Testimony of

Earnest White

Energy Futures Group

On Behalf of Conservation Law Foundation

March 13, 2023

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I. SUMMARY

Earnest White is a Senior Consultant with Energy Futures Group, Inc. and testifies on behalf of the Conservation Law Foundation regarding The Narragansett Electric Company's (d/b/a Rhode Island Energy) ("Narragansett" or the "Company") Portable Liquefied Natural Gas ("LNG") Vaporization Project at Old Mill Lane in Portsmouth, RI ("LNG Vaporization Project" or "Project"). He testifies to provide information to the Rhode Island Public Utilities Commission ("PUC") and Energy Facility Siting Board ("EFSB") regarding the Company's application for a license to operate the LNG Vaporization Project as a more permanent installation, rather than its current seasonal and transient deployment. His testimony presents the findings of his high-level review of the Company's petition, the alternatives presented, and the supporting analyses provided therein. His review finds that a license for the Company to operate Vaporization Project may be unnecessary to support demand on Aquidneck Island ("Aquidneck") beyond 2031. His testimony presents these findings and recommendations for an improved outcome, based on his expertise and experience, he testifies that licensing the LNG Vaporization Project is not likely to address the capacity constraint or capacity vulnerability as presented and analyzed by the Company in the instant application. He also testifies that the permanent siting of the LNG Vaporization Project, as opposed to continued seasonal operation of the equipment, may make achieving Rhode Island's emission reduction requirements more challenging. Thus, after review of the Company's application and supporting materials he recommends that should the EFSB grant a license to Narragansett to operate the LNG Vaporization Project, such a license be granted on the following conditions: (1) the Project should continue to be operated on a seasonal basis in

support of actual and reported transmission supply interruptions; (2) the Company should be required to invest and deploy non-infrastructure solutions identified by the Company's analysis in the Long-Term Capacity Report from 2020[1] and the analysis supporting the instant application, to address demand on Aquidneck Island; and (3) the Company should be required to produce a plan for implementation of the non-infrastructure programs referenced above, with annual reporting documentation that shall include information on usage of the LNG facility; (4) the license should require renewal before the end of the 2030/2031 heating season for continued operation thereafter.

The history of LNG at the Property began in 2001 when it was used for seasonal peak-shaving during the winter of 2001-2002. This site was needed while the permitting process was being completed for the Navy Yard LNG site. Currently the LNG Vaporization Project is a seasonal installation used to support gas supply in the region during times of system stress in winter on an ad hoc basis. The Vaporization Project is located on a five-acre parcel on Old Mill Lane in Portsmouth, Rhode Island (the "Site"). The recent mobilizations of the LNG Vaporization Project have occupied approximately 0.7 acres of the Site. The improvements submitted for approval in the Company's Application would develop an additional approximately 0.9-acre portion of the Site to provide access to and additional mitigation at the Site. The proposed Vaporization Project will improve the physical site where the LNG vaporization plant is deployed and increase the capacity throughput at Old Mill Lane, which Narragansett asserts will lead to faster and safer deployment of the LNG vaporization equipment when needed.

[1] National Grid, *Aquidneck Island Long-Term Gas Capacity Study* (2020) ("Long Term Capacity Report" or "LTCR"). Attached as EJW-2.

According to the Company's Application, the LNG Vaporization Project has been used in the summers of 2018 and 2021 to backup up the natural gas supply during the inspection of the transmission pipeline supplying the Island. The LNG Vaporization Project was also mobilized in January of 2019 following a loss of pressure on the interstate supply line to Aquidneck Island ("2019 Event"). The 2019 Event was investigated by Rhode Island's Division of Public Utilities and Carriers ("DPUC") and the U.S Department of Transportation's Pipeline and Hazardous Materials Safety Administration ("PHMSA").Recommendations were made by both entities to address reliability on Aquidneck Island – ranging from the LNG Vaporization Project to various non-infrastructure solutions to address demand on the island itself. Additionally, the reports found that the 2019 Event may have been anomalous, because it required three major disruptions occurring simultaneously to cause the supply disruption on Aquidneck Island. These disruptions were operational and related to infrastructure as well. It is our understanding of the PHMSMA Report that many, if not all, of the contributing factors were in the Company's control as well.[2]

The DPUC Report put forward recommendations to improve planning, and suggestions for mitigating supply disruptions in future on Aquidneck Island.[3] In its Energy Facility Siting Board Project Siting Report ("Siting Report") the Company provided analysis of the following alternatives to the proposed LNG Vaporization Project:[4] (1) Seasonal Portable LNG operation at a New Navy Site; (2) Permanent LNG at a New Navy Site; (3)

[2] *Events Contributing to Natural Gas Outages on National Grid's Distribution System in Newport, Rhode Island*. PHMSA, August 2019. ("PHMSA Report") at 24.
[3] *Summary Investigation Into the Aquidneck Gas Service Interruption of January 21, 2019*. Investigation Report. October 2019. DPUC. ("DPUC Report") at 8-9.
[4] Seasonal Portable LNG Operation on Company-owned property at Old Mill Lane.

LNG Barge; (4) Algonquin Reinforcement Project; (5) Non-Infrastructure Solutions; (6) Non-Infrastructure solutions to address capacity constraint only; (6) the Company also considered several other alternatives that were ruled out.[5]

II. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, title and employer.

A. My name is Earnest White. I am a Senior Consultant at Energy Futures Group, located at 10298 Route 116, Hinesburg, Vermont, 05461.

