DIVISION OF PUBLIC UTILITIES & CARRIERS
JOINT PRE-FILED DIRECT TESTIMONY

DIRECT TESTIMONY OF
JOEL MUNOZ, JENNIFER KALLAY,
AND TIM WOOLF

On the Topic of the
2023 Annual Energy Efficiency Plan

November 4, 2022

Table of Contents

1. INTRODUCTION 3
   Joel Munoz 3
   Jennifer Kallay 4
   Tim Woolf 6
2. PURPOSE OF THIS TESTIMONY 7
3. SUMMARY AND CONCLUSIONS REGARDING THE *EE PLAN* 8
4. ACT ON CLIMATE 10
5. THE VALUE OF GREENHOUSE GAS EMISSIONS 11
6. BUDGETS 25
7. COST OF SUPPLY 30
8. PERFORMANCE INCENTIVE MECHANISM 30
9. RECOMMENDATIONS 35

Exhibit JM/JK/TW-1: Resume of Jennifer Kallay
Exhibit JM/JK/TW-2: Resume of Tim Woolf

1. INTRODUCTION

Joel Munoz

Q. MR. MUNOZ, PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Joel Munoz. My business address is 89 Jefferson Boulevard, Warwick, Rhode Island 02888.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?

A. I am employed by the Rhode Island Division of Public Utilities and Carriers (Division). I am a Rate Analyst assigned to energy efficiency-related filings.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL BACKGROUND.

A. I received a Bachelor of Arts in History, as well as a Master of History Degree from Providence College. I received a Juris Doctorate from Suffolk University School of Law. Prior to joining the Division of Public Utilities, I worked for the Law Offices of Edward G. Lawson, the City of Pawtucket, Legal Department, and the Rhode Island Attorney General's Office, Civil Division.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE RHODE ISLAND PUBLIC UTILITIES COMMISSION?

A. Yes, I have testified before the Rhode Island Public Utilities Commission (Commission) in energy efficiency-related matters. Most recently, I testified before the Commission in

the 2021-2023 EE Program Plan, 2021 Annual EE Program Plan in Docket 5076, and 2022 Annual EE Program Plan in Docket 5189.

Jennifer Kallay

Q. MS. KALLAY, PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Jennifer Kallay. My business address is 485 Massachusetts Avenue, Cambridge, Massachusetts, 02139. I am employed by Synapse Energy Economic Inc. (Synapse) as a Senior Associate.

Q. PLEASE DESCRIBE SYNAPSE ENERGY ECONOMICS.

A. Synapse Energy Economics is a research and consulting firm specializing in electricity and gas industry regulation, planning, and analysis. Our work covers a range of issues, including economic and technical assessments of demand-side and supply-side energy resources; energy efficiency policies and programs; power sector transformation; integrated resource planning; electricity market modeling and assessment; renewable resource technologies and policies; and climate change strategies. Synapse works for a wide range of clients, including state attorneys general, offices of consumer advocates, trade associations, public utility commissions, environmental advocates, the U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Justice, the Federal Trade Commission, and the National Association of Regulatory Utility Commissioners. Synapse has over 40 professional staff with extensive experience in the electricity industry.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL BACKGROUND.

A. I have 15 years of professional experience analyzing the benefits and costs of energy efficiency efforts for jurisdictions in the United States and Canada including Massachusetts, Rhode Island, Hawaii, Vermont, New Jersey, Arkansas, Minnesota, Virginia, Prince Edward's Island, Ontario, and Nova Scotia. Since 2012, I have supported the Rhode Island Division of Ratepayer Advocate in assessing the impacts of utility energy efficiency plans and delivery strategies on customers. My work entails reviewing different regulatory approaches to spur energy efficiency; assessing the ability of utility energy efficiency plans to tap into cost-effective potential; researching best practice program designs and policies; understanding and accounting for the full benefits of energy efficiency; and conducting rate and bill impact, participant, and cost-effectiveness analyses. I received a Bachelor of Arts in Journalism from the University of Maryland and a Master of Energy and Environmental Analysis Degree from Boston University. My resume is attached as Exhibit JM/JK/TW-1.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE RHODE ISLAND PUBLIC UTILITIES COMMISSION?

A. Yes, I have testified before the Commission in energy efficiency-related matters. Most recently, I testified before the PUC in the 2021-2023 EE Program Plan and 2021 Annual EE Program Plan in Docket 5076, and 2022 Annual EE Program Plan in Docket 5189.

Tim Woolf

Q. MR. WOOLF, PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Tim Woolf. My business address is 485 Massachusetts Avenue, Cambridge, Massachusetts, 02139. I am employed by Synapse Energy Economic Inc. (Synapse) as a Senior Vice President.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL BACKGROUND.

A. Before joining Synapse Energy Economics, I was a commissioner at the Massachusetts Department of Public Utilities (DPU) from 2007 through 2011. In that capacity, I was responsible for overseeing a substantial expansion of clean energy policies, including significantly increased ratepayer-funded energy efficiency programs; an update of the DPU energy efficiency guidelines; the implementation of decoupled rates for electric and gas companies; the promulgation of net metering regulations; review and approval of smart grid pilot programs; and review and approval of long-term contracts for renewable power. I was also responsible for overseeing a variety of other dockets before the Commission, including several electric and gas utility rate cases.

Prior to being a commissioner at the Massachusetts DPU, I was employed as the Vice President at Synapse Energy Economics; a Manager at Tellus Institute; the Research Director at the Association for the Conservation of Energy; a Staff Economist at the Massachusetts Department of Public Utilities; and a Policy Analyst at the Massachusetts

Executive Office of Energy Resources. I hold a Masters in Business Administration from Boston University, a Diploma in Economics from the London School of Economics, a BS in Mechanical Engineering and a BA in English from Tufts University. My resume is attached as Exhibit JM/JK/TW-2.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE RHODE ISLAND PUBLIC UTILITIES COMMISSION?

