how the Energy Efficiency and Resource Management**
17 **(EERMC or "the Council") engaged in the Rhode Island Energy (RIE or**
18 **"the Company") 2023 Energy Efficiency Plan development process?**

19 A: The Council began providing guidance and input on the 2023 Energy Efficiency
20 Plan (2023 Plan) beginning in March 2022 when the Consultant Team (C-Team)
21 shared a presentation on 2023 Plan priorities (Exhibit 1, Exhibit 2)², which were
22 then adopted during the April 27th EERMC Meeting (Exhibit 3, Exhibit 4, Exhibit
23 5)³ and presented to the Company and other members of the Energy Efficiency
24 Technical Working Group (EE TWG) at the April 28th EE TWG Meeting⁴.

25

26 On June 2nd, the Company shared its 2023 Plan Outline Memorandum⁵ which
27 outlined the structure of the 2023 Plan narrative, attachments, and program design

² See Section 7d of Exhibit 1

³ See Section 6c of Exhibit 3

⁴ Subsequent TWG meetings also included opportunities for stakeholders, including Councilors and the C-Team, to discuss feedback on various 2023 Plan drafts and supporting documents with the Company.

⁵ The 2023 Plan Outline Memorandum can be found here: <http://rieermc.ri.gov/wp-content/uploads/2022/06/2023-rie-energy-efficiency-plan-outline-memorandum-final.pdf>

1 elements that would be included in the full 2023 Plan. The Council’s C-Team
2 prepared a presentation (Exhibit 7) that summarized key findings from its review
3 of the 2023 Plan Outline Memorandum, which supported Council review and
4 feedback on the 2023 Plan Outline during the June 16th EERMC meeting (Exhibit
5 6)⁶. Key points of Council feedback included the quantification of EE program
6 contributions to statewide GHG emissions reduction goals specified in the Act on
7 Climate, specific equity strategies to fulfill Equity Working Group
8 recommendations, details on how the Participant, Nonparticipant, and
9 Multifamily Census Studies would be leveraged to inform targeted efforts to
10 reach program nonparticipants, and continued expansion of initiatives to deliver
11 non-lighting savings.

12
13 The Company developed and released the first draft 2023 Plan Main Text⁷ on July
14 12th. This distribution also included the following Plan attachments and
15 supplementary materials: Attachment 1 – Residential & Income Eligible
16 Programs, Attachment 2 – Commercial & Industrial Programs, Attachment 3 –
17 Evaluation, Measurement, & Verification (EM&V) Plan, Attachment 4 – Rhode
18 Island Test Description, Attachment 5 – Electric Tables, Attachment 6 – Gas
19 Tables, Attachment 8 – Pilots, Demonstrations, & Assessments, Attachment 9 –
20 Cross-Program Summary, Attachment 10 – Standardized Definitions. The 2023
21 Plan Benefit-Cost Ratio (BCR) Models and Technical Reference Manual (TRM)
22 Database were shared on July 13th. 2023 Gas Bill and Rate Impacts were released
23 on July 20th, Electric Bill and Rate Impacts on July 21st, and Delivered Fuel Bill
24 Impacts on August 11th. The C-Team engaged in thorough review of the first draft
25 2023 Plan with the Council, shared questions and comments on both the Plan
26 narrative and data with the Company, and presented first draft 2023 Plan findings
27 at the July 28th EERMC Meeting (Exhibit 9). At the July EERMC Meeting
28 (Exhibit 8)⁸, the Council discussed feedback on the first draft 2023 Plan and

⁶ See Section 5a and 5b of Exhibit 6

⁷ The 2023 Plan First Draft can be found here: <http://rieermc.ri.gov/wp-content/uploads/2022/07/2023-ri-energy-annual-ee-plan-first-draft.pdf>

⁸ See Section 5b and 5c of Exhibit 8

1 communicated several analysis requests to both the C-Team and the Company to
2 facilitate further 2023 Plan review. The Council raised concerns that the Equity
3 section of the 2023 Plan lacked sufficient detail on how equity goals would be
4 accomplished, the 2023 Equity Commitments Table was blank, the electric C&I
5 2022 year-end fund balance was larger than in past years, non-incentive costs
6 increased substantially over 2022 Plan levels, C&I total resource costs increased
7 sharply, the Plan lacked detail on strategies to reach residential non-participants,
8 and it was unclear that proposed changes to the Income Eligible programs would
9 improve performance.