Q. Please describe Energy Futures Group.

A. Energy Futures Group ("EFG") is a clean energy consulting firm established in 2010. EFG specializes in the design, implementation, and evaluation of energy efficiency and renewable energy programs and policies. EFG has worked on behalf of utilities and other program administrators, government and regulatory agencies, and environmental, low income, and affordable housing advocacy organizations in 40 states and Canadian provinces, as well as several countries in Europe. EFG's recent work includes analysis of Rhode Island's investments in gas infrastructure, expert testimony on a proposed gas supply contract before the New Hampshire Public Utilities Commission, expert testimony on three proposed gas company pilots in Illinois, modeling and development of pathways for Vermont to achieve its emission reduction requirements, and analysis and strategic planning support for the Connecticut Energy Efficiency Board, the Rhode Island Energy Efficiency and Resource Management Council and the Massachusetts Energy Efficiency

[5] Aquidneck Island Gas Reliability Project, Old Mill Lane, Portsmouth, RI, Prepared for the Narragansett Electric Company, VHB, Energy Facility Siting Board Project Siting Report section 4, April 2022 ("Siting Report").

Advisory Council and Department of Energy Resources. EFG also performs integrated resource plan ("IRP") modeling and critically reviews IRPs in over a dozen states, provinces, and territories. Our work in these jurisdictions involves either conducting our own simulations and/or reviewing modeling conducted using a wide variety of electric system modeling platforms.

Q. Please summarize your professional and educational experience.

A. As a Senior Consultant at EFG, I specialize in the development of policy and programs for promotion of renewable energy, the economic analysis of utility proposals, and utility planning. I have extensive expertise in policy and planning from work as a consultant, and as a Principal Utilities Policy Specialist on the staff of the Virginia State Corporation Commission. I have reviewed major utility proposals both on the gas and electric side. Prior to my time at the Virginia State Corporation Commission, I was a wholesale power markets forecasting analyst for ten years in the private sector.

I received an MBA with a focus on the Energy Business from the University of Tulsa in Tulsa, Oklahoma, and an undergraduate degree in both Economics and Political Science from Virginia Commonwealth University in Richmond, Virginia.

My resume, attached as Attachment EJW-1, presents a summary of my professional and educational experience.

Q. On whose behalf are you testifying in this case?

A. I am testifying on behalf of the Conservation Law Foundation ("CLF").

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide information to the PUC as it prepares its Advisory Opinion to the EFSB, which is considering the Company's Application for a License to Construct and Alter Major Energy Facilities ("Application") filed on May 19, 2021. Narragansett asserts that it currently operates the LNG Vaporization Project on a seasonal basis to support gas supply in the region during times of system stress in winter on an ad hoc basis. The Company submits this Applications in order to make certain improvements to the site used to deploy the LNG Vaporization Project on a more permanent basis. The Company asserts the improvements submitted for approval in the instant Application would improve the physical site where the LNG vaporization plant is deployed and increase the capacity throughput at Old Mill Lane, which Narragansett asserts will lead to faster and safer deployment of the LNG Vaporization Project in winter and when needed at other times of the year. The Company further improvements would also have the effect of decreasing noise pollution for surrounding communities.

Narragansett asks the EFSB for a license to operate the LNG Vaporization Project itself, rather than through a third party on an as-needed basis, as is currently done. In support of its Application Narragansett asserts the following: (1) the LNG Vaporization Project is necessary to meet the needs of the state and Aquidneck Island's natural gas distribution system; (2) the LNG Vaporization Project is cost-justified; (3) the mobilization and operation of the LNG Vaporization Project will not cause unacceptable harm to the natural or social environment and will enhance the socio-economic fabric of the state; and (4) the LNG Vaporization Project is the only viable location available for the Company to meet this need.

Specifically, my testimony addresses: (1) the continued operation of the LNG Vaporization Project on a seasonal, as-needed basis; (2) the alternatives to the LNG Vaporization Project considered by Narragansett; and (3) concerns with the estimated environmental impact of the LNG Vaporization Project.

Q: Have you previously testified in a regulatory proceeding before the PUC?

A: No.

Q. Have you previously filed testimony in a regulatory proceeding in other states?

A. Yes. As a Principal Utilities Policy Specialist at the Virginia State Corporation Commission, I filed and defended testimony numerous times on issues ranging from cost recovery and certification of new facilities to integrated resource planning for both electric and natural gas utilities. I have also filed testimony before the Kentucky Public Services Commission.

III. SUMMARY OF RECOMMENDATIONS

Q. Please summarize your primary conclusions and recommendations.

A. After review of the Company's Application, I recommend that should the EFSB grant a license to Narragansett to operate the LNG Vaporization Project, such a license be granted on the following conditions: (1) the Project should continue to be operated on a seasonal basis in support of actual and reported transmission supply interruptions; (2) the Company should be required to deploy solutions focused on energy efficiency and electrification incentives and programs to address demand on Aquidneck Island long term; and (3) the Company should be required to produce a plan for implementation of

the non-infrastructure programs referenced above, with annual reporting documentation that shall include information on usage of the LNG facility; (4) the license should sunset and the end of the 2030/2031 heating season as the Company's own analysis suggest that it could with an deployment of demand-side management ("DSM") and electrification.

The Company asserts the need for the LNG Vaporization Project is driven by customer demand on its gas distribution system during what it calls "capacity vulnerabilities" and "capacity constraints." My testimony demonstrates the Company's customers' demand on Aquidneck Island has not been more than the throughput to the island for some time. Further the 2019 Event could be characterized as a unique event unlikely to be repeated, according to the conclusions of the DPUC and PHMSA investigations into it. The Company's answers to discovery questions suggest the LNG Vaporization Project has been used for just four hours since the 2019 Event to support reliability on Aquidneck Island since 2019. The Company's analysis appears to suggest the LNG Vaporization Project would only be required through the 2030–2031 timeframe.