A. Yes, I have testified before the Commission in energy efficiency-related matters. Most recently, I testified before the PUC in the *2021-2023 EE Program Plan* and *2021 Annual EE Program Plan* in Docket 5076, and *2022 Annual EE Program Plan* in Docket 5189.

2. PURPOSE OF THIS TESTIMONY

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?

A. We are testifying on behalf of the Division of Public Utilities and Carriers.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The Division, as Rhode Island's Ratepayer Advocate, is an indispensable party in all Commission proceedings. The Division serves the Commission, through discovery and evidentiary hearings, by providing the Commission with data-driven analysis. The purpose of this testimony is to provide a review of some key elements of the filed plan for the Commission's deliberations. The Division reviewed the Narragansett Electric Company d/b/a National Grid's (National Grid or the Company) 2022 Annual EE Plan filed on October 1, 2021 and the Company's 2022 Provisional Annual EE Plan filed

October 8, 2021, referred to herein collectively as the EE Plan, to ensure: (1) compliance with R.I. Gen. Laws 39-1-27.1 (Least Cost Procurement Statute); (2) adherence to the PUC's Least Cost Procurement (LCP) Standards; (3) advancement of the State of Rhode Island's energy policies; and (4) promotion of the general interest and welfare of Rhode Island ratepayers. The Division hired Synapse as its expert consultant to assist in its review of National Grid's EE Plan.

3. SUMMARY AND CONCLUSIONS REGARDING THE *EE PLAN*

Q. PLEASE SUMMARIZE THE KEY ELEMENTS OF THE *EE PLAN*.

A. The key elements of the *EE Plan* are as follows:

- The *EE Plan* is the third annual plan within the overarching *2021-2023 EE Plan* and the second annual plan since the state passed the Act on Climate in 2021.
- The *EE Plan* cost of supply, RI Test benefit-cost ratios, and rate and bill impacts are significantly impacted by a change in the method for valuing greenhouse gas emissions reductions and the values applied.
- The *EE Plan* proposes a budget decrease of $3.15 million for electric, a 2.9 percent decrease. The electric *EE Plan* was affected by an underspending of $32 million in 2022. The *EE Plan* proposes a budget increase of $42,800 for

gas, a 0.1 percent increase. Across electric and gas, the *EE Plan* proposes a budget decrease of $3.15 million, a 2.1 percent decrease.

- The *EE Plan* proposes changes to the cost of supply and PIM-eligible benefits.

Q. WHAT CONCLUSIONS HAS THE DIVISION REACHED ON THE *EE PLAN*?

A. The Division concludes the following regarding the *EE Plan*:

- The *EE Plan* supports the Act on Climate, particularly in meeting greenhouse-gas emissions (GHG) reduction goals.

- The REC price forecast should be used to represent the value of GHG emission reductions for this year. This will change the cost of supply, RI Test benefit-cost ratios, and rate and bill impacts. The avoided cost of procuring RECs for the current RES should be added to the PIM-eligible benefits because these are utility system benefits. This issue should be addressed in more detail in early 2023, to provide more robust and vetted assumptions for the next *EE Plan* (which happens to be a three-year plan) as well as for the benefit-cost analyses of other utility investments.

- The electric implementation budget be funded at 90 percent of the Company's proposed electric implementation budget of $102 million or $92 million, consistent with the historical data from the past few *EE Plans* during the pandemic.

- The Company's proposal to include only those non-energy impact benefits associated with income eligible rate discounts and reductions in arrearages in its calculation of the cost of supply is sound as these are utility system costs.

- The 2023 EE Plan incentive put forth by the Company is generally consistent with the guidance laid out in these two orders and presents updates to the target incentive pools and the service quality adjustments to reflect changes in projected net benefits in the plan. The Company's proposal to remove the RIIB and OER budgets from the PIM-eligible costs makes sense.

4. ACT ON CLIMATE

Q. DOES THE *EE PLAN* SUPPORT EFFORTS TO ADDRESS CLIMATE ISSUES IN THE STATE?

A. Yes, the *EE Plan* supports the Act on Climate, particularly in meeting greenhouse-gas emissions (GHG) reduction goals. Energy efficiency is recognized as one of the most cost-effective ways to reduce energy consumption, save ratepayers money on their energy bills, and provide societal and environmental benefits that help achieve the state's energy policy goals. The Company's *EE Plan* will avoid more than 75,000 short tons of carbon in 2023, making it an essential tool in reaching the ambitious and accelerated GHG reduction goals set out in the Act on Climate.

5. THE VALUE OF GREENHOUSE GAS EMISSIONS

Q. HOW IS THE COMPANY ESTIMATING THE VALUE OF GREENHOUSE GAS EMISSIONS IN THE *EE PLAN*?

A. The Company is proposing a new method for estimating the value of GHG emissions. They are proposing to use an updated Social Cost of Carbon (SCC) value that was determined in a Supplemental Study to the AESC 2021.[1] This updated SCC value is equal to $393 per short ton of CO_2 (in 15 year levelized terms, in 2021 dollars), which is equal to roughly 15¢/kWh (in 15 year levelized terms, in 2021 dollars). The Company claims that this method for estimating the value of GHG emissions is consistent with the Act on Climate and reflects a more recent, and therefore more accurate, assessment of the value of GHG emissions.[2]

Q. WHAT METHOD HAS THE COMPANY USED IN THE PAST TO ESIMATE THE VALUE OF GHG EMISSIONS?

A. In the *2021 and 2022 EE Plans* the Company used an estimate of GHG emissions from the 2021 AESC that employs the New England marginal abatement cost (MAC) method of estimating these values. This method results in GHG emissions values of $124 per

Commented [TW1]: Note to the Division: This section includes some important recommendations that will result in a shift of recent BCA practices. Some of the points here have not been made to any of the stakeholders or the Commission yet.