10

11 Subsequent to the July 28th EERMC Meeting, the C-Team continued review of
12 the 2023 Plan and engaged with the Company on the Council's behalf. In the time
13 between the July 28th and August 18th EERMC Meetings, the C-Team worked
14 collaboratively with the Company to understand quantitative planning
15 assumptions, improve planned program designs, and conduct quality assurance
16 review. This collaborative review process included ad hoc meetings between the
17 C-Team and the Company to discuss the 2023 Plan, as well as Company response
18 to Councilor, stakeholder, and C-Team questions on the 2023 Plan, both
19 quantitative and qualitative. During this same time period the C-Team engaged in
20 meetings with individual Councilors, as requested, to provide updates on the 2023
21 Plan development process and undertake additional research and analyses.

22

23 The Council discussed first draft 2023 Plan updates presented by the C-Team
24 (Exhibit 11) at the August 18th EERMC Meeting (Exhibit 10)⁹ and communicated
25 feedback related to planned cost increases (for both program implementation and
26 administration), equity metric tracking, and Council opportunity to review 2023
27 equity commitments since the 2023 Plan Equity Commitments Table was left
28 blank in the first draft.

29

⁹ See Section 5b, 5c, and 5d of Exhibit 10

1 The Company released the second draft of the 2023 Plan¹⁰, including updated data
2 and narrative text, on September 8th which was then reviewed by the C-Team and
3 presented during the September 22nd EERMC Meeting (Exhibit 12). For each
4 sector, the C-Team presented key improvements between the first and second
5 2023 Plan drafts including revised electric Large Commercial and Industrial
6 (C&I) Retrofit program cost assumptions and specific detail on target equity
7 communities. The C-Team highlighted a major addition to the second draft 2023
8 Plan, which was a \$1.7M fuel cell project in the electric C&I portfolio. The
9 Council expressed concern that such a large project, composing 19% of total C&I
10 sector lifetime electric energy savings while offsetting 43% of total C&I sector
11 lifetime gas savings due to associated natural gas consumption, was added to the
12 2023 Plan only in the second draft. During this meeting, the Council also
13 reiterated the need for the Company to address unjustified year-over-year cost
14 increases and responsiveness to Council priorities for the 2023 Plan.

15
16 In preparation for the Council vote on the 2023 Plan (Exhibit 13), the C-Team and
17 the Company continued to collaborate on review and analysis in preparation for
18 the September 29th EERMC Meeting in the week following the September 22nd
19 EERMC Meeting. The Company indicated on September 28th, one day before the
20 EERMC vote on the 2023 Plan, that the fuel cell project would be removed from
21 the 2023 Plan resulting in reduced electric savings and planned implementation
22 spending. The C-Team was able to estimate and present an interim third draft
23 2023 Plan (Exhibit 16) showing the quantitative impacts of the removal of the
24 fuel cell project to inform the September 29th Council vote on the 2023 Plan, but
25 the Company was unable to provide the proposed final 2023 BCR Models until
26 October 6th.

27
28 In aggregate, Council review of the 2023 Plan resulted in significant shifts
29 between the first draft and filed 2023 Plan. The most impactful improvement was

¹⁰ The 2023 Plan Second Draft can be found here: <http://rieermc.ri.gov/wp-content/uploads/2022/09/2023-rie-annual-energy-efficiency-plan-second-draft.pdf>