Further it is our understanding that the portable equipment can be mobilized and brought online relatively quickly. As such, the Company's license should limit the operation of the LNG Vaporization Project to those time when it is necessary to support the reliability on Aquidneck Island. Additionally, the Company should invest in non-infrastructure solutions such as DSM and electrification on Aquidneck Island to address needs of the island long-term and meet the emissions goals of the state of Rhode Island.

Q. What does the Company propose in its filings?

A. In this application the Company is seeking approval to site an operation comprising vaporization of up to 750 dekatherms per hour ("DTH/hr").[6] The Company proposes to expand the current Site on which the Company's LNG Vaporization Project is located to provide seasonal support to the gas supply on Aquidneck Island. The expansion will consist of physical upgrades to the site itself, and the LNG equipment used at the Site. The Company is asking the EFSB for a license to operate the facility.

Q. Please describe the current Site.

A. The LNG Vaporization Project is located on a five-acre parcel on Old Mill Lane in Portsmouth, Rhode Island. The recent mobilizations of the LNG Vaporization Project have occupied approximately 0.7 acres of the Site.

Q. Please describe the expansion proposed in the Application?

A. The improvements submitted for approval in the Company's Application would develop an additional approximately 0.9-acre portion of the Site to provide access to and additional mitigation at the Site. The proposed Vaporization Project will improve the physical site where the LNG vaporization plant is deployed and increase the capacity throughput at Old Mill Lane, which Narragansett asserts will lead to faster and safer deployment of the LNG vaporization equipment.

[6] Siting Report at 12.

IV. REVIEW OF COMPANY'S PROPOSAL

Q. How does the Company characterize operations at the LNG Project Site?

A. The Company asserts that beginning in November LNG equipment is delivered and setup at the Site. The LNG equipment will be expected to be fully operational by December 1 and taken out of service by April 1. Security and Company operations staff the Site full-time when LNG is on-site; and additional staff can be added when needed. The Company proposes the following installation to accommodate capacity constraints and provide ancillary support for capacity vulnerabilities during the winter heating season: a 750 Dth/hr water bath vaporizer, a backup vaporizer, and approximately 70,000 gallons[7] of LNG storage.

The Company is also asking that its license permit operations to support pipeline inspections and maintenance other activities that typically occur in the shoulder seasons, when expected demand for natural gas is low. In both instances, once the facility is out of service, the portable equipment is removed from the Site.

Q. Why is the Company seeking to expand the site?

A. The Company asserts that the Site's expansion is required for longer duration operation of the LNG Vaporization Project.[8] The proposed arrangement of the Project is designed to address neighborhood concerns and environmental considerations while also improving overall site safety and reducing neighborhood disturbances, according to the Company's Application.

[7] Five 13,000-gallon tanks.
[8] Siting Report at 17.

Q. How has the Company used the Site historically?

A. The Company asserts that it began using the Site in 2001 for seasonal peak shaving during the 2001-2002 heating season. The Site was used again in the summers of 2018 and 2021 to backup up the natural gas supply during the inspection of the transmission pipeline supplying Aquidneck Island. Between the two former instances was the 2019 Event. The Company states that during the prior two winters the Site has supported peak shaving and acted as a backup to the natural gas supply in event of a supply disruption.[9]

Q. Do you have any comments on the 2019 Event?

A. Yes. The 2019 Event could be characterized, based on the findings of the DPUC and PHMSA investigations[10] as a low probability, high impactevent – an event for which multiple systemic and operational failures were required. PHMSA summarized the sequence of events leading to the outage of Aquidneck Island in its report on the incident.[11] Many, if not most, of the conclusions of the PHMSA report indicate that the Company had control of the factors leading to 2019 Event.

[9] Siting Report at 16.
[10] The DPUC Report is attached as EJW-3. The PHMSA Report is available at https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/regulatory-compliance/pipeline/accident-investigation-division/72801/rhode-island-natural-gas-outages-summary-report-web.pdf.
[11] PHMSA Report at 24.

As the PHMSA Report demonstrates, the 2019 Event required a cascade of operational errors and malfunctions. It is likely had any one of these events not occurred 2019 Event would not have occurred either.[12] As stated, many of the factors that would prevent a similar catastrophic incident in the future are within the Company's control. As suggested by the PHMSA report the Company can address aspects of planning, operational control, and communication. Improvements in these areas would go a long way to addressing the asserted capacity vulnerability as a more durable long-term solution. The results of the scenario modeling done by PHMSA further illustrates how the required pressure of 100 pounds per square inch ("psi" or "psig") was maintained across a series of scenarios isolating the major events and is reproduced below as Table EJW-1.

[12] "If any one of the three factors (overtakes, NG LNG ESD, Weymouth meter configuration error) had not occurred, there would have been adequate pressure to maintain customers on Aquidneck Island." PHMSA Report at 24.

	NG LNG	Weymouth Meter	NG Providence G System Takes	Others G System Takes	Pressure @ Portsmouth Inlet*	Significance
Base Case	Down	Error	Actual	Actual	38 psig	Actual conditions
Scenario 1 - What if NG LNG did not fail?	Operating	Error	Est. takes assuming NG LNG is operational.	Actual	109 psig	The impact of NG LNG had the third most impact to the pressures at Portsmouth.
Scenario 2	Down	Error	Contract Limit	Actual	151 psig	Scenario 2 and 3 are an inverse of each other. Impact from overtakes by NG (54% of the volume) is about the same as the overtakes by the rest of the customers on the G system.
Scenario 3	Down	Error	Actual	Contract Limit	151 psig	
Scenario 4 - What if Weymouth did not fail?	Down	No Error	Actual	Actual	158 psig	The impact of the Weymouth meter configuration error was the second most impactful to the pressure at Portsmouth.
Scenario 5 - What if there were no overtakes?	Down	Error	Contract Limit	Contract Limit	221 psig	The greatest impact is due to customer overtakes on the G-System.
Scenario 6	Operating	No Error	Est. takes assuming NG LNG is operational.	Actual	211 psig	Demonstrates the impact of the overtakes irrespective of the malfunction of NG LNG and Weymouth.