It might make more sense for me (Tim) to present this as a stand-alone testimony. Partly because it has implications well beyond the EE Plans; partly because the substance is relatively new and complex; and partly to allow for me to state that these are my views, if the Division does not have time to adopt them as its own views.

[1] Synapse Energy Economics, *AESC 2021 Supplemental Study: Update to Social Cost of Carbon Recommendation*, prepared for the AESC Supplemental Study Group, October 12, 2021 (Supplemental AESC Study). This study was overseen by a Massachusetts stakeholder group that included all Massachusetts energy efficiency program administrators, as well as the Massachusetts Department of Energy Resources, the Massachusetts Department of Environmental Protection, the Office of the Massachusetts Attorney General, and the Massachusetts Energy Efficiency Advisory Council.

[2] 2023 EEP, Attachment 4, pages 12-13.

short ton of CO_2 (in 15 year levelized terms, in 2021 dollars), which is equal to roughly 4.7¢/kWh (in 15 year levelized terms, in 2021 dollars).

Q. HOW DOES THE COMPANY APPLY THIS NEW VALUE OF GHG EMISSIONS IN THE *EE PLAN*?

A. The Company uses a hybrid approach, which applies the New England MAC for some end uses and the SCC for others. The Company employs the New England MAC for measures that involve new fossil fuel process heating, space heating, or water heating equipment regardless of the customer's prior heating source and employs the SCC method for all other measures. This hybrid approach is based on the approach used in Massachusetts.[3]

Q. WHAT PARTS OF THE *EE PLAN* DOES THIS ASSUMPTION AFFECT?

A. This new assumption for the value of GHG emissions has significant implications for the benefit-cost analysis using the RI Test. It increases the benefit-cost ratio for every program and for the electric and gas portfolios as a whole.

This new assumption also affects the cost of supply analysis, because that analysis includes the value of GHG emission reductions as one of the benefits.

[3] 2023 EEP, Attachment 4, page 12.

This new assumption does not affect the energy efficiency performance incentive mechanism (PIM) because the value of non-embedded GHG emissions is not included in the PIM-eligible benefits.

Q. WHAT IS THE DIVISION'S POSITION ON THIS NEW METHOD FOR ESTIMATING THE VALUE OF GHG EMISSIONS?

A. The Division recognizes the importance of addressing the requirements of the Act on Climate and the important role of energy efficiency in meeting those requirements. The Division also recognizes the importance of using GHG emission value estimates that are up-to-date and reflect the specific conditions and policy goals in Rhode Island. Further, the Division believes that the GHG emission value based on the New England MAC from the 2021 AESC is not the best value for the purposes of cost-effectiveness analyses in Rhode Island.

However, the Division has concerns with the approach the Company has adopted and the rationale it provides for that approach. We are not convinced that any SCC value is the best method for determining the value of GHG emissions in a state like Rhode Island with relatively stringent GHG emission reduction requirements. Further, we do not agree with the Company's hybrid approach for using different GHG values for emissions from different types of end-uses. Before describing these concerns in more detail, we provide an overview of methods for estimating GHG emission values.

Q. PLEASE PROVIDE AN OVERVIEW OF THE METHODS FOR ESTIMATING THE VALUE OF GHG EMISSIONS.

A. There are two methods for estimating the value of GHG emissions: the damage cost method (used to calculate the SCC) and the MAC method.[4]

- *The damage cost method* is based on the dollar value of the damages to society from adding an incremental amount of that GHG to the atmosphere. Damage costs include the net impacts of the increased risk of floods and other natural disasters including agricultural productivity, human health, property, energy systems, conflict, environmental migration, and ecosystems.

- The *MAC method* is based on identifying the marginal technology, resource, or policy option that can be used to abate GHG emissions to a specified level. The marginal abatement option is determined by ranking all the potential abatement options from lowest to highest cost (in $/ton of GHG abated) and identifying the last, i.e., marginal, abatement option needed to reduce GHG emissions to the specified level. The MAC method can be applied to the specific GHG emission reduction goals in a state (e.g., 45 percent below 1990 levels by 2030), or it can be applied to broader societal climate change goals (i.e., net zero GHG emissions by 2050).

Table 1 provides a summary of these two methods and some of the advantages and disadvantages of each.

[4] These methods are described in more detail in National Efficiency Screening Project, *Methods, Tools, and Resources: A Handbook for Quantifying Distributed Energy Resource Impacts for Benefit-Cost Analysis*, March 2022 (MTR Handbook). See Section 7.1.2.