1 the correction of a quantitative error identified in the first draft electric BCR
2 Model that overstated projected participant costs by \$28M. The C-Team raised a
3 142% increase in Participant Costs or Customer Contribution from \$15.8M in
4 2022 to \$38.2M in 2023. The Company indicated there was a calculation error in
5 the electric BCR Model where the net-to-gross ratios were not applied in the
6 calculation of Customer Contribution to each measure Total Resource Cost
7 (TRC). Once the error was corrected, the Customer Contribution was reduced to
8 \$16.3M, representing a 2.9% increase above the 2022 Plan. Another component
9 of Council review of the Plan focused on measure-level cost assumptions. For
10 example, in the second draft 2023 Plan there were 14 Large C&I lighting
11 measures accounting for over 160,000 MWh of lifetime savings with TRC
12 increases of 22-361% above their equivalent 2022 measures. The Company
13 included significantly revised costs across several measure categories in the filed
14 2023 Plan. The filed 2023 Plan also saw a reduction in gas portfolio-level lifetime
15 acquisition costs¹¹ (-14%), largely driven by corrections to measure costs flagged
16 for having large increases relative to 2022 Plan levels or cross-jurisdictional costs,
17 and reductions in non-incentive costs¹² (-\$2.34M) below first draft 2023 Plan
18 levels.

19
20 Quantitative changes between the interim third draft and filed 2023 Plan were
21 presented at the October 20th EERMC Meeting (Exhibit 17). As indicated
22 previously, the Company removed the fuel cell project which drove the changes
23 between the interim third draft and filed 2023 Plan. These changes include a
24 108,913 reduction in lifetime electric savings, a \$1.7M reduction in
25 implementation spending, a \$37,390 decrease in non-incentive spending, and a
26 \$0.02 increase in lifetime electric acquisition cost. For the gas portfolio, the C-
27 Team identified an error within the gas Behavioral (Home Energy Reports)
28 program in which non-energy impact (NEI) values for some measures resulted in

¹¹ Acquisition cost: program implementation dollars spent per unit of planned lifetime savings. Program implementation dollars do not include Participant Costs or Performance Incentives.

¹² Non-incentive Costs include Program Planning & Administration, Sales, Technical Assistance, & Training, Marketing, Evaluation & Market Research.

1 overstated benefits. The Company corrected this issue, but there were no other
2 changes made to the gas portfolio between the interim third draft and filed 2023
3 Plan.

4

5 **Q: Can you describe the Council's process for reviewing planned costs included**
6 **in the 2023 Plan?**

7 **A:** At its July 28th EERMC Meeting, the Council raised year-over-year planned cost
8 increases as a concern warranting further investigation and justification for the
9 2023 Plan (Exhibit 8). In its presentation on the first draft 2023 Plan (Exhibit 9)¹³,
10 the C-Team highlighted specific programs and end uses with cost increases above
11 2022 levels, contributing to increases in the acquisition cost of lifetime energy
12 savings from 2022 to 2023 of 15% for the electric portfolio and 38% for the gas
13 portfolio. The Council questioned the magnitude of planned cost increases in the
14 2023 Plan. While acknowledging global macroeconomic challenges, inflation,
15 and supply chain issues.

16

17 The first draft, and all following drafts, of the 2023 BCR Models included 418
18 additional electric measures and 208 additional gas measures compared to the
19 2022 Plan due to the disaggregation of several measure categories in the 2022
20 models into individual measures in the 2023 models. An example of this
21 disaggregation is the C&I New Construction Motors and Variable Frequency
22 Drives (VFDs) measure, which was broken out into at least six different
23 individual measures in the 2023 Electric BCR Model (Exhibit 11)¹⁴. In addition,
24 the C-Team conducted cross-jurisdictional comparisons to the National Grid
25 Massachusetts 2022-2024 Plan BCR Models (Exhibit 11, Exhibit 12)¹⁵. The
26 Company agreed to revise the new BCR Models by benchmarking them against
27 implemented measure costs or provide supporting justification for the planned
28 measure costs.