Table EJW-1. Results of PHMSA Scenario modeling of the 2019 Event[13]

Q. The Company also states that growth in demand necessitates the LNG Vaporization Project, do you have any comments on the demand for natural gas on Aquidneck Island?

A. Yes. According to the Company's response to discovery, the maximum contracted offtake at Algonquin is 1,045 DTH/hr.[14] Additionally, the Company provided the historic demand at the Portsmouth Gate. Figure EJW-1, below, provides the first quarter peak demand, which is the highest peak demand for the Company at this station, from

[13] PHMSA at 22.
[14] TNEC Response to CLF 1-2.

2015 through 2019. As can be seen the general trend in demand for natural gas at the Portsmouth Gate has been declining since the peak of nearly 1,400 DTH/hr in 2017. Since 2018, demand at the Portsmouth Gate has not exceed 1,000 DTH/hr – this includes the 2019 Event. This underscores that the operation of the LNG Vaporization Project may be very limited if only used during times of capacity constraints.[15] Additionally, when taken in the context of the DPUC Report and PHMSA Report, it calls into the question the capacity constraint as a singular threat to reliability on Aquidneck Island. Last, as the trend in peak demand appears to be decreasing generally, a focus on non-infrastructure solutions could accelerate this trend, helping the state to accomplish its emissions reduction mandates, while decreasing the reliance on gas heating on the island over the long term.[16]

[15] The Company asserts the vaporization rate is driven by the need of approximately 181 Dth/hr for a projected supply shortfall based on its demand forecast starting in winter 2022/23. Siting Report at 12.
[16] The Company also states that some portion of the pipeline on Aquidneck Island is being uprated, from six-inch pipeline to twelve-inch pipeline. The Company asserts this will improve pressures in the pipeline between the Portsmouth M&R Facility on Old Mill Lane and its connection to the Algonquin Gas Transmission's system. *See* response to Middletown 2-4.

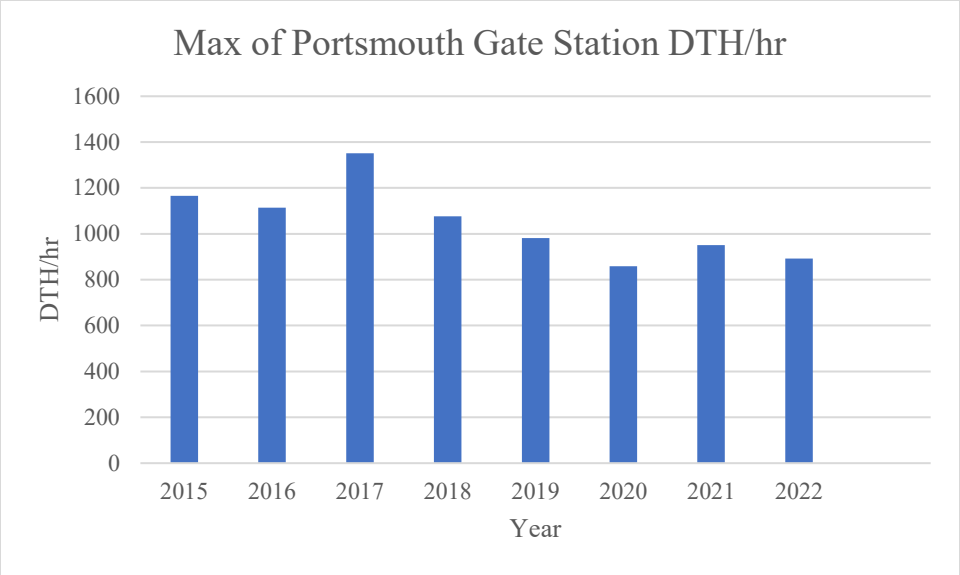

Figure EJW-1. Maximum Offtake at Portsmouth Gate Station 2015-2022[17]

Q. Did the Company present any analysis of the Greenhouse Gas Emissions related to the LNG Vaporization Project?

A. Yes. Witness James A. Olney conducted an analysis of the incremental greenhouse gas ("GHG") emission impact of the LNG Vaporization Project.

Q. Do you have any comments on witness Olney's analysis?

A. Yes. I would like to highlight some limitations, many discussed by witness Olney himself, to the GHG emissions study submitted in this docket. The results of witness Olney's analysis demonstrating the amount of carbon dioxide emissions abated in each scenario are reproduced below:

[17] TNEC Response to CLF 1-12. I omitted the data for 2023, because I assumed it was not fully populated.