Table 1. Comparison of the Damage Cost (SCC) and MAC Methods[5]

Method	Description	Applications	Advantages	Disadvantages
Social Cost of Carbon	Based on future global damage costs from climate change	1. For determining the total social cost of GHG emissions 2. For determining the cost of compliance with GHG mandates that require meeting a societal GHG goal, e.g., net zero emissions by 2050	• Values are readily available • Values are credible because they were developed and vetted by global experts and federal agencies • Can be applied to emissions from any sector • Does not require a specific carbon reduction target	• Involves considerable uncertainty and debate about future damage costs • Value is extremely sensitive to the discount rate chosen and complex modeling assumption • Can only be used to determine total social cost of GHG emissions
Marginal Abatement Cost	Based on cost of technologies and other options that can be used to abate GHG emissions to a desired level in the jurisdiction of interest	1. For determining the total social cost of GHG emissions, if a societal GHG goal is used, e.g., net zero emissions by 2050 2. For determining the cost of complying with specific GHG targets	• Well-suited for determining the cost of compliance with GHG targets that are less stringent than a societal GHG goal • Based on known technologies with known costs relevant to the jurisdiction • Reveals the actual costs that might need to be incurred to meet GHG target	• Requires concrete emission abatement targets • Values not easily available; estimates are complex and resource-intensive • Ideally requires analysis for multiple sectors (electric grid, building, transportation, industry)

Q. WHICH IS THE BEST METHOD FOR ESTIMATING GHG EMISSION VALUES IN RHODE ISLAND?

A. While either method could be used, we believe that the MAC method is the best method for Rhode Island at this time because the state has relatively clear GHG emissions reduction requirements, and these requirements can be used to determine the actual costs that are likely to be incurred to comply with them. Note that if the MAC method is used

[5] From MTR Handbook, page 152.

in Rhode Island, it should be based on the specific conditions and GHG requirements in Rhode Island.

Q. PLEASE SUMMARIZE THE GHG EMISSION VALUES PROVIDED BY THE 2021 AESC STUDY AND THE SUPPLEMENTAL AESC STUDY.

A. Table 2 provides a summary of the GHG values from these two studies.

Table 2. GHG Emission Values from the 2021 AESC and Supplemental Study

	Value ($/short ton)	Value (¢/kWh)
SCC from AESC	128	4.87
SCC from Supplemental Study	393	15.00
Global MAC	92	3.41
New England MAC: electric	125	4.74
New England MAC: multiple sectors	493	19.72

Sources:
2021 AESC Study, page 17.
Supplemental AESC Study, pages 18 and 20.

Notes:
Values are in 15 year levelized terms, in 2021 dollars.

The values for the SCC in the 2021 AESC Study are based on the US Federal Interagency Working Group (IWG) values originally prepared in 2016. The Federal IWG recommended several potential values for the SCC, depending upon the choice of discount rate. The "central" value was based on a 3 percent real discount rate, and this is the value adopted by the 2021 AESC Study.

The Supplemental AESC Study relies upon on-going work from the Federal IWG as well as updates to the science on climate change to conclude that the SCC value based on a 3

percent discount rate is likely to be too low. In the absence of a more comprehensive update from the Federal IWG, the Supplemental Study recommends using the SCC values based on a 2 percent real discount rate. This is the value presented in Table 2.

Q. WHAT IS YOUR OPINION ON THE RECOMMENDATION IN THE SUPPLEMENTAL AESC STUDY?

A. We agree with the Supplemental AESC Study that the SCC for the 2021 AESC understates the actual damage cost likely from climate change. And we agree that a 2 percent real discount rate for these values is a more appropriate rate to use, for several reasons: (a) it is less likely to understate the damage cost from climate change; (b) a 2 percent real discount rate is a better representation of a societal discount rate than 3% real; and (c) a 2 percent discount rate is closer to the discount rate used in Rhode Island for evaluating energy efficiency resources. We do have some concerns about using this value of GHG emissions in Rhode Island, addressed below.

Q. WHY ARE THESE GHG EMISSION VALUES FROM THE 2021 AESC REFERRED TO AS "NON-EMBEDDED" GHG IMPACTS?

A. This is the term used in the 2021 AESC to refer to those environmental costs that are not included, i.e., embedded, in the costs that they utility incurs. Economists refer to these costs as "externalities," because they are external to the market prices that consumers pay for a product. In contrast, "embedded" environmental costs are those that are incurred by utilities to comply with environmental regulations. One example of embedded

environmental costs is the costs that utilities incur to comply with the Regional Greenhouse Gas Initiative.

Q. SHOULD GHG VALUES BASED ON THE MAC METHOD BE CONSIDERED NON-EMBEDDED OR EMBEDDED IMPACTS?

A. GHG values based on the MAC method applied to the *specific environmental compliance requirements of the state* should be considered utility system impacts, i.e., embedded impacts. These are the costs that will actually be incurred by the utility and passed on to customers as a result of complying with those requirements.

GHG values based on the MAC method applied to *more general environmental compliance requirements*, such as the New England based MAC or the societal target of net zero emissions by 2050, cannot necessarily be considered utility system costs because it is not clear how much of these costs will be passed on to utility customers.

Q. WHAT ARE THE IMPLICATIONS FOR CATEGORIZING GHG VALUES AS EITHER EMBEDDED OR NON-EMBEDDED?

A. Embedded costs will be passed on to utility customers, and therefore are a utility system cost, not a societal cost. This distinction has no impact when applying the RI Test, because both utility system and societal costs are included in that test. This distinction can have a large impact when applying the Utility Cost Test (UCT). It can also have a large impact on the rate and bill impact analysis, because rate impacts are driven by utility system impacts. This distinction also has a large impact on the Company's energy

efficiency PIM, because the non-embedded GHG values are excluded from the PIM-eligible benefits.

Q. SHOULD THE SCC BE USED TO QUANTIFY THE VALUE OF GHG EMISSIONS IN THE RHODE ISLAND *EE PLAN*?

A. No. The SCC values are based on the damage cost method of determining GHG emission values. For a state like Rhode Island, with relatively stringent GHG standards and clean energy policies, it is more appropriate to use the MAC method for estimating GHG emission values. This method will provide the *actual* costs that Rhode Island will occur for complying with the *specific* requirements in the state. This is a much more accurate representation of the costs that Rhode Island is likely to incur to reduce GHG emissions than an estimate based on the global damages that are expected to result from climate change.