¹³ See Pages 8, 17, and 19 of Exhibit 10

¹⁴ See Page 11 of Exhibit 11

¹⁵ See Page 12 of Exhibit 11 and Page 20 of Exhibit 12

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For the C&I portfolio, the Company provided supporting analysis for the electric Large C&I Retrofit program as part of the second draft 2023 Plan and gas Large C&I Retrofit program as part of the interim third draft 2023 Plan. Furthermore, the Company suggested that costs for the Small Business Direct Install program were accurate, given the actual installed measure available for cost calibration. However, the Company noted on Page 13 of Attachment 2 of the Filed 2023 Plan¹⁶ that the electric and gas C&I New Construction program would require a dedicated pricing study to set planned costs. While the Company performed cost benchmarking analysis for the Large C&I Retrofit programs, the same benchmarking was not performed for all C&I programs. The Council questioned why C&I gas portfolio costs increased by 33% above 2022 levels, to which the Company responded that prior Plan BCR models understated actual implementation costs. This contention is consistent with 2022 year-to-date program acquisition costs through June, which exceeded 2022 planned acquisition costs by about 31%¹⁷. The Company discussed open cost questions with the C-Team and made a good faith effort to explain planned cost increases prior to the EERMC vote on the 2023 Plan, but the lack of clear analysis for all program cost changes may warrant further investigation.

For the Residential and Income Eligible portfolios, the C-Team had flagged several areas with significant cost increase in the first draft of the 2023 Plan compared to the 2022 Plan. Some of these included a 10% increase in costs for weatherization measures, several measures with a 10% increase in costs in the Income Eligible Single Family Electric program, and average cost per participant in the Income Eligible Multifamily Gas program that was over 40% higher compared to the 2022 Plan (Exhibit 11)¹⁸. The Company provided data from

¹⁶ Page 13 of 2023 EE Plan Attachment 2 on the Commercial & Industrial Sector.
¹⁷ This figure is based on analysis of Table 2 in the Company’s second quarter program update which can be found here: <http://rieermc.ri.gov/wp-content/uploads/2022/08/2022-ri-ee-second-quarter-highlights-final.pdf>
¹⁸ See Page 15, 17, and 18 of Exhibit 11

1 multiple suppliers of weatherization materials to support the proposed increase in
2 costs for these measures as well as other supporting analysis and information to
3 justify cost increases for several measures in the Income Eligible Single Family
4 Electric program. The final draft of the 2023 Plan reduced the average incentive
5 per participant in the Income Eligible Multifamily Gas program significantly
6 compared to the first draft, however, this incentive amount per participant still
7 ended up being 23% higher compared to the 2022 Plan. The Company provided
8 actual cost data from 2021 to support this increase, however the data was
9 provided on Monday September 26th, just three days before the Council's vote on
10 the Plan. This did not allow for sufficient time to fully vet the data or allow for
11 updates prior to the Council's vote.

12
13 At the portfolio level, both electric and gas acquisition costs were 18% above
14 2022 Plan costs in the filed 2023 Plan.

15
16 **Q: The Company implemented a new methodology for quantifying the cost of**
17 **carbon in the 2023 Plan compared to previous years. Can you summarize the**
18 **Council's review of the cost of carbon assumptions made in the 2023 Plan, as**
19 **well as the Council's stance of the use of the Social Cost of Carbon?**

20 **A:** In the filed 2023 Plan, the Company proposed the same methodological approach
21 to quantifying non-embedded carbon costs as was proposed by the Massachusetts'
22 Program Administrators in their 2022-2024 Three-Year Energy Efficiency Plan.
23 The Company proposed to use the social cost of carbon (SCC) from the Avoided
24 Energy Supply Components (AESC) in New England 2021 Supplemental Study
25 of \$393 per short ton in most instances, and AESC 2021 Marginal Abatement
26 Cost (MAC) of \$125 per short ton in specific areas¹⁹.

27
28 More specifically, the Company applied the MAC to all measures that represented
29 instances of fossil fuel efficiency; for instance, replacing a gas boiler with more
30 efficient gas heating equipment would use the MAC, whereas an electric

¹⁹ 2023 EE Plan Attachment 4 Section 3.9: Non-Embedded Greenhouse Gas Reduction Benefits (P.11-15).