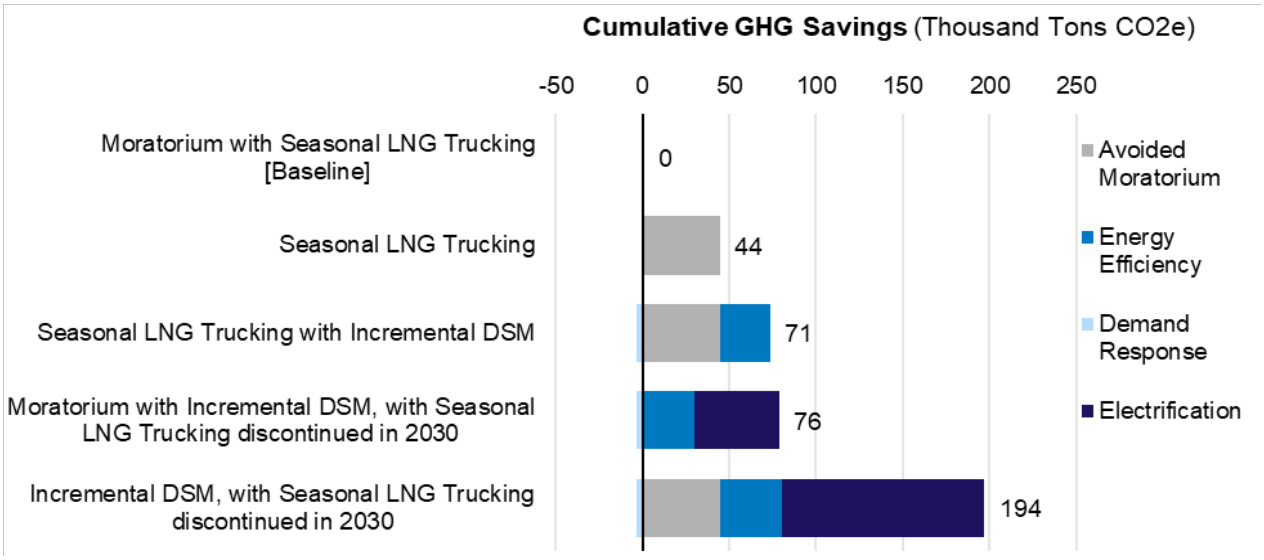

Figure EJW-2. Witness Onley GHG Emissions Analysis Results[18]

Witness Olney's analysis evaluates the LNG Vaporization Project's effect on GHG emissions based on the assumption of whether or not a moratorium on new gas connections exists, as well whether various non-infrastructure solutions are undertaken in conjunction.

The analysis in Figure EJW-2 starts with the hardcoded baseline assumption that the LNG Vaporization Project will be GHG emissions neutral. Thisis based on the assumption that the Project would only be operating at times when upstream supply has been curtailed on the transmission system.[19] That suggests that the Company's own analysis requires seasonal and limited operation of the Project in order for the GHG savings estimated by the Company to be achieved.

[18] Olney Direct at 6.
[19] *Id.* at 4.

Of more general concern is witness Olney's assumption that in the absence of natural gas supply, load growth on Aquidneck Island would be entirely met by fuel oil for heating purposes.[20] Witness Olney stated in his testimony that the assumption was made because at the time of his analysis, absent subsidies or incentives, the economics of heat pumps and electrification were prohibitive. However, with the passage of the *Inflation Reduction Act* ("IRA"), the economics of heat pumps have changed.[21] For instance, among other incentives that will likely increase the trend toward electrification, the IRA provides an eight-thousand-dollar rebate for customers purchasing a new efficient heat pump. This challenges the key assumption in Mr.Olney's analysis that in the event of a moratorium on new gas connections, 100% of potential gas customers on Aquidneck Island would choose fuel oil for heating. The subsidies in the IRA make what was already a tenuous assumption even more difficult to justify.[22]

Building on this concern Mr. Olney's analysis attributes GHG savings to avoiding a moratorium on new gas connections, which seems counterintuitive. Much of the abatement related to the avoided moratorium as estimated by Mr. Olney relies heavily on the assumption that use of fuel oil as an alternative to piped-natural gas is near universal. The GHG savings are related to the relative higher carbon intensity of fuel oil as compared to natural gas.

[20] Olney Direct at 7. It should be noted that the GHG abatement from DSM programs was estimated to be negative (increase GHG emissions); however, this analysis was based on the assumption that fuel oil use increased emissions beyond the ability of DSM to lower emissions.
[21] *Federal Income Tax Credits and Incentives for Energy Efficiency,* Energy Star, *available at* https://www.energystar.gov/about/federal_tax_credits (last accessed Feb 20, 2023).
[22] *See* Brattle Group, *Heating Sector Transformation in Rhode Island* 15-17 (2020), *available at* https://energy.ri.gov/sites/g/files/xkgbur741/files/documents/HST/RI-HST-Final-Pathways-Report-5-27-20.pdf (noting that in 2020, well before the passage of the RI, electricity was already "the primary heat source for about 9% of Rhode Island's residential customers and 13% of commercial square footage.") ("Brattle Report on Rhode Island Heating Sector"). Attached as EJW-4.

Q. Did Mr. Olney assume an end date for the operation of the LNG Vaporization Project in his analysis?

A. Yes. Two of the four scenarios modeled by witness Olney suggest the LNG trucking could end by 2030/2031.

Q. Do you have any comments on this assumption?

A. Yes. As discussed earlier in my testimony, the passage of the IRA likely brings forward several trends that will increase electrification and efficiency, ahead of Mr. Olney's schedule. For these reasons, I recommend that the EFSBmay want to consider , requiring renewal of the license before the end of the 2030/2031 heating season for continued operation thereafter.

Q. Can you expand on which parts of witness Olney's analysis may be impacted by the IRA?

A. Yes. The IRA will most directly impact witness Olney's assumptions related to electrification and energy efficiency. Additionally, there is a mandate that requires adoption of a certain mix of biofuel in fuel oil.[23]

Q. Have you evaluated how the IRA may impact the assumptions driving Mr. Olney's analysis in this proceeding?

A. Yes. While it is difficult to know what impact the IRA will have on heat pump electrification adoption rates on Aquidneck Island, as discussed earlier, the economics of adopting heat pumps have changed significantly with the IRA's passage.[24] To evaluate

[23] *See* RI Gen. Laws § 23-23.7-4. This law was amended in 2021 to require all No.2 distillate heating oil sold in Rhode Island to meet increasingly higher biodiesel and/or renewable hydrocarbon blends. State law now requires that No. 2 distillate heating oil meet a standard of B54 by July 1, 2021, B10 by July 1, 2023, B20 by July 1, 2025, and B50 by July 1, 2030.