Q. IS THE MAC METHOD A BETTER METHOD FOR ESTIMATING GHG EMISSION VALUES FOR ANY STATE?

A. No, not necessarily. If a state does not have relatively stringent GHG standards, then the MAC method will not capture the full impact, i.e., the full value, of GH emissions. In these states, compliance with the GHG standards will still result in some GHG emissions that will impose costs on society. If a state does not have relatively stringent GHG values, then the MAC method can be used to estimate the full societal value of GHG emissions by assuming societal GHG reduction target, such as net zero emissions by 2050.

In Rhode Island, the Act on Climate and the Renewable Energy Standard (RES) provide sufficient regulatory requirements to allow for the MAC method to provide a reasonable estimate of the full value of GHG emissions, as discussed below.

Q. HOW SHOULD THE MAC METHOD BE APPLIED QUANTIFY THE VALUE OF GHG EMISSIONS IN THE RHODE ISLAND *EE PLAN*?

A. There are two important environmental requirements at play here: the Act on Climate, described above, and the RES. The RES requires all retail electricity suppliers, including the Company, to increase their renewable generation each year until it reaches 100 percent by 2033.

For the electric sector, the RES requirements are likely to be more stringent than the Act on Climate requirements. If electricity is mostly provided by renewable generation by 2030 and completely provided by renewable generation by 2033, then the electric sector will enable the state to meet its economy-wide goal of 45 percent GHG emission reductions (relative to 1990 emissions) by 2030. Therefore, compliance with the RES should be used to determine the MAC values for the Rhode Island electricity sector.

Q. HOW CAN THE RES BE USED TO DETERMINE THE MAC VALUES FOR THE RHODE ISLAND ELECTRICITY SECTOR?

A. The Company can comply with the RES using multiple sources of clean energy, including energy from the Renewable Energy Growth (REG) Program, energy from the Net Metering (NM) Program, renewable energy from long-term contracts (LTC), and purchases of qualifying renewable energy certificates (RECs) from Rhode Island and

neighboring states. The Company's energy efficiency programs can also be used to help comply with the RES, because reducing electricity demand through energy efficiency will reduce the amount of energy that will need to be provided by renewable generation.

Determining the marginal cost of complying with the RES requires identifying the marginal renewable resource needed for compliance in each year. Identifying this marginal resource would require a study of costs and benefits of all the clean energy programs that could be used for RES compliance. In the absence of such a study, it is reasonable to assume that RECs will represent the marginal resource that the Company can use to comply with the RES. Therefore, REC prices can be assumed to be the MAC for complying with the Rhode Island Act on Climate, and REC prices will represent the value of GHG emission reductions in Rhode Island.

Q. WHAT IS THE VALUE OF REC PRICES IN RHODE ISLAND?

A. The 2021 AESC provides a forecast of REC prices in New England. There are separate values for each state depending upon the specific requirements in each state. The REC price forecast for Rhode Island is found to be 2.49 ¢/kWh (in 15 year levelized terms, in 2021 dollars).[6]

[6] 2021 AESC, page 160.

Q. IS THIS REC PRICE FORECAST A REASONABLE ASSUMPTION FOR THE MARGINAL COST OF COMPLIANCE WITH GHG REQUIREMENTS IN RHODE ISLAND?

A. This REC price forecast should be considered a low value for the cost of compliance with GHG requirements in New England, for several reasons. First, it is based on the previous RES requirements, not the more stringent requirement of 100 percent renewable generation by 2033. Second, purchasing RECs from other states does not support Rhode Island goals of promoting in-state renewable development and in-state renewable jobs. In-state renewable resources will generally cost more than purchasing RECs from other parts of New England. Third, the electricity sector is likely to be relied upon to decarbonize other sectors, including the thermal fuel and transportation sectors, which will likely lead to much greater electricity sales and higher costs of complying with the RES. Also, the recent Inflation Reduction Act offers significant incentives for installing and operating energy efficiency and renewable resources, which will create downward pressure on REC prices. All things considered, in the absence of a more focused study on this issue, the REC price forecast is a reasonable assumption for the marginal cost of compliance with the RES and thus the marginal abatement cost of GHG emissions.

Q. HOW SHOULD THIS VALUE OF GHG EMISSIONS BE APPLIED IN THE 2023 EE PLAN?

A. We recommend that the REC price forecast be used to represent the value of GHG emission reductions. Further, the Company should assume that these are utility system costs, not non-embedded costs, because these are the costs that the Company will actually

incur and pass on to customers. Since these costs represent a utility system cost, and since they are based on complying with a requirement to produce electricity from 100 percent renewable, non-fossil generation, there will be no additional costs associated with GHG emissions. That is, there will not be any additional benefits associated with non-embedded GHG emissions.

Q. YOU HAVE FRAMED THIS DISCUSSION IN TERMS OF THE ELECTRICITY SECTOR AND THEREFORE THE ELECRIC ENERGY EFFICIENCY PROGRAMS. WHAT ABOUT GAS AND OTHER FOSSIL FUELS SUCH AS OIL AND PROPANE?

A. MACs for the fossil fuels sector are much more complicated than for the electricity sector. This is partly because there is no equivalent to the RES, which provides a convenient proxy for MAC in the form of REC prices, and partly because the measures and practices for abating emissions from these sectors are not as well studied and understood relative to the electricity sector.