1 resistance heating to heat pump conversion would utilize the SCC. The SCC
2 developed in the AESC Supplemental Study incorporates climate science findings
3 from the Intergovernmental Panel on Climate Change (IPCC) August 2021 report,
4 literature on economic damages of carbon emissions, consideration of previously
5 overlooked impacts of the cost of adaptation to climate change, revised climate
6 scenario probability weighting, and a discount rate that reflects intergenerational
7 considerations.

8
9 The Council did not extensively discuss this matter during Plan review, as it was
10 proposed as a changed methodology in the second draft 2023 Plan. The move
11 toward the SCC was discussed during the Council's September 29th meeting
12 when the Council reviewed the Council's Cost-Effectiveness Report (Exhibit 14,
13 Exhibit 15), which was filed with the PUC on October 13th. The Council was
14 generally supportive of moving toward using the SCC in assessing the cost-
15 effectiveness of Rhode Island energy efficiency programs.

16

17 **Q: Can you describe the Council's process for reviewing the 2023 Plan**
18 **Technical Reference Manual (TRM) Database and any key findings?**

19 **A:** Review of the TRM Database is meant to ensure all evaluation study results (from
20 Rhode Island or other jurisdictions) are accurately sourced, documented, and
21 successfully populated into the Plan BCR models. During the 2023 Plan
22 development process, an initial draft of the TRM database was provided on July
23 13th to accompany the first draft 2023 Plan, but no subsequent drafts were
24 provided until October 21st, after the plan was voted on by the Council and filed
25 by the Company with the PUC. Given the increased granularity built into the
26 2023 Plan BCR Models, which was not reflected in the draft TRM provided in
27 July, the draft TRM was of limited use in review of the 2023 Plan BCR Models.

28

29 There are three primary components of C-Team and Council review of the TRM
30 Database: inclusion of all relevant and agreed upon study results, accurate
31 documentation of evaluation assumptions, and consistency between the TRM

1 Database and Plan BCR Models. The first draft, and all following drafts, of the
2 2023 BCR Models included 418 more electric measures and 208 more gas
3 measures compared to the 2022 Plan due to the disaggregation of several measure
4 categories into individual measures. The increased granularity of the 2023 Plan
5 BCR Models is an improvement to the planning process because it will enable
6 more detailed review of these disaggregated measures in future planning cycles.
7 Conversely, though adequate for general planning purposes, the historical use of
8 aggregated measure categories limited transparency regarding planned
9 installations of specific measures within the aggregated categories, and
10 consequently limited the ability to make granular comparisons to actual installed
11 measures.

12
13 The TRM Database did not undergo the same measure category disaggregation as
14 the 2023 Plan BCR Models. There are only 357 electric and 241 gas measures in
15 the TRM Database compared to 719 measures in the 2023 Plan Electric BCR
16 Model and 347 measures in the 2023 Plan Gas BCR Model. During the review
17 process, the C-Team requested a mapping table from the Company showing the
18 relationship between the list of measures included in the TRM Database and the
19 list of measures included in the BCR Models but did not receive one.

20
21 The TRM Database would benefit from a comprehensive update to match the
22 level of granularity included in the BCR Models as part of the 2024-2026 Three-
23 Year Plan development process to ensure a comprehensive and detailed update of
24 all measures, as well as the addition of all newly disaggregated measures.

25 26 **III. SUMMARY AND CONCLUSION**

27
28 **Q: Please summarize the testimony you have provided.**

29 **A:** The purpose of our testimony was to describe the EERMC's process for engaging
30 in the development of Rhode Island Energy's 2023 Plan. This testimony includes
31 a high-level overview of the review and feedback provided during the plan

1 development process, as well as a general timeline of when review and feedback
2 was conducted. It also includes some more specifics around the Council's
3 engagement in review of planned costs, methodology for quantifying the cost of
4 carbon, and review process of the 2023 Plan Technical Reference Manual.

5

6 **Q: Does this conclude your testimony?**

7 A: It does.