[24] Additionally, the IRA mandates higher efficiency standards for heat pumps, which may abate increased emissions form the electric grid.

this, I adjusted witness Olney's assumptions related the number of customers switching to electricity in the preferred case and the seasonal LNG with incremental DSM case. In his baseline analysis, Mr. Olney assumed that no customers switched to electricity in place of natural gas, in these two cases.

Attempting to capture the bound of reasonableness, I assumed that in the Company's preferred case (Seasonal LNG Trucking) and the Seasonal LNG Trucking with Incremental DSM cases some level of customers will switch to electricity given the new IRA incentives. Mr. Olney assumed 0% of customers switched to electricity these cases in the baseline analysis. To match the cases that considered some electrification in the original analysis, the percentages of customers switching to electrification was increased to 20%.[25] Additionally, the level of heating and cooling turnover will increase from Mr. Olney's baseline assumption of 5% per year, to 10% per year. The results of these adjustments to witness Olney's analysis are presented below in Figure EJW-3.

Q. Please summarize your results.

A. Figure EJW-3 reproduces the results of the adjusted analysis. While high level, the adjusted analysis provides guidance on the IRA's impact to heat electrification adoption. The results suggest that non-infrastructure solutions may have a greater impact on GHG emission abatement, and correspondingly the demand for natural gas, and further dimmish the need for the LNG Vaporization Project.

[25] For the seasonal LNG Trucking with Incremental DSM case, the energy efficiency ramp-up length was also decreased to six from nine years, to reflect the incentives of the IRA.

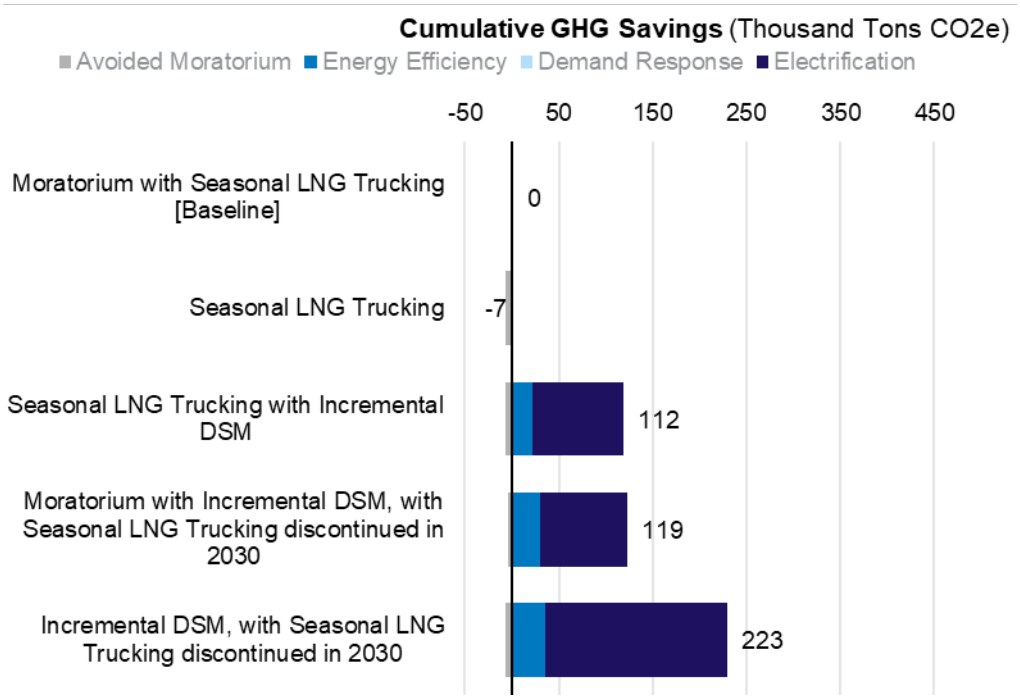

Figure EJW-3. IRA Scenario with Olney Scenario adjustment

Acknowledging that increased electrification's ability to reduce GHG is limited by the need to consider emissions that may result from increased use of electricity, I applied witness Olney's scenario analysis to my adjustments to account for increased emissions from the electricity sector.[26] I also applied Mr. Olney's assumption recognizing the impact of the biofuel fuel mixing mandates that I referred to earlier.

[26] I also added witness Olney's scenario for "Lower Fuel Oil Emissions," taking into account Rhode Island's standards on bio-fuel content mixture of fuel oil in future years.

Q. How do the emissions of the Company's preferred solution in Mr. Olney's analysis compare to your analysis?

A. In my adjusted analysis, the Company's preferred solution would increase GHG emissions by approximately 7 million tons per year when compared to an option focused on a moratorium and non-infrastructure solutions.

V. ALTERNATIVES TO PERMANENT SITING OF THE VAPORIZATION PROJECT

Q. Please describe the alternatives the Company considered to the permanent siting of the LNG Vaporization Project.

A. In its Siting Report the Company provided analysis of the following alternatives to the proposed LNG Vaporization Project:[27] (1) Seasonal Portable LNG operation at a New Navy Site; (2) Permanent LNG at a New Navy Site; (3) LNG Barge; (4) Algonquin Reinforcement Project; (5) Non-Infrastructure Solution; (6) Non-Infrastructure solutions to address capacity constraint only; (6) the Company also considered several other alternatives that were ruled out.[28]

Q. Do you have any comments on the Company's analysis of potential alternatives to the permanent siting of the LNG Vaporization Project?