It is very likely that the marginal costs of abatement from these sectors will be much greater than those from the electricity sector. This is demonstrated by the New England-based MAC estimate for multiple sectors, which assumes the marginal technology will be renewable natural gas, with a GHG value of $493/short ton and 19.72¢/kWh, as presented in Table 2. This is likely to be a more accurate estimate of the MAC for *all sectors* in Rhode Island to meet the requirements of the Act on Climate, even though the marginal cost for the electricity sector is much lower.

Given all these points, we recommend that the that value of GHG emissions described above for the electric sector be used for the gas and other fossil fuel impacts as well. This will clearly understate the value of reducing GHG emissions from these sectors but it represents a reasonable proxy for the *EE Plan*.

Q. WHAT ASPECTS OF THE *EE PLAN* WOULD YOUR RECOMMENDATIONS AFFECT?

A. This recommendation would affect the following aspects of the *EE Plan*:

- Application of the RI Test. The cost of procuring RECs for the current RES should be added to this calculation, as a utility system benefit from avoiding costs of complying with environmental regulations. The non-embedded GHG emissions values should be removed from this calculation.
- Estimates of the cost of supply. The same adjustments above should apply to the cost of supply as well.
- The PIM-eligible benefits. The avoided cost of procuring RECs for the current RES should be added to the PIM-eligible benefits because these are utility system benefits.
- The rate and bill impact analysis. The cost of procuring RECs for the current RES should be added to the price forecasts for both the case *without* energy efficiency programs and the case *with* the programs.

Q. DO YOU HAVE ANY CONCLUDING REMARKS ON THIS ISSUE OF VALUING GHG EMISSIONS?

A. Yes. This is clearly an important and complex issue that has multiple impacts on energy efficiency plans and should affect the cost-effectiveness analysis of other utility investments as well. It deserves more attention than what can be provided at this point in the review of the *EE Plan*. We recommend that this issue be addressed in more detail in early 2023, to provide more robust and vetted assumptions for the next *EE Plan* which also happens to be a three-year plan. The outcome of this discussion should be applied to the benefit-cost analyses of other utility investments as well.

6. BUDGETS

Q. PLEASE SUMMARIZE THE *EE PLAN* BUDGETS PROPOSED BY THE COMPANY.

A. The proposed electric budget is decreasing from $108.7 million in 2022 to $105.5 million in 2023, a decrease of $3.1 million dollars or 2.9 percent. The proposed gas budget is increasing from $36.91 million in 2022 to $36.95 million in 2023, an increase of $43,000 dollars or 0.1 percent. The proposed *2023 EE Plan* electric and gas budgets represent a 2.1 percent decrease from the *2022 EE Plan* electric and gas budgets and is in conformance with the Commission's guidance in Order 24225. Table 3 provides this budget summary.

Table 3. Budget Summary

	2022 Plan	2023 Plan	Difference (2023 vs. 2022)	% Difference (2023 vs. 2022)
Electric	$ 108,671,300	$ 105,519,200	$ (3,152,100)	-2.9%
Gas	$ 36,906,000	$ 36,948,800	$ 42,800	0.1%
Total	$ 145,577,300	$ 142,468,000	$ (3,109,300)	-2.1%

In the proposed electric budget, the Company Incentive is increasing 3 percent and the Non-Income Eligible Residential, Income Eligible Residential, Commercial & Industrial and Regulatory budgets are decreasing by 1.9 to 5.9 percent. The Regulatory and Non-Income Eligible Residential components are decreasing a greater percentage than the Commercial and Income Eligible Residential components. Table 4 provides a more detailed budget breakout for the electric portfolio.

Table 4. Electric Budget Breakout

Electric	2022 Plan	2023 Plan	Difference (2023 vs. 2022)	% Difference (2023 vs. 2022)
Non-Income Eligible Residential	$ 32,857,400	$ 31,371,200	$ (1,486,200)	-4.5%
Income Eligible Residential	$ 16,814,300	$ 16,331,300	$ (483,000)	-2.9%
Commercial & Industrial	$ 49,564,100	$ 48,626,000	$ (938,100)	-1.9%
Regulatory	$ 6,045,400	$ 5,689,500	$ (355,900)	-5.9%
Company Incentive	$ 3,390,200	$ 3,501,200	$ 111,000	3.3%
Total	$ 108,671,400	$ 105,519,200	$ (3,152,200)	-2.9%

In the proposed gas budget, the Company Incentive is decreasing 20 percent, the Income Eligible Residential, Commercial & Industrial and Regulatory budgets are decreasing by 2.9 to 7.1 percent, and the Non-Income Eligible Residential budget is increasing by 8.7 percent. Table 5 provides a more detailed budget breakout for the gas portfolio.

Table 5. Gas Budget Breakout

Gas	2022 Plan	2023 Plan	Difference (2023 vs. 2022)	% Difference (2023 vs. 2022)
Non-Income Eligible Residential	$ 14,875,000	$ 16,171,400	$ 1,296,400	8.7%
Income Eligible Residential	$ 9,317,600	$ 8,658,600	$ (659,000)	-7.1%
Commercial & Industrial	$ 9,435,800	$ 9,160,700	$ (275,100)	-2.9%
Regulatory	$ 2,277,600	$ 2,162,900	$ (114,700)	-5.0%
Company Incentive	$ 1,000,000	$ 795,200	$ (204,800)	-20.5%
Total	$ 36,906,000	$ 36,948,800	$ 42,800	0.1%

Q. WHAT IS THE DIVISION'S POSITION ON THE BUDGET PROPOSED IN THE *EE PLAN*?

A. The Division does not believe that the Company will end up spending its proposed electric budget in 2023. Table E-1 projects a year-end fund balance of over $32 million, coming exclusively from the Commercial and Industrial (C&I) sector. There is nothing in the record that convinces the Division that a similar year-end balance will not result next year.

The Division agrees with the Company that it has a responsibility to collect from customers only what it will use this calendar year. This becomes even more critical now that Rhode Island ratepayers find themselves faced with historically high electricity and gas rates. The Division also agrees that there has been consistent and significant underspending relative to proposed budgets since the pandemic. The *2020 EE Plan* had a year-end balance of almost $23 million, the *2021 EE Plan* had a year-end balance of over $20 million, and as mentioned above, the *2022 EE Plan* has a projected year-end balance of over $32 million. The Company states that the Acquisition has brought in new

leadership with a renewed focus on executing on planned budgets and that its proposed budget is based on realistic expectations. However, the Company has not convinced the Division that this coming year will be any different from previous pandemic years, including the *2022 EE Plan*. In the Division's opinion, the ripple effects of inflation, workforce shortages, and supply chain issues will likely have the same impact on the *2023 EE Plan* that it did on the *2020, 2021, and 2022 EE Plans*.

The Division recommends that the electric implementation budget be funded at 90 percent of the Company's proposed electric implementation budget of $102 million or $92 million. This recommendation is consistent with the historical data from the past few *EE Plans* during the pandemic. The Company spent 83 percent of its electric implementation budget of $106 million or $88 million in the *2020 EE Plan*. The Company spent 85 percent of its electric implementation budget of $111 million or $94.5 million in the *2021 EE Plan*. In the *2022 EE Plan*, the Company submitted a Second Quarter Report projecting year-end forecast spend of 91 percent of its $105 million electric implementation budget or $95.6 million. The average spend on the electric side of the *EE Plans* over the course of the pandemic years is about $92.7 million with the average percentage of actual budget spend to proposed budget at 86 percent. Based on these historical numbers, the Division recommendation is a reasonable one. It is also important to note that if the Company succeeds in spending more than the Division's recommended $92 million, the plan has built-in guidelines for notifying the Division and/or the Commission of an overspend. The Company followed these exact same

guidelines when it requested and received support from the Division for the $4.5 million gas-side overspend ($5 million with the performance incentive included) in the *2021 EE Plan*.

Q. DOES THE DIVISION HAVE CONCERNS REGARDING TRENDS IN THE EE PROGRAM OVERALL?

A. Yes, the Division is concerned with the dramatic decreases in MWh annual and lifetime savings and overall cost per dollar of electric savings for ratepayers. For example, in the *2010 EE Plan* budget was $27.7 million, the MWh annual savings were 81,275, the MWh lifetime savings were 929,242, which translated to an overall cost to ratepayers of $0.23 to gain $1 of benefits. In the *2023 EE Plan*, the proposed budget is $105.5 million, the projected MWh annual savings are 99,358, the MWh lifetime savings are 685,209, which translates to an overall cost to ratepayers of $1.03 for every $1 of benefits. While the Division acknowledges other benefits such as reduced carbon emissions and economic development, which continue to make these programs cost-effective as required by the LCP statute and instrumental to the goals of the Act on Climate, the Division cannot ignore the fact that ratepayers are spending more and more on energy efficiency while at the same receiving less and less direct benefits.

7. COST OF SUPPLY

Q. PLEASE SUMMARIZE THE UPDATE TO THE COST OF SUPPLY CALCULATION PROPOSED BY THE COMPANY FOR THE *EE PLAN*.

A. The Company proposes to include only those non-energy impact benefits associated with income eligible rate discounts and reductions in arrearages in its calculation of the cost of supply.

Q. WHAT IS THE DIVISION'S POSITION ON THE PROPOSED UPDATE TO THE COST OF SUPPLY.

A. The Division supports the proposed updates to the cost of supply as these costs are utility system costs.

8. PERFORMANCE INCENTIVE MECHANISM

Q. PLEASE SUMMARIZE THE INCENTIVE MECHANISM PROPOSED BY THE COMPANY FOR THE *EE PLAN*.

A. The Company has mostly adopted the same incentive mechanism that was approved by the Commission for the *2022 EE Plan*. In Order 24225, issued on September 21, 2021 as part of Docket 5076, the Commission updated the energy efficiency performance incentive framework to better incentivize the Company to meet Rhode Island's goals while balancing ratepayer costs. Order 24440, issued on July 11, 2022 as part of Docket 5189, the Commission, approved the incentive mechanism for the *2022 EE Plan* and updated the payout rates to reflect the updated PIM-eligible net benefits of the *2022 EE*

Plan. The *2023 EE Plan* incentive put forth by the Company is generally consistent with the guidance laid out in these two orders and presents updates to the target incentive pools and the service quality adjustments to reflect changes in projected net benefits in the plan.

Q. HAS THE COMPANY PROPOSED ANY MODIFICATIONS TO THE INCENTIVE MECHANIM APPROVED BY THE COMMISSION FOR THE *2022 EE PLAN*?

A. Yes. The Company proposes removing legislatively mandated transfers to the Rhode Island Infrastructure Bank (RIIB) and the Office of Energy Resources (OER) from PIM-eligible costs. The Company claims that these costs do not directly influence Company investments.[7]

Q. WHAT IS THE DIVISION'S POSITION ON THE COMPANY'S PROPOSAL TO REMOVE THE RIIB AND OER BUDGETS FROM THE PIM-ELIGIBLE COSTS?

A. The Division supports this modification. The Company has no control over these costs, and they do not directly influence the Company's implementation of the energy efficiency programs. Therefore, these costs should not be included in the incentive mechanism.

[7] 2023 EE Plan, page 65.