A. Yes, I have several concerns with the way the non-infrastructure options have been evaluated and presented. The direct testimony of Company witness Ms. Porcaro indicates that the alternatives considered were all "*more expensive than the Project, did*

[27] Seasonal Portable LNG Operation on Company-owned property at Old Mill Lane.
[28] Siting Report at section 4.

not provide the operational advantages of being located next to the take station, or would take several years to implement during which the proposed project would be needed."[29]

Beyond this cursory dismissal, Ms. Porcaro's testimony, does not discuss or provide estimates of the costs for alternative solutions.

For more detail on alternative solution costs one needs to refer to the April 2022 Project Siting Report and LTCR. Figure EJW-4 presents a summary comparison of the non-infrastructure cost estimates from these two documents.

[29] Testimony of Witness Julie M. Porcaro at 9, lines 6-8.

As illustrated below the resulting cost estimates for non-infrastructure vary widely. The first 6 columns on the left side of Figure EJW-5 illustrate estimates from sections 4.7 and 4.8 of the April 2022 Siting Report. The two bars on the right side of the graphic illustrate cost estimates from the LTCR report. This figure illustrates how the Company's inconsistent approach (on use of discounted costs) and tests (utility cost test or Rhode Island Test), creates a broad and confusing range of estimates for non-infrastructure alternatives.

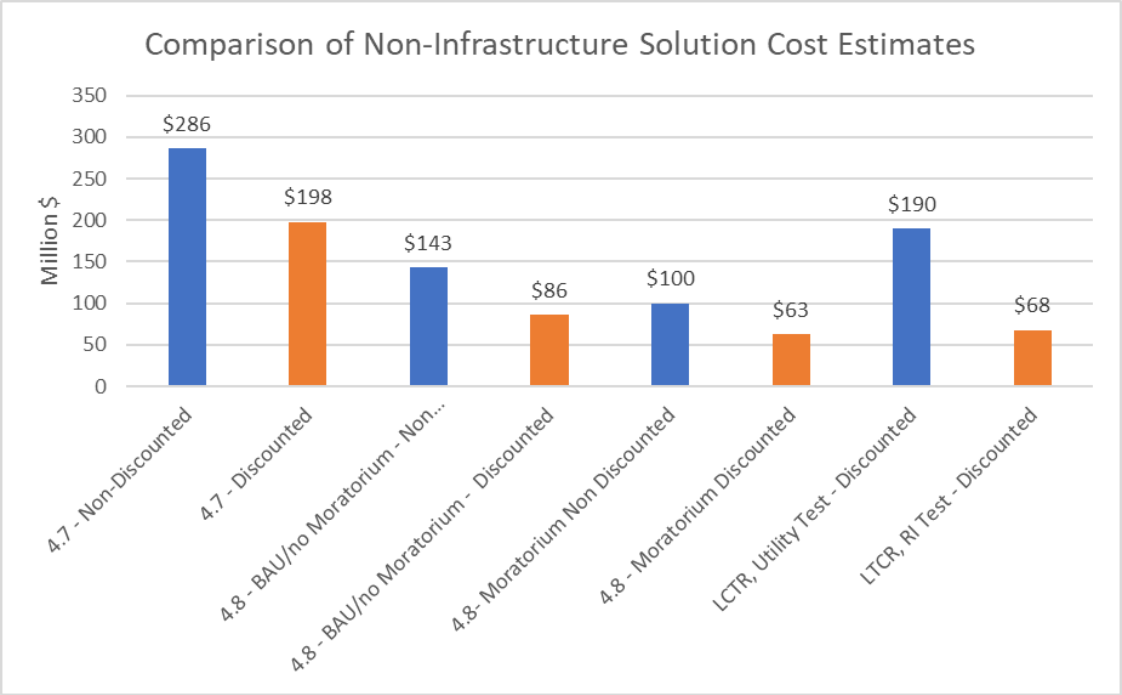

Figure EJW-4. Comparison of Company's Non-Infrastructure Cost Estimates

In their narrative presentation and comparison of non-infrastructure alternatives the Company consistently focuses on the higher estimates, which are based on non-

discounted costs, and the utility cost test.[30] These higher estimates are represented by the blue columns in Figure EJW-4.

Both cause concern. When comparing alternatives with future year savings and costs, it is fundamental and appropriate to use discounted costs and benefits. In the Siting Report, the Company relegates the discounted cost results to footnotes.[31] The Company's presentation and primary use of non-discounted results muddies the water, and it is not a helpful or valid basis for comparison.

Second, to properly understand and evaluate the comparative value of long-lived energy investment alternatives the Rhode Island Benefit Cost Test ("RI Test") should be used instead of the Utility test. As the names imply, the RI test provides a more comprehensive comparison of the societal costs and benefits of alternatives by including both customer and utility costs and savings. The Company is required to use the RI Test for Efficiency Program Plan Filings[32], and the RI Test is used and discussed in the 2020 LTCR study. However, the more recent 2022 Siting Report (columns labeled 4.7 and 4.8 in Figure EJW-4 above) only examines alternative costs based on the utility cost test.

Q. What is the impact of using discounted values and the RI test to compare the costs of non-infrastructure alternatives?

[30] *See, e.g.*, Section 4.7.1, p. 34 of the Siting Report, and Table 4-1 on p. 38, both highlight the highest cost estimate of $286 Million.
[31] *See* Siting Report, footnotes 19, 20, and 21.
[32] *See, e.g.*, 2019 Rhode Island Test Description, http://rieermc.ri.gov/wp-contednt/uploads/2018/08/2019-eepp-attachment-4-ri-test-first-draft-external.pdf; 2020 Rhode Island Test Description, http://rieermc.ri.gov/wp-content/uploads/2019/09/2020-eepp-attachment-4-ri-test-third-draft.pdf.

A. Using discounted costs and benefits and the RI Test results in consistently and significantly lower costs for the non-infrastructure alternatives. This is illustrated in Figure EJW-4 by the orange columns representing the Company's own estimates of non-infrastructure costs are significantly lower when discounting and the appropriate cost test are applied.

Q. When discounted costs and the RI test are applied does the non-infrastructure alternative become the least-cost solution?

A. No, but as the cost for the non-infrastructure solutions become closer to those for the permanent development of the Vaporization facility at the Old Mill Lane site, it becomes more important to further examine how the alternatives can limit the time horizon over which the facility will be necessary and to make decisions to maximize the flexibility and optionality of future use of vaporization at the site.

Q. What other concerns does the Company raise over the non-infrastructure alternatives?

A. As mentioned above, the current filing's discussion of alternatives is very limited. Looking back, in the LTCR report the Company identifies a number of potential issues and barriers to non-infrastructure solutions, but these are mostly general in nature, and not backed up by analysis. For example, the Company identifies a concern that ramping up efficiency, demand response, and electrification on Aquidneck Island could undermine efforts elsewhere in the state and undermine the ability to meet gas demand reduction goals.[33] This assumes that the level of demand response and efficiency across the state is

[33] Siting Report at 35.

a zero-sum game and that increasing activity in one region must be balanced by a decline in activity elsewhere. This is a faulty premise, pre-supposing that the need, ability, and opportunity to grow electrification, demand response and efficiency statewide are not feasible.

Other potential barriers discussed in the LTCR include the potential transfer payments to customers on Aquidneck Island from elsewhere in Rhode Island, the potential need for electric distribution system upgrades, workforce development, and customer economics for electrification and weatherization. These are legitimate planning considerations, but the IRA and the Infrastructure Investment and Jobs Act ("IIJA") create significant potential to overcome these issues through Federal tax credits and direct incentives supporting efficiency, electrification, infrastructure development, and workforce development. Increased implementation of the efficiency, demand response, and electrification elements of the non-infrastructure alternative are consistent with the State's policy goals related to reduction of greenhouse gas emissions.[34]

Q. Does the Company acknowledge the potential for LNG at Old Mill Lane as a temporary solution along with increased non-infrastructure investments to meet needs in a flexible manner?

A. Yes. Quoting from the LTCR study, the Company states: "*The current temporary portable LNG solution at Old Mill Lane has advantages insofar as it addresses the*

[34] In Rhode Island's 2022 Climate Plan Update, the state's Executive Climate Change Coordinating Council ("EC4") ("EC4 Report") listed increased energy efficiency, increased use of electric heat pumps, and pursuit of other non-pipe alternatives which "seek alternative ways of providing thermal service to Rhode Islanders, rather than expanding and enforcing the fossil gas network" as priority actions for the thermal sector. EC4, Rhode Island 2022 Climate Update (2022), *available at* https://climatechange.ri.gov/media/1221/download?language=en. Attached as EJW-5.

capacity constraint and vulnerability needs at relatively low cost and its temporary nature provides flexibility in the midst of a clean energy transition for Rhode Island." [35]

Moreover, the Company also states that the capacity constraint can be mitigated by a variety of non-infrastructure solutions in its Siting Report.[36]

Q. Were there other alternatives to the permanent siting of the LNG Vaporization Project?

A. Among those were to: (1) improve gas long-range planning; (2) deploy LNG facilities on Aquidneck Island; (3) evaluate reinforcement of the Algonquin lateral pipeline serving Portsmouth; (4) implement demand response ("DR") initiatives on Aquidneck Island; (5) conduct scenario-based contingency and emergency response planning; (6) evaluate the feasibility of sectionalized gas districts in Newport; (7) establish a process for emergency mobilization of LNG; (8) create an outage mapping and tracking process; (9) conduct an after-action review process; (10) improve communications between Narragansett Electric and Algonquin; (11) appoint a Vice President to supervise the gas business for Rhode Island; and (12) implement the recommendations of the PHMSA report on the incident.[37]

VI. CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize your conclusions and recommendations for the Board.

A. After review of the Company's Application, I recommend that should the EFSB grant a license to Narragansett to operate the LNG Vaporization Project itself, such a license be

[35] LTCR at 5.
[36] Siting Report at 34-38.
[37] DPUC Report at 7-8.

granted on the following conditions: (1) the Project should continue to be operated on a seasonal basis in support of actual and reported transmission supply interruptions; (2) the Company should be required to deploy non-infrastructure solutions; and (3) the Company should be required to produce a plan for implementation of the non-infrastructure programs referenced above, with annual reporting documentation that shall include information on usage of the LNG facility; (4) the license should sunset and the end of the 2030/2031 heating season, unless reauthorized by the PUC and EFSB. The Company asserts the main need for the LNG Vaporization Project is to support demand and pressure in the distribution system during what it calls "capacity vulnerabilities" and "capacity constraints." My testimony has demonstrated the Company's customers' demand on Aquidneck Island has not been more than the throughput to the island. Further the 2019 Event was an event for which multiple systemic and operational failures were required.

Should the EFSB grant a license to Narragansett to operate the LNG Vaporization Project itself, I recommend that such a license be granted on the following conditions: (1) the Project should continue to be operated on a seasonal basis in support of actual and reported transmission supply interruptions; (2) the Company should be required to deploy non-infrastructure solutions; and (3) the Company should be required to produce a plan for implementation of the non-infrastructure programs referenced above, with annual reporting documentation that shall include information on usage of the LNG facility; (4) the license should sunset and the end of the 2030/2031 heating season, unless renewed before the end of the 2030/2031 heating season for continued operation thereafter.

Q. Does this conclude your testimony?

A. Yes, but I reserve the right to supplement my testimony as necessary.