Q. PLEASE SUMMARIZE THE TARGET INCENTIVES THAT THE COMPANY COULD POTENTIALLY EARN FROM THE *EE PLAN.*

A. The incentive mechanism for the electric and gas programs for 2023 are summarized in Table 6 and Table 7.

Table 6. Summary of Company Incentives - Electric ($000)

	Eligible Costs	Eligible Benefits	Eligible Net Benefits	Payout Rate	Target Incentive
Non-Income Eligible Residential	$ 29,683	$ 36,594	$ 6,911	10%	$ 698
Income Eligible Residential	$ 16,615	$ 8,431	$ (8,184)	25%	$ -
Commercial & Industrial	$ 43,174	$ 70,910	$ 27,736	10%	$ 2,803
Total	$ 89,472	$ 115,935	$ 26,463	13%	$ 3,501

Table 7. Summary of Company Incentives – Gas ($000)

	Eligible Costs	Eligible Benefits	Eligible Net Benefits	Payout Rate	Target Incentive
Non-Income Eligible Residential	$ 16,892	$ 13,040	$ (3,852)	25%	$ -
Income Eligible Residential	$ 9,379	$ 3,390	$ (5,990)	25%	$ -
Commercial & Industrial	$ 9,817	$ 15,986	$ 6,170	12%	$ 722
Total	$ 36,088	$ 32,416	$ (3,672)	0%	$ 722

Q. HOW DO THE PROPOSED 2023 TARGET INCENTIVE POOLS COMPARE WITH THE 2022 TARGET INCENTIVE POOLS?

A. The proposed 2023 electric program target incentive pool equals $3,501,153, which is $110,988 *greater than* the incentive pool in 2022 due to an increase in projected net benefits. The 2023 gas program target incentive pool is set at $721,940, which is $278,060 *less than* the pool in 2022 due to a decrease in projected net benefits.[8] The

[8] 2022 EE Plan, page 66.

relevant metrics used to determine these incentive target pools are detailed in Table 6 and Table 7.

Q. WHAT IS THE DIVISION'S POSITION ON THE PROPOSED 2023 TARGET INCENTIVE POOLS.

A. The Division supports the proposed target incentive pools. In Docket 5189, the Division recommended that the target incentive pool should be revisited each year to ensure that it reflects the conditions of the new plan. In order 24445, the Commission was clear that the target incentive pool should be modified each year to reflect changes to the eligible net benefits of the program.[9]

The payout rates set the proportion of the eligible PIM benefits that can be used for the target incentive pool. If the payout rates are held constant from year to year, then the target incentive pool will automatically adjust to reflect the same proportion of the eligible net benefits.[10] The Company has held the payout rates constant since the *2022 EE Plan* and therefore has complied with the Commission's directive to reflect changes in the net benefits.[11]

[9] Order 24445, page 25.
[10] For those sectors with negative eligible net benefits, the payout rates do not affect the target incentive pool. For these sectors, the service quality adjustments determine the ultimate target incentive pool, as described below.
[11] Further, this approach results in target incentive pools that are 3.9% of the electricity program budgets and 2.0% of the gas program budgets, which is a reasonable outcome for this benchmark. This approach provides the Company with incentives equal to roughly 70 basis points for the electric program and 20 basis points for the gas program, which should be sufficient to motivate the Company to optimize the eligible net benefits of these programs.

Q. HOW DO THE PROPOSED 2023 SERVICE QUALITY ADJUSTMENTS (SQAS) COMPARE WITH THE 2022 SQAS?

A. The Non-Income Eligible Residential electric program is estimated to have positive PIM-eligible net benefits. Consequently, the Non-Income Eligible Residential program is not subject to an SQA in the *EE Plan*. This is a change from the *2022 EE Plan*, where this program had negative PIM-eligible net benefits and therefore was subject to an SQA.

For the Income-Eligible Residential electric program, which still has negative PIM-eligible net benefits, the Company proposes to reduce the maximum service adjustment from $443,300 in 2022 to $326,469 in 2023. This downward adjustment based on the percentage reduction in PIM-eligible benefits for this sector, relative to the *2022 EE Plan.*[12]

For the gas programs, the Company is proposing to reduce the maximum SQA for Income Eligible Residential from $171,275 in 2022 to $123,176 in 2023 and increase the maximum SQA for Non-Income Eligible Residential from $290,063 in 2022 to $344,262 in 2023. These adjustments are based on the percentage changes in the PIM-eligible benefits for these sectors, relative to the *2022 EE Plan*.[13]

[12] 2023 EE Plan, page 66.
[13] 2023 EE Plan, page 66.

Q. WHAT IS THE DIVISION'S POSITION ON THE PROPOSED 2023 SQAS?

A. The Division supports the proposed 2023 SQAs proposed by the Company. These adjustments are consistent with the Commission directives and reflect the changes to the PIM-eligible benefits relative to the *2022 EE Plan*.

9. RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

A. The Division recommends:

- An update to the value of GHG emission reductions to reflect the REC price forecast.
- Updates to the cost of supply, RI Test benefit-cost ratios, and rate and bill impacts to reflect the updated GHG emission reduction value.
- An update to the PIM-eligible benefits to incorporate the avoided cost of procuring RECs for the current RES.
- A working group in early 2023 to address the value of GHG emission reductions for the next EE Plan and other utility investments.
- A reduction in the electric implementation budget to 90 percent of the Company's proposed electric implementation budget of $102 million or $92 million, consistent with the historical data from the past few EE Plans during the pandemic.

Q. DOES THIS CONCLUDE OF THE DIVISION'S DIRECT TESTIMONY?

A. Yes, it